## Signal Transformer

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## Standard and Custom Power Transformers



## The Signal Way of Doing Business... (Often imitated, but NEVER equalled)

At Signal Transformer, we are committed to providing the highest grade magnetics for customers who demand total reliability, on-time delivery and competitive pricing. Year after year, independent brand preference studies conducted by leading electronic trade journals, have shown that engineers and buyers consistently vote Signal as the No. 1 preferred source for magnetics.

For almost 40 years, we've led the magnetics industry with innovation, creativity, and reliability by:

- Pioneering and perfecting direct sales of off-the-shelf transformers and chokes to the user.
- Maintaining the largest inventories-over 1,000 different chokes and transformers in ranges from 1 VA to 10 KVA , available off-the-shelf for PRONTO shipment.
- Offering customized J.I.T. programs.
- Providing annual contract programs with the most competitive volume pricing.
- Obtaining the latest safety agency certifications including UL, CSA, VDE, IEC, EN


## Delivery Speed Without Equal

 PRONTO ${ }^{\text {sM }}$ (24-Hour Shipment)Our PRONTO shipment program is simple. We ship off-the-shelf products within 24 Hours, and, in
 most cases the same day! We are able to make this commitment because we match computerized inventory production schedules with industry requirements. Larger production orders are comfortably scheduled to meet J.I.T. or any delivery scheduling.
In fact, each year over 20,000 orders are shipped to satisfied customers, on-time, every time.

## Design and Construction Without Equal

Because we pride ourselves in listening to what our customers say, we at Signal have always been able to develop innovative, quality products that meet changing requirements. Our success is built on continuously addressing all current major concerns i.e. flammability, high temperature materials, and design criteria such as:

- Smaller size and weight


Typical example cross section: Model A41 (For example, see our MPI, HPI \& M4L Series)

- Better performance through improved volumetric efficiency (For example, see our M4L series)
- Higher isolation while eliminating crossovers of primary and secondary leads (For example, see our 14A series)
- Superior suppression of radiated magnetic field (For example, see our IF series)


## Technical Support Without Equal

With one of the industries largest staff of application engineers, supported by the latest CAD/CAM equipment, our engineering team responds quickly to your specific application needs, custom requirements, and your quotation requests. Please don't hesitate to call, write, or fax us direct.


## Quality Assurance Without Equal

Through years of extensive magnetics manufacturing experience, Signal has developed a unique, world-class Total Quality Program. This program embodies the latest state-of-the-art manufacturing processes and monitoring systems from first article inspection through 100\% electrical testing for key performance and safety parameters.


Custom Design Without Equal
At Signal, we've designed thousands of custom products, and may have already solved your problem. If not, we will! To make it easy to identify your specific requirements, we've included a Custom Magnetics Design Data Sheet in our catalog. Our design engineering team welcomes the opportunity to be of service.

## Terms and Conditions:

## How to Order

Simply call 516-239-5777 and ask to speak to one of our customer service representatives waiting to answer your inquiry. If you wish you may fax your order to our 24-hour fax line (516-239-7208) or mail your purchase order to 500 Bayview Avenue, Inwood, New York, 11096. If faxing or mailing your order please be certain to include your phone number so you can be reached if there are any questions concerning your order.

## Terms of Sale

Net 30 days to firms with acceptable D\&B rating. Unrated firms, please submit name of your bank and 3 major trade references. Other methods are: C.O.D. for any of our stock transformers, cash in advance for non-stock or custom transformers. We also accept MasterCard and Visa which saves the additional C.O.D. charges.


## Prices

Prices are published on our price sheet and are subject to change without notice.

## Extra Charges

All non-stock and custom transformer orders are subject to a set-up charge.

## Freight Policy

Orders are shipped FOB (point of origin). All UPS shipments are prepaid and freight charges will be added to your invoice. All other carriers are shipped freight collect unless we are otherwise instructed.

## Damaged Shipment

Transformers shipped are carefully packed in compliance with carrier requirements. Claims for loss or damage in transit must be made with the carrier by the customer within 15 days of delivery. All shipments should be unpacked and inspected immediately upon receipt. If damage does not become apparent until shipment is unpacked, make a request within 72 hours for inspection by the carrier's agent and file with the carrier. Any evidence of damage to packaging must be noted on the freight bill or carrier's receipt and signed by the carrier's agent. Failure to do this will result in the carrier refusing to honor the claim.

## Return Policy

You will find that the quality products purchased from Signal Transformer have been manufactured to give you the high level of quality you expect. Our goal has always been to make sure you are completely satisfied every time you do business with us. If a qualified reason exists, a Return Material Authorization will be given to you promptly and a replacement order will be processed immediately at the time of your call.

## Warranty

Signal products are warranted to be free of defects in materials and workmanship when operated within specified operating conditions. Contact Signal for specific warrantee, terms and conditions.

## Selector Chart

This selector chart was created to assist you in finding the corresponding page for the transformer needed for your application.
How to use: - Select type of unit required, i.e. printed circuit, chassis mount, etc.

- Select power range (more than one family may be available).
- Select voltage range (AC or DC voltage).
- Select agency approvals necessary, i.e., UL, CSA, VDE, UL1585, Class 2.
- Identify family and turn to corresponding page number.


## Printed Circuit Mount

| Power Range (VA) | Secondary Voltage Range | Agency Approvals | Family | Page \# |
| :--- | :--- | :--- | :--- | :--- |
| $2.5-10$ | $5 \mathrm{~V}-36$ VCT | UL, CSA, VDE | $14 \mathrm{~A}-\mathrm{R}$ | 12 |
| $20-56$ | $5 \mathrm{~V}-36 \mathrm{VCT}$ | UL, CSA, VDE | 14 A | 13 |
| $20-56$ | $5 \mathrm{VDC} \& \pm 12 \mathrm{VDC}$ or $\pm 15 \mathrm{VDC}$ | UL, CSA, VDE | 14 A Triple Output | 14 |
| $2-30$ | $5 \mathrm{~V}-230 \mathrm{VCT}$ | UL, CSA, VDE | $10-11$ |  |
| $2-48$ | $5 \mathrm{~V}-230 \mathrm{VCT}$ | UL, CSA | LP | 15 |
| $6-12$ | $5 \mathrm{VDC} \& \pm 12 \mathrm{VDC}$ or $\pm 15 \mathrm{VDC}$ | UL, CSA | MPL Triple Output | 19 |
| $1.1-36$ | $5 \mathrm{~V}-120 \mathrm{VCT}$ | ST/DST | 16 |  |
| $1.0-24$ | $5 \mathrm{~V}-120 \mathrm{VCT}$ | PC/DPC | 17 |  |
| $10-24$ | $5 \mathrm{VDC} \& \pm 12 \mathrm{VDC}$ or $\pm 15 \mathrm{VDC}$ | UL, CSA | MPC/DMPC Triple Output | 18 |
| $2.5-50$ | $12 \mathrm{~V}-24 \mathrm{~V}$ | CL2 | 20 |  |

Chassis Mount

| Power Range (VA) | Secondary Voltage Range | Agency Approvals | Family | Page \# |
| :--- | :--- | :--- | :--- | :--- |
| $250-900$ | $5 \mathrm{~V}-230 \mathrm{VCT}$ | UL, CSA | MPI | 7 |
| $2000-3500$ | $115 \mathrm{~V}-230 \mathrm{~V}$ | UL, CSA, VDE | HPI | 5 |
| $300-1000$ | 115 V | UL, CSA, VDE | M4L | 6 |
| $25-175$ | $5 \mathrm{~V}-230 \mathrm{VCT}$ | UL, CSA, VDE | A41 | 8 |
| $25-80$ | $5 \mathrm{VDC} \& \pm 12 \mathrm{VDC}$ or $\pm 15 \mathrm{VDC}$ | UL, CSA, VDE | A41 Triple Output | 9 |
| $2.4-100$ | $10 \mathrm{Vct-120Vct}$ | UL, CSA | $241 /$ DP241 | 22 |
| $30-100$ | $5 \mathrm{VDC} \& \pm 12 \mathrm{VDC}$ or $\pm 15 \mathrm{VDC}$ | UL, CSA | MT/DMT Triple Output | 23 |
| $25-80$ | 12V-24V | CL2 1585, Class 2 | 21 |  |

## Supplemental Magnetics

| Power Range (VA) | Secondary Voltage Range | Family | Page \# |
| :--- | :--- | :--- | :--- |
| $10-2000$ | $5 \mathrm{VCT}-80 \mathrm{VCT}$ | Rectifier Power | $24-26$ |
| $250-10,000$ | $104 \mathrm{~V}-240 \mathrm{~V}$ | Power Isolation | $28-29$ |
| $100-2000$ | $115 \mathrm{~V}-230 \mathrm{~V}$ | Auto Transformers | 30 |


| Inductance | Current | Family | Page \# |
| :--- | :--- | :--- | :--- |
| $.12-1000 \mathrm{mH}$ | $1.0-200 \mathrm{AMPS}$ | Chokes | 27 |

Greater Performance in Less Space and Weight


Signal's HPI transformers feature unique coil construction that complies with international safety standards and results in a smaller and lighter transformer.
General Specifications

- Power - 2000 VA to 3500 VA

■ Dielectric Strength - 4000VRMS Hipot
■ Primaries - Dual/tapped primaries (100V, 115V, 215V, 230V - $50 / 60 \mathrm{~Hz}$ )

- Secondaries - Series or parallel secondaries (115V or 230V)
- Electrostatic Shield - 5 mils thick copper foil
- Terminals - Screw type barrier strip
- Leakage - Leakage current meets medical applications
- Insulation - Class H insulation ( $180^{\circ} \mathrm{C}$ )

■ Flammability Rating - Bobbin material meets UL 94V0

## Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)
- VDE certified to VDE 0550 (File \#2994)
- TUV certified to IEC 950 (Lic \#R9373110.2)


| Part No. | $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | Secondary RMS Rating |  | Mechanical Dimensions |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Series | Parallel | L | W | H | A | ML | MW | Wgt |
| HPI-20 | 2000 | 230V @ 8.7A | 115V @ 17.4A | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.60^{\prime \prime} \\ 142.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.56^{\prime \prime} \\ 166.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.25^{\prime \prime} \\ 158.8 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.75^{\prime \prime} \\ 146.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.35^{\prime \prime} \\ 110.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & 41.3 \mathrm{lbs} \\ & 18.71 \mathrm{~kg} \end{aligned}$ |
| HPI-27 | 2750 | 230V @ 12.0A | 115V @ 24.0A | $\begin{gathered} \hline 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 6.23^{\prime \prime} \\ 158.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 6.56^{\prime \prime} \\ 166.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 6.25^{\prime \prime} \\ 158.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.75^{\prime \prime} \\ 146.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 4.98^{\prime \prime} \\ 126.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & 48.0 \mathrm{lbs} \\ & 21.77 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| HPI-35 | 3500 | 230V @ 15.2A | 115V @ 30.4A | $\begin{gathered} \hline 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 7.33^{\prime \prime} \\ 186.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 6.56^{\prime \prime} \\ 166.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.25^{\prime \prime} \\ 158.8 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.75^{\prime \prime} \\ 146.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 6.08^{\prime \prime} \\ 154.4 \mathrm{~mm} \end{gathered}$ | $\begin{aligned} & 62.4 \mathrm{lbs} \\ & 28.30 \mathrm{~kg} \end{aligned}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

## Greater Performance in Less Space



Signal's M4L transformer series is designed using low loss steel, high temperature magnet wire plus high temperature bobbins and shroud. These unique design features result in a smaller and lighter transformer for comparable power sizes.

## General Specifications

- Power - 300 VA to 1000 VA
- Dielectric Strength - 4000VRMS Hipot
- Primaries - Style M4L-1 (105V, 115V, 125V - $50 / 60 \mathrm{~Hz}$ )

Style M4L-2 (210V, 230V, 250V - $50 / 60 \mathrm{~Hz}$ )
Style M4L-3 (100V, 115V, 200V, 230V - $50 / 60 \mathrm{~Hz}$ )

- Secondary - Single secondary (115V)
- Terminals - Quick-connect / screw type terminals
- Leakage - Leakage current to meet UL 544
- Insulation - Class F insulation $\left(155^{\circ} \mathrm{C}\right)$
- Flammability Rating - Bobbin and shroud material meet UL 94V0


## Agency Standards

- UL recognized to UL 506 (File \#E63829)
- UL recognized to UL 544 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)
- VDE certified to VDE 0805 / EN 60950 (File \#1447)
- VDE certified to IEC 950


If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

High Performance with Greater Volumetric Efficiency


Signal's MPI transformers feature higher volumetric efficiency for improved performance compared to conventional $50 / 60 \mathrm{~Hz}$ transformers. They also incorporate international safety features which make them ideal for worldwide applications.
General Specifications

- Power - 200 VA to 900 VA
- Dielectric Strength - 4000VRMS Hipot

■ Primaries - Dual/tapped primaries (100V, 115V, 200V, $215 \mathrm{~V}, 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )

- Secondaries - Series or parallel secondaries
- Electrostatic Shield - 5 mils thick copper foil
- Terminals - Quick-connect/screw type terminals
- Leakage - Leakage current meets medical applications
- Insulation - Class F insulation ( $155^{\circ} \mathrm{C}$ )

Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)
- Designed to meet VDE 0805 and VDE 0550
- Designed to meet IEC 950


| Part No. | SECONDARY |  | Part No. | SECONDARY |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Series | Parallel |  | Series | Parallel |
| MPI-200-10 | 10VCT @ 20.0A | 5V @ 40.0A | MPI-200-28 | 28VCT @ 7.1A | 14V @ 14.2A |
| MPI-250-10 | 10VCT @ 25.0A | 5V @ 50.0A | MPI-250-28 | 28VCT @ 8.9A | 14V @ 17.9A |
| MPI-300-10 | 10VCT @ 30.0A | 5V @ 60.0A | MPI-300-28 | 28VCT @ 10.7A | 14V @ 21.4A |
| MPI-400-10 | 10VCT @ 40.0A | 5V @ 80.0A | MPI-400-28 | 28VCT @ 14.3A | 14V @ 28.6A |
| MPI-650-10 | 10VCT @ 65.0A | 5V @ 130.0A | MPI-650-28 | 28VCT @ 23.2A | 14V @ 46.4A |
| MPI-900-10 | 10VCT @ 90.0A | 5V @ 180.0A | MPI-900-28 | 28VCT @ 32.1A | 14V @ 64.2A |
| MPI-200-12 | 12VCT @ 16.7A | 6V @ 33.3A | MPI-200-36 | 36VCT @ 5.6A | 18V @ 11.2A |
| MPI-250-12 | 12VCT @ 20.8A | 6V @ 41.7A | MPI-250-36 | 36VCT @ 6.9A | 18V @ 13.8A |
| MPI-300-12 | 12VCT @ 25.0A | 6V @ 50.0A | MPI-300-36 | 36VCT @ 8.3A | 18V @ 16.7A |
| MPI-400-12 | 12VCT @ 33.3A | 6V @ 66.6A | MPI-400-36 | 36VCT @ 11.1A | 18V @ 22.2A |
| MPI-650-12 | 12VCT @ 54.2A | 6V @ 108.4A | MPI-650-36 | 36VCT @ 18.1A | 18V @ 36.2A |
| MPI-900-12 | 12VCT @ 75.0A | 6V @ 150.0A | MPI-900-36 | 36VCT @ 25.0A | 18V @ 50.0A |
| MPI-200-16 | 16VCT @ 12.5A | 8V @ 25.0A | MPI-200-40 | 40VCT @ 5.0A | 20V @ 10.0A |
| MPI-250-16 | 16VCT @ 15.6A | 8V @ 31.2A | MPI-250-40 | 40VCT @ 6.3A | 20V @ 12.6A |
| MPI-300-16 | 16VCT @ 18.8A | 8V @ 37.6A | MPI-300-40 | 40VCT @ 7.5A | 20V @ 15.0A |
| MPI-400-16 | 16VCT @ 25.0A | 8V @ 50.0A | MPI-400-40 | 40VCT @ 10.0A | 20V @ 20.0A |
| MPI-650-16 | 16VCT @ 40.6A | 8V @ 81.2A | MPI-650-40 | 40VCT @ 16.3A | 20V @ 32.6A |
| MPI-900-16 | 16VCT @ 56.3A | 8V @ 112.5A | MPI-900-40 | 40VCT @ 22.5A | 20V @ 45.0A |
| MPI-200-20 | 20VCT @ 10.0A | 10V @ 20.0A | MPI-200-48 | 48VCT @ 4.2A | 24V @ 8.3A |
| MPI-250-20 | 20VCT @ 12.5A | 10V @ 25.0A | MPI-250-48 | 48VCT @ 5.2A | 24V @ 10.4A |
| MPI-300-20 | 20VCT @ 15.0A | 10V @ 30.0A | MPI-300-48 | 48VCT @ 6.3A | 24V @ 12.6A |
| MPI-400-20 | 20VCT @ 20.0A | 10V @ 40.0A | MPI-400-48 | 48VCT @ 8.3A | 24V @ 16.7A |
| MPI-650-20 | 20VCT @ 32.5A | 10V @ 65.0A | MPI-650-48 | 48VCT @ 13.5A | 24V @ 27.1A |
| MPI-900-20 | 20VCT @ 45.0A | 10V @ 90.0A | MPI-900-48 | 48VCT @ 18.8A | 24V @ 37.5A |
| MPI-200-24 | 24VCT @ 8.3A | 12V @ 16.7A | MPI-200-230 | 230VCT @ 0.87A | 115V @ 1.7A |
| MPI-250-24 | 24VCT @ 10.4A | 12V @ 20.8A | MPI-250-230 | 230VCT @ 1.1A | 115V @ 2.2A |
| MPI-300-24 | 24VCT @ 12.5A | 12V @ 25.0A | MPI-300-230 | 230VCT @ 1.3A | 115V @ 2.6A |
| MPI-400-24 | 24VCT @ 16.7A | 12V @ 33.3A | MPI-400-230 | 230VCT @ 1.7A | 115V @ 3.4A |
| MPI-650-24 | 24VCT @ 27.1A | 12V @ 54.2A | MPI-650-230 | 230VCT @ 2.8A | 115V @ 5.6A |
| MPI-900-24 | 24VCT @ 37.5A | 12V @ 75.0A | MPI-900-230 | 230VCT @ 3.9A | 115V @ 7.8A |


| VA (Size) | L | W | H | ML | MW | WGT |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 200 | $\begin{gathered} 3.750^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 4.203^{\prime \prime} \\ 106.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.720^{\prime \prime} \\ 94.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.250 " \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} \hline 2.800 " \\ 71.1 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & 6.22 \mathrm{lbs} \\ & 2.82 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 250 | $\begin{gathered} 4.125^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.898^{\prime \prime} \\ 99.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.000^{\prime \prime} \\ 101.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.625^{\prime \prime} \\ 92.1 \mathrm{~mm} \end{gathered}$ | $\begin{array}{r} 2.601 " \\ 66.1 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & 6.76 \mathrm{lbs} \\ & 3.07 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 300 | $\begin{gathered} \hline 4.125^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 4.223^{\prime \prime} \\ 107.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 4.000^{\prime \prime} \\ 101.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 3.625^{\prime \prime} \\ 92.1 \mathrm{~mm} \end{gathered}$ | $\begin{array}{r} 2.915^{\prime \prime} \\ 74.0 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & 7.80 \mathrm{lbs} \\ & 3.54 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 400 | $\begin{gathered} 4.125^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.805^{\prime \prime} \\ 122.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.000^{\prime \prime} \\ 101.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.625^{\prime \prime} \\ 92.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.505^{\prime \prime} \\ 89.0 \mathrm{~mm} \\ \hline \end{gathered}$ | 9.82 lbs <br> 4.46 kg |
| 650 | $\begin{gathered} 5.250^{\prime \prime} \\ 133.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.430 " \\ 112.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.800 " \\ 121.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.500 " \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} \hline 3.415^{\prime \prime} \\ 86.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 14.83 \mathrm{lbs} \\ 6.73 \mathrm{~kg} \\ \hline \end{gathered}$ |
| 900 | $\begin{gathered} 5.250^{\prime \prime} \\ 133.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.197^{\prime \prime} \\ 132.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.800 " \\ 121.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.500 " \\ 114.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.205^{\prime \prime} \\ 106.8 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 19.84 \mathrm{lbs} \\ 9.01 \mathrm{~kg} \\ \hline \end{gathered}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

## All-4-One TM International Transformers Chassis Mount

## International Standards at Lower Cost and Better Performance


Signal's A41 transformers provide the high isolation, creepage and clearance necessary to comply with international safety standards.
General Specifications

- Power - 25 VA to 175 VA
- Dielectric Strength - 4000VRMS Hipot
- Primaries - Dual primaries ( $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondaries - Series or parallel secondaries
- Electrostatic Shield - Not necessary, dual bobbin construction
- Terminals - Solder lug / quick-connect type terminals
■ Leakage - Leakage current to meet UL 544
- Insulation - Class F insulation $\left(155^{\circ} \mathrm{C}\right)$
- Flammability Rating - Bobbin and shroud material meet UL 94V0


## Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)
- VDE certified to VDE 0805 / EN 60950 (File \#1448)
- VDE certified to IEC 950


| Part No. | $\begin{aligned} & \hline \text { VA } \\ & \text { (Size) } \end{aligned}$ | Secondary RMS Rating |  |
| :---: | :---: | :---: | :---: |
|  |  | Series | Parallel |
| A41-25-10 | 25 | 10VCT @ 2.5A | 5V @ 5.0A |
| A41-43-10 | 43 | 10VCT@ 4.3A | 5V @ 8.6A |
| A41-80-10 | 80 | 10VCT @ 8.0A | 5V @ 16.0A |
| A41-130-10 | 130 | 10VCT@13.0A | 5V @ 26.0A |
| A41-175-10 | 175 | 10VCT @ 17.5A | 5V @ 35.0A |
| A41-25-12 | 25 | 12.6VCT @ 2.0A | 6.3V @ 4.0A |
| A41-43-12 | 43 | 12.6VCT @ 3.4A | 6.3V @ 6.8A |
| A41-80-12 | 80 | 12.6VCT @ 6.3A | 6.3V @ 12.6A |
| A41-130-12 | 130 | 12.6VCT @ 10.3A | 6.3V @ 20.6A |
| A41-175-12 | 175 | 12.6VCT @ 14.0A | 6.3V @ 28.0A |
| A41-25-16 | 25 | 16VCT @ 1.6A | 8V @ 3.2A |
| A41-43-16 | 43 | 16VCT @ 2.7A | 8V @ 5.4A |
| A41-80-16 | 80 | 16VCT @ 5.0A | 8V @ 10.0A |
| A41-130-16 | 130 | 16VCT @ 8.1A | 8V @ 16.2A |
| A41-175-16 | 175 | 16VCT @ 11.0A | 8V @ 22.0A |
| A41-25-20 | 25 | 20VCT @ 1.25A | 10V @ 2.5A |
| A41-43-20 | 43 | 20VCT @ 2.2A | 10V @ 4.4A |
| A41-80-20 | 80 | 20VCT @ 4.0A | 10V @ 8.0A |
| A41-130-20 | 130 | 20VCT @ 6.5A | 10V @ 13.0A |
| A41-175-20 | 175 | 20VCT @ 8.8A | 10V @ 17.6A |
| A41-25-24 | 25 | 24VCT @ 1.0A | 12V @ 2.0A |
| A41-43-24 | 43 | 24VCT @ 1.8A | 12V @ 3.6A |
| A41-80-24 | 80 | 24VCT @ 3.3A | 12V@6.6A |
| A41-130-24 | 130 | 24VCT @ 5.4A | 12V @ 10.8A |
| A41-175-24 | 175 | 24VCT @ 7.3A | 12V @ 14.6A |
| A41-25-28 | 25 | 28VCT @ 0.9A | 14V @ 1.86A |
| A41-43-28 | 43 | 28VCT @ 1.5A | 14V @ 3.0A |
| A41-80-28 | 80 | 28VCT @ 2.8A | 14V @ 5.6A |
| A41-130-28 | 130 | 28VCT @ 4.6A | 14V @ 9.2A |
| A41-175-28 | 175 | 28VCT @ 6.25A | 14V @ 12.5A |
| A41-25-36 | 25 | 36VCT @ 0.7A | 18V @ 1.4A |
| A41-43-36 | 43 | 36VCT @ 1.2A | 18V @ 2.4A |
| A41-80-36 | 80 | 36VCT @ 2.2A | 18V @ 4.4A |
| A41-130-36 | 130 | 36VCT @ 3.6A | 18V @ 7.2A |
| A41-175-36 | 175 | 36VCT @ 4.8A | 18V @ 9.6A |
| A41-25-230 | 25 | 230VCT @ 0.11A | 115V @ 0.22A |
| A41-43-230 | 43 | 230VCT @ 0.19A | 115V @ 0.38A |
| A41-80-230 | 80 | 230VCT @ 0.35A | 115V @ 0.7A |
| A41-130-230 | 130 | 230VCT @ 0.57A | 115V @ 1.14A |
| A41-175-230 | 175 | 230VCT @ 0.76A | 115V @ 1.52A |


| Dimensions |  |  |  |  |  |  | Terminals | Mtg. Style | Mtg. Dim. |  | Mtg. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA (Size) | L | W | H | A | B | C |  |  | ML | MW |  |  |
| 25 | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.31^{\prime \prime} \\ 58.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .31^{\prime \prime} \\ 7.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .187^{\prime \prime} \\ 4.75 \mathrm{~mm} \\ \hline \end{gathered}$ | C | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | - | \#6 | $\begin{aligned} & 1.25 \mathrm{lbs} \\ & 0.57 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 43 | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.06^{\prime \prime} \\ 52.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.68^{\prime \prime} \\ 68.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .31^{\prime \prime} \\ 7.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .187^{\prime \prime} \\ 4.75 \mathrm{~mm} \\ \hline \end{gathered}$ | C | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | - | \#6 | $\begin{aligned} & 1.6 \mathrm{lbs} \\ & 0.73 \mathrm{~kg} \end{aligned}$ |
| 80 | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | - | $\begin{gathered} 1.37^{\prime \prime} \\ 35.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .31^{\prime \prime} \\ 7.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} .187^{\prime \prime} \\ 4.75 \mathrm{~mm} \\ \hline \end{gathered}$ | B | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \\ \hline \end{gathered}$ | \#6 | $\begin{aligned} & 2.8 \mathrm{lbs} \\ & 1.27 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 130 | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | - | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .37^{\prime \prime} \\ 9.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.25^{\prime \prime} \\ 6.35 \mathrm{~mm} \end{gathered}$ | B | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | \#8 | $\begin{aligned} & 4.1 \mathrm{lbs} \\ & 1.86 \mathrm{~kg} \end{aligned}$ |
| 175 | $\begin{gathered} \hline 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ |  | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} .37^{\prime \prime} \\ 9.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.25^{\prime \prime} \\ 6.35 \mathrm{~mm} \end{gathered}$ | B | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | \#8 | $\begin{aligned} & 5.5 \mathrm{lbs} \\ & 2.49 \mathrm{~kg} \end{aligned}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

## AII-4-One ${ }^{\text {TM }}$ International Triple Output Transformers • Chassis Mount

## For 5 VDC and $\pm 12$ VDC or $\pm 15$ VDC Regulated Power Supplies Which Require International Safety Certification



Signal's A41 triple output transformers have chassis mount capability plus all of the performance features of our split bobbin A41 series.
General Specifications

- Power -- 25 VA to 80 VA
- Dielectric Strength - 4000VRMS Hipot
- Primaries - Dual primaries ( $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ ) Input range ( 100 V to 130 V or 200 V to $260 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondaries - Dual complimentary outputs ( 5 VDC with $\pm 12$ VDC or 5 VDC with $\pm 15 \mathrm{VDC}$ )
- Electrostatic Shield - Not necessary, split bobbin construction
- Terminals - Solder lug/quick-connect type terminals
- Insulation - Class F insulation $\left(155^{\circ} \mathrm{C}\right)$
- Flammability Rating - Bobbin and shroud material meet UL 94V0

Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)
- VDE certified to VDE 0805 / EN 60950 (File \#4362)
- VDE certified to IEC 950
U

| Part Number | $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | DC Output |  | $\mathrm{C}_{1}$ |  | Suggested Components |  |  | $\mathrm{C}_{2} \mathrm{C}_{4}$ See Note ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Regulator I | Regulator II |  | $\mathrm{C}_{3}$ | IC1 ${ }^{3}$ | IC2 ${ }^{3}$ | IC3 3 ${ }^{\text {3 }}$ | D14 | D24 |
| A41-25-512 | 25 | 5V @ 1.25A | $\pm 12 \mathrm{~V}$ @ 150mA | $\begin{gathered} 4.1 \text { KMFD } \\ 15 \text { VDC } \end{gathered}$ | $\begin{gathered} 600 \text { MFD } \\ 50 \text { VDC } \end{gathered}$ | LM-323K-5 | LM-340K-12 | LM-320K-12 | PE20 | PF20 |
| A41-25-515 | 25 | 5V@1.25A | $\pm 15 \mathrm{~V}$ @ 130mA |  |  | LM-323K-5 | LM-340K-15 | LM-320K-15 | PE20 | PF20 |
| A41-43-512 | 43 | 5V @ 2A | $\pm 12 \mathrm{~V}$ @ 300mA | $\begin{aligned} & 8 \text { KMFD } \\ & 15 \text { VDC } \end{aligned}$ | $\begin{gathered} 1.1 \text { KMFD } \\ 50 \text { VDC } \\ \hline \end{gathered}$ | LM-323K-5 | LM-340K-12 | LM-320K-12 | PE20 | PF20 |
| A41-43-515 | 43 | 5V@2A | $\pm 15 \mathrm{~V}$ @ 250mA |  |  | LM-323K-5 | LM-340K-15 | LM-320K-15 | PE20 | PF20 |
| A41-80-512 | 80 | 5V @ 3.5A | $\pm 12 \mathrm{~V}$ @ 600mA | $\begin{gathered} 10 \text { KMFD } \\ 15 \text { VDC } \end{gathered}$ | $\begin{gathered} \text { 2.1 KMFD } \\ 50 \text { VDC } \end{gathered}$ | LM-338 ${ }^{2}$ | LM-340K-12 | LM-320K-12 | PP20 | PF20 |
| A41-80-515 | 80 | 5V @ 3.5A | $\pm 15 \mathrm{~V}$ @ 500mA |  |  | LM-338② | LM-340K-15 | LM-320K-15 | PP20 | PF20 |

Note (1): Output capacitors $C_{2}$ and $C_{4}$ are required to stabilize regulators. Values can be 1MFD min. tantalum or 10MFD min. electrolytic, 20 V min.
Note (2): LM-338 is an adjustable regulator and MFR's specifications (National Semiconductor) should be consulted for values of external components.
Note (3): All IC's are National Semiconductor types.
Note (4): All bridges are EDI types


| Dimensions |  |  |  |  |  |  | Terminal | Mtg. Style | Mtg. Dim. |  | Mtg. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA (Size) | L | W | H | A | B | C |  |  | ML | MW |  |  |
| 25 | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.3^{\prime \prime} \\ 58.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.31^{\prime \prime} \\ 7.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 0.187^{\prime \prime} \\ 4.75 \mathrm{~mm} \\ \hline \end{gathered}$ | C | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | - | \#6 | $\begin{aligned} & \hline 1.25 \mathrm{lbs} \\ & 0.57 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 43 | $\begin{array}{r} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.06^{\prime \prime} \\ 52.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.68^{\prime \prime \prime} \\ 68.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.31^{\prime \prime} \\ 7.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 0.187^{\prime \prime} \\ 4.75 \mathrm{~mm} \\ \hline \end{array}$ | C | $\begin{gathered} 2.81^{11} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | - | \#6 | $\begin{array}{r} 1.6 \mathrm{lbs} \\ 0.73 \mathrm{~kg} \\ \hline \end{array}$ |
| 80 | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | - | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 0.31^{\prime \prime} \\ 7.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} \hline 0.187^{\prime \prime} \\ 4.75 \mathrm{~mm} \\ \hline \end{array}$ | B | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \\ \hline \end{gathered}$ | \#6 | $\begin{array}{r} \hline 2.8 \mathrm{lbs} \\ 1.27 \mathrm{~kg} \\ \hline \end{array}$ |

## If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

For Critical Height and International Safety Requirements


Signal's IF transformers utilize unique insulating techniques, including full encapsulation to meet international safety requirements. These transformers are ideal for low power applications where minimum height is required.
General Specifications

- Power - 2 VA to 30 VA
- Dielectric Strength - 4000VRMS Hipot
- Primaries - Dual primaries ( $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondaries - Series of parallel secondaries
- Electrostatic Shield - Not necessary, split bobbin construction
- Magnetic Field - Reduced magnetic radiation
- Height -.69 to 1.39 inches ( 17.5 to 35.3 mm ) high
- Insulation - Class B insulation ( $130^{\circ} \mathrm{C}$ )


## Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)
- VDE certified to VDE 0805 / EN 60950 (File \#8325)
- VDE certified to IEC 950


| Part No. | $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | Secondary RMS Rating |  |
| :---: | :---: | :---: | :---: |
|  |  | Series | Parallel |
| IF-2-10 | 2 | 10VCT @ 200mA | 5V @ 400mA |
| IF-2-12 | 2 | 12VCT @ 170mA | 6V @ 340mA |
| IF-2-16 | 2 | 16VCT @ 125mA | 8V @ 250mA |
| IF-2-20 | 2 | 20VCT @ 100mA | 10V@ 200mA |
| IF-2-24 | 2 | 24VCT @ 85mA | 12V @ 170mA |
| IF-2-30 | 2 | 30VCT @ 70mA | 15V @ 140mA |
| IF-2-34 | 2 | 34VCT @ 60mA | 17V @ 120mA |
| IF-2-40 | 2 | 40VCT @ 50mA | 20V@100mA |
| IF-2-56 | 2 | 56VCT @ 40mA | 28V @ 80mA |
| IF-2-230 | 2 | 230VCT @ 9 mA | 115V @ 18mA |
| IF-4-10 | 4 | 10VCT @ 400 mA | 5V @ 800mA |
| IF-4-12 | 4 | 12VCT @ 335mA | 6V @ 670mA |
| IF-4-16 | 4 | 16VCT @ 250mA | 8V @ 500mA |
| IF-4-20 | 4 | 20VCT @ 200mA | 10V @ 400mA |
| IF-4-24 | 4 | 24VCT @ 170mA | 12V @ 340mA |
| IF-4-30 | 4 | 30VCT @ 135mA | 15V @ 270mA |
| IF-4-34 | 4 | 34VCT @ 120mA | 17V @ 240mA |
| IF-4-40 | 4 | 40VCT @ 100mA | 20V@ 200mA |
| IF-4-56 | 4 | 56VCT @ 70mA | 28V @ 140mA |
| IF-4-230 | 4 | 230VCT @ 18mA | 115V @ 36mA |
| IF-6-10 | 6 | 10VCT @ 600mA | 5V @ 1.20A |
| IF-6-12 | 6 | 12VCT @ 500mA | 6V @ 1.00A |
| IF-6-16 | 6 | 16VCT @ 375mA | 8V @ 750mA |
| IF-6-20 | 6 | 20VCT @ 300mA | 10V @ 600mA |
| IF-6-24 | 6 | 24VCT @ 250mA | 12V @ 500mA |
| IF-6-30 | 6 | 30VCT @ 200mA | 15V @ 400mA |
| IF-6-34 | 6 | 34VCT @ 180mA | 17V @ 360mA |
| IF-6-40 | 6 | 40VCT @ 150mA | 20V @ 300mA |
| IF-6-56 | 6 | 56VCT @ 110mA | 28V @ 220mA |
| IF-6-230 | 6 | 230VCT @ 25mA | 115V @ 50mA |


| VA (Size) | $\mathbf{L}$ | $\mathbf{W}$ | $\mathbf{H}$ | $\mathbf{M L}$ | MW | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | $2.09^{\prime \prime}$ | $1.73^{\prime \prime}$ | $0.69^{\prime \prime}$ | $1.87^{\prime \prime}$ | $1.48^{\prime \prime}$ | 4.60 m |
|  | 53.0 mm | 44.0 mm | 17.6 mm | 47.5 mm | 37.5 mm | 0.13 kg |
| 4 | $2.09^{\prime \prime}$ | $1.73^{\prime \prime}$ | $0.77^{\prime \prime}$ | $1.87^{\prime \prime}$ | $1.48^{\prime \prime}$ | 5.40 oz |
|  | 53.0 mm | 44.0 mm | 19.6 mm | 47.5 mm | 37.5 mm | 0.15 kg |
| 6 | $2.09^{\prime \prime}$ | $1.73^{\prime \prime}$ | $0.89^{\prime \prime}$ | $1.87^{\prime \prime}$ | $1.48^{\prime \prime}$ | 6.9 oz. |
|  | 53.0 mm | 44.0 mm | 22.6 mm | 47.5 mm | 37.5 mm | 0.20 kg |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

For Critical Height and International Safety Requirements (continued)


| VA (Size) | L | W | H | ML | MW | A | B | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10 | $\begin{gathered} 2.66^{\prime \prime} \\ 67.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.24^{\prime \prime} \\ 57.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.89^{\prime \prime} \\ 22.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.46^{\prime \prime} \\ 62.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 1.97^{\prime \prime} \\ 50.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.42^{\prime \prime} \\ 10.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.45^{\prime \prime} \\ 11.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 10.3 \mathrm{oz} \\ 0.29 \mathrm{~kg} \\ \hline \end{array}$ |
| 14 | $\begin{gathered} 2.66^{\prime \prime} \\ 67.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.24^{\prime \prime} \\ 57.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 0.96^{\prime \prime} \\ 24.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.46^{\prime \prime} \\ 62.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.97^{\prime \prime} \\ 50.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.42^{\prime \prime} \\ 10.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.45^{\prime \prime} \\ 11.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 11.9 \mathrm{oz} \\ 0.34 \mathrm{~kg} \\ \hline \end{array}$ |
| 18 | $\begin{gathered} \hline 2.66^{\prime \prime} \\ 67.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.24^{\prime \prime} \\ 57.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.09^{\prime \prime} \\ 27.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.46^{\prime \prime} \\ 62.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.97^{\prime \prime} \\ 50.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.42^{\prime \prime} \\ 10.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.45^{\prime \prime} \\ 11.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 14.1 \mathrm{oz} \\ 0.40 \mathrm{~kg} \\ \hline \end{array}$ |
| 24 | $\begin{gathered} 2.68^{\prime \prime} \\ 68.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.26^{\prime \prime} \\ 57.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.23^{\prime \prime} \\ 31.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.46^{\prime \prime} \\ 62.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 1.97^{\prime \prime} \\ 50.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.43^{\prime \prime} \\ 10.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.46^{\prime \prime} \\ 11.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 16.5 \mathrm{oz} \\ 0.47 \mathrm{~kg} \\ \hline \end{array}$ |
| 30 | $\begin{gathered} 2.68^{\prime \prime} \\ 68.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.26^{\prime \prime} \\ 57.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.39^{\prime \prime} \\ 35.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.46^{\prime \prime} \\ 62.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.97^{\prime \prime} \\ 50.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.43^{\prime \prime} \\ 10.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.46^{\prime \prime} \\ 11.5 \mathrm{~mm} \end{gathered}$ | $\begin{aligned} & 19.7 \mathrm{oz} \\ & 0.58 \mathrm{~kg} \end{aligned}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.
Signal Transformer

## One-4-Al/TM International Transformers Printed Circuit Mount

## International Standards at Lower Cost and Better Performance



| Part No. | $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | Secondary RMS Rating |  |
| :---: | :---: | :---: | :---: |
|  |  | Series | Parallel |
| 14A-2.5R-10 | 2.5 | 10VCT @ 0.25A | 5 V @ 0.50A |
| 14A-5.0R-10 | 5.0 | 10VCT @ 0.50A | 5 V @ 1.00A |
| 14A-10R-10 | 10.0 | 10VCT @ 1.00A | 5 V @ 2.00A |
| 14A-2.5R-12 | 2.5 | 12.6VCT @ 0.20A | 6.3V @ 0.40A |
| 14A-5.0R-12 | 5.0 | 12.6VCT @ 0.40A | 6.3 V @ 0.80A |
| 14A-10R-12 | 10.0 | 12.6VCT @ 0.80A | 6.3 V @ 1.60A |
| 14A-2.5R-16 | 2.5 | 16VCT @ 0.15A | 8V @ 0.30A |
| 14A-5.0R-16 | 5.0 | 16VCT @ 0.31A | 8 V @ 0.62A |
| 14A-10R-16 | 10.0 | 16VCT @ 0.62A | 8 V @ 1.25A |
| 14A-2.5R-20 | 2.5 | 20VCT @ 0.12A | 10V @ 0.24A |
| 14A-5.0R-20 | 5.0 | 20VCT @ 0.25A | 10V@ 0.50A |
| 14A-10R-20 | 10.0 | 20VCT @ 0.50A | 10V @ 1.00A |
| 14A-2.5R-24 | 2.5 | 24VCT @ 0.10A | 12V @ 0.20A |
| 14A-5.0R-24 | 5.0 | 24 VCT @ 0.21A | 12V@ 0.42A |
| 14A-10R-24 | 10.0 | 24VCT @ 0.42A | 12V @ 0.84A |
| 14A-2.5R-28 | 2.5 | 28VCT @ 0.09A | 14V @ 0.18A |
| 14A-5.0R-28 | 5.0 | 28VCT @ 0.18A | 14V@ 0.36A |
| 14A-10R-28 | 10.0 | 28VCT @ 0.36A | 14V @ 0.72A |
| 14A-2.5R-36 | 2.5 | 36VCT @ 0.07A | 18V @ 0.14A |
| 14A-5.0R-36 | 5.0 | 36VCT @ 0.14A | 18V@ 0.28A |
| 14A-10R-36 | 10.0 | 36VCT @ 0.28A | 18V @ 0.56A |


| $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | Dimensions |  |  |  |  |  | $\begin{gathered} \text { Sq. Pin } \\ \text { Dimensions } \end{gathered}$ | Mtg. Dim. | Mtg. Screw |  | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | L | W | H | A | B | C |  | M | Size | Qty |  |
| 2.5 | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 1.43^{\prime \prime *} \\ 36.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 0.200^{\prime \prime} \\ 5.08 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.250^{\prime \prime} \\ 6.35 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.000^{\prime \prime} \\ 25.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.025 " \\ 0.635 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.06^{\prime \prime} \\ 26.9 \mathrm{~mm} \\ \hline \end{array}$ | \#4 | 2 | $\begin{aligned} & \hline 0.25 \mathrm{lbs} \\ & 0.113 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 5.0 | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.43^{\prime \prime} \\ 36.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.200^{\prime \prime} \\ 5.08 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.400^{\prime \prime} \\ 10.16 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.000^{\prime \prime} \\ 25.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.025 " \\ 0.635 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.06^{\prime \prime} \\ 26.9 \mathrm{~mm} \\ \hline \end{gathered}$ | \#4 | 2 | $\begin{gathered} 0.37 \mathrm{lbs} \\ 0.168 \mathrm{~kg} \\ \hline \end{gathered}$ |
| 10.0 | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.56^{\prime \prime} \\ 39.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 0.200^{\prime \prime} \\ 5.08 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.400^{\prime \prime} \\ 10.16 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.140^{\prime \prime} \\ 29.0 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.038 " \\ 0.965 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.25^{\prime \prime} \\ 31.7 \mathrm{~mm} \\ \hline \end{array}$ | \#4 | 2 | $\begin{aligned} & \hline 0.53 \mathrm{lbs} \\ & 0.240 \mathrm{~kg} \\ & \hline \end{aligned}$ |

*NOTE: Previously this dimension was 1.31 "; now it is 1.43 ".

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# One-4-A/ITM International Transformers Printed Circuit Mount 

International Standards at Lower Cost and Better Performance


Signal's 14A transformers are used in low power applications and provide the high isolation, creepage and clearance necessary to comply with international safety standards.

## General Specific ations

- Power - 20 VA to 56 VA
- Dielectric Strength - 4000VRMS Hipot
- Primaries - Dual primaries ( $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondaries - Series or parallel secondaries
- Electrostatic Shield - Not necessary, split or dual bobbin construction
- Insulation - Class F insulation ( $155^{\circ} \mathrm{C}$ )
- Flammability Rating - Bobbin and wrap around shroud material meet UL 94V0


## Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)
- VDE certified to VDE 0805 / EN 60950 (File \#1446)
- VDE certified to IEC 950


| Part No. | $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | Secondary RMS Rating |  |
| :---: | :---: | :---: | :---: |
|  |  | Series | Parallel |
| 14A-20-10 | 20 | 10VCT @ 2.0A | 5V @ 4.0A |
| 14A-30-10 | 30 | 10VCT @ 3.0A | 5 V @ 6.0A |
| 14A-56-10 | 56 | 10VCT @ 5.6A | 5 V @ 11.2A |
| 14A-20-12 | 20 | 12.6VCT @ 1.6A | 6.3V @ 3.2A |
| 14A-30-12 | 30 | 12.6VCT @ 2.4A | 6.3V @ 4.8A |
| 14A-56-12 | 56 | 12.6VCT @ 4.4A | 6.3V @ 8.8A |
| 14A-20-16 | 20 | 16VCT @ 1.25A | 8V @ 2.5A |
| 14A-30-16 | 30 | 16VCT @ 1.9A | 8 V @ 3.8A |
| 14A-56-16 | 56 | 16VCT @ 3.5A | 8 V @ 7.0A |
| 14A-20-20 | 20 | 20VCT @ 1.0A | 10V @ 2.0A |
| 14A-30-20 | 30 | 20VCT@1.5A | 10V @ 3.0A |
| 14A-56-20 | 56 | 20VCT @ 2.8A | 10V @ 5.6A |
| 14A-20-24 | 20 | 24VCT @ 0.83A | 12V @ 1.66A |
| 14A-30-24 | 30 | 24VCT @ 1.25A | 12V @ 2.50A |
| 14A-56-24 | 56 | 24VCT @ 2.33 A | 12V @ 4.66A |
| 14A-20-28 | 20 | 28VCT @ 0.72A | 14V @ 1.44A |
| 14A-30-28 | 30 | 28VCT @ 1.06A | 14V @ 2.12A |
| 14A-56-28 | 56 | 28VCT @ 2.0A | 14V @ 4.0A |
| 14A-20-36 | 20 | 36VCT @ 0.56A | 18V @ 1.12A |
| 14A-30-36 | 30 | 36VCT @ 0.82A | 18V @ 1.64A |
| 14A-56-36 | 56 | 36VCT @ 1.56A | 18V @ 3.12A |


| $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | Dimensions |  |  |  |  |  | $\begin{gathered} \text { Sq.Pin } \\ \text { Dimensions } \end{gathered}$ | Mtg. Dim. |  |  | Mtg. Screw |  | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | L | W | H | A | B | C |  | M | N | P | Size | Qty |  |
| 20 | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 0.400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 0.400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | 1.460" 37.1 mm | $\begin{gathered} \hline 0.038 " \\ 0.97 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.50^{\prime \prime} \\ 38.1 \mathrm{~mm} \\ \hline \end{gathered}$ | - | - | \#4 | 2 | $\begin{array}{r} 0.90 \mathrm{lbs} \\ 0.41 \mathrm{~kg} \\ \hline \end{array}$ |
| 30 | $\begin{gathered} 2.62^{\prime \prime} \\ 66.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.56^{\prime \prime} \\ 39.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 0.550^{\prime \prime} \\ 13.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.275^{\prime \prime} \\ & 7.0 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.680^{\prime \prime} \\ 42.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 0.045 " \\ 1.14 \mathrm{~mm} \\ \hline \end{gathered}$ |  | $\begin{gathered} 1.75^{\prime \prime} \\ 44.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \\ \hline \end{gathered}$ | \#6 | 4 | $\begin{array}{r} 1.15 \mathrm{lbs} \\ 0.52 \mathrm{~kg} \\ \hline \end{array}$ |
| 56 | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 1.81^{\prime \prime} \\ 46.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 0.600^{\prime \prime} \\ 15.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.300^{\prime \prime} \\ & 7.6 \mathrm{~mm} \end{aligned}$ | $\begin{array}{r} 1.900^{\prime \prime} \\ 48.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 0.045 " \\ 1.14 \mathrm{~mm} \end{gathered}$ | - | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 6.35 \mathrm{~mm} \end{gathered}$ | \#6 | 4 | $\begin{aligned} & 1.70 \mathrm{lbs} \\ & 0.77 \mathrm{~kg} \\ & \hline \end{aligned}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# One-4-A//TM International Triple Output Transformers • Printed Circuit Mount 

## For 5 VDC and $\pm 12$ VDC or $\pm 15$ VDC Regulated Power Supplies Which Require International Safety Certification

Signal's 14A triple output transformers have pc board mount capability plus all of the performance features of our split bobbin 14A series.
General Specifications

- Power -- 20 VA to 56 VA
- Dielectric Strength - 4000VRMS Hipot
- Primaries - Dual primaries ( $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )

Input range ( 100 V to 130 V or 200 V to $260 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )

- Secondaries - Dual complimentary outputs (5 VDC with $\pm 12$ VDC or 5 VDC with $\pm 15$ VDC)

■ Electrostatic Shield - Not necessary, split bobbin construction

- Insulation - Class F insulation ( $155^{\circ} \mathrm{C}$ )
- Flammability Rating - Bobbin and shroud material meet UL 94V0


## Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)
- VDE certified to VDE 0805 / EN 60950 (File \#4361)
- VDE certified to IEC 950

| Part Number | $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | DC Output |  |  |  | Suggested Components |  |  | $\mathrm{C}_{2} \mathrm{C}_{4}$ See Note ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Regulator I | Regulator II | $\mathrm{C}_{1}$ | $\mathrm{C}_{3}$ | IC1 3 | IC2 3 ${ }^{\text {3 }}$ | IC3 ${ }^{3}$ | D14) | D24 |
| 14A-20-512 | 20 | 5V @ 750mA | $\pm 12 \mathrm{~V}$ @ 200mA | $\begin{gathered} 2.3 \text { KMFD } \\ 50 \text { VDC } \end{gathered}$ | $\begin{gathered} 600 \text { MFD } \\ 50 \text { VDC } \end{gathered}$ | LM-323K-5 | LM-340K-12 | LM-320K-12 | PE20 | PF20 |
| 14A-20-515 | 20 | 5V @ 750mA | $\pm 15 \mathrm{~V}$ @ 175mA |  |  | LM-323K-5 | LM-340K-15 | LM-320K-15 | PE20 | PF20 |
| 14A-30-512 | 30 | 5V@1.25A | $\pm 12 \mathrm{~V}$ @ 250mA | 4.1 KMFD$15 \text { @ } \mathrm{VDC}$ | $\begin{aligned} & 1.1 \mathrm{KMFD} \\ & @ 50 \mathrm{VDC} \\ & \hline \end{aligned}$ | LM-323K-5 | LM-340K-12 | LM-320K-12 | PE20 | PF20 |
| 14A-30-515 | 30 | 5V @ 1.25A | $\pm 15 \mathrm{~V}$ @ 200mA |  | $\begin{aligned} & 600 \mathrm{MFD} \\ & @ 50 \mathrm{VDC} \\ & \hline \end{aligned}$ | LM-323K-5 | LM-340K-15 | LM-320K-15 | PE20 | PF20 |
| 14A-56-512 | 56 | 5V@3A | $\pm 12 \mathrm{~V}$ @ 300mA | $\begin{gathered} 10.0 \mathrm{KMFD} \\ 15 \text { VDC } \end{gathered}$ | $\begin{gathered} 1.1 \mathrm{KMFD} \\ 50 @ \end{gathered}$ | LM-338② | LM-340K-12 | LM-320K-12 | PP20 | PF20 |
| 14A-56-515 | 56 | 5V@3A | $\pm 15 \mathrm{~V}$ @ 250mA |  |  | LM-338② | LM-340K-15 | LM-320K-15 | PP20 | PF20 |

Note (1): Output capacitors $C_{2}$ and $C_{4}$ are required to stabilize regulators. Values can be 1MFD min. tantalum or 10MFD min. electrolytic, 20 V min.
Note (2): LM-338 is an adjustable regulator and MFR's specifications (National Semiconductor) should be consulted for values of external components.
Note (3): All IC's are National Semiconductor types.
Note (4): All bridges are EDI types


| Dimensions |  |  |  |  |  |  |  | $\begin{gathered} \text { Sq. Pin } \\ \text { Dimensions } \end{gathered}$ | Mtg. Dim. |  |  | Mtg. Screw |  | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA (Size) | L | W | H | A | B | C | D |  | M | N | P | Size | Qty |  |
| 20 | $\begin{array}{r} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.460^{\prime \prime} \\ 37.1 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & \hline 0.200^{\prime \prime} \\ & 5.1 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{gathered} 0.038 " \\ 0.97 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.50^{\prime \prime} \\ 38.1 \mathrm{~mm} \\ \hline \end{array}$ | - | - | \#4 | 2 | $\begin{array}{r} \hline 0.90 \mathrm{lbs} \\ 0.41 \mathrm{~kg} \\ \hline \end{array}$ |
| 30 | $\begin{gathered} 2.62^{\prime \prime} \\ 66.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.56^{\prime \prime} \\ 39.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.550^{\prime \prime} \\ 13.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & 0.275^{\prime \prime} \\ & 7.0 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.680^{\prime \prime} \\ 42.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & 0.275^{\prime \prime} \\ & 7.0 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{gathered} 0.045 " \\ 1.14 \mathrm{~mm} \\ \hline \end{gathered}$ | - | $\begin{array}{r} 1.75^{\prime \prime} \\ 44.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.18^{\prime \prime} \\ 55.4 \mathrm{~mm} \\ \hline \end{gathered}$ | \#6 | 4 | $\begin{aligned} & 1.15 \mathrm{lbs} \\ & 0.52 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 56 | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.81^{\prime \prime} \\ 46.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.600^{\prime \prime} \\ 15.2 \mathrm{~mm} \end{gathered}$ | $\begin{aligned} & 0.300 " 1 \\ & 7.6 \mathrm{~mm} \end{aligned}$ | $\begin{gathered} 1.900^{\prime \prime} \\ 48.3 \mathrm{~mm} \end{gathered}$ | $\begin{aligned} & 0.300^{\prime \prime} \\ & 7.6 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{gathered} 0.045 " \\ 1.14 \mathrm{~mm} \end{gathered}$ | - | $\begin{array}{r} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | \#6 | 4 | $\begin{aligned} & 1.70 \mathrm{lbs} \\ & 0.77 \mathrm{~kg} \\ & \hline \end{aligned}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# Flathead TM Low Profile Transformers Printed Circuit Mount 

## For Low Power and Critical Height Applications



Signal's LP transformers use hum-bucking (semi toroidal) construction that minimizes radiated magnetic fields.
These transformers are ideal for critical low height pc
board applications.
General Specifications

- Power - 2 VA to 48 VA
- Dielectric Strength - 1500VRMS Hipot
- Primaries - Dual primaries ( $115 \mathrm{~V} / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondaries - Series or parallel secondaries
- Electrostatic Shield - Not necessary, split bobbin construction
- Magnetic Field - Reduced magnetic radiation
- Height - 65 to 1.375 inches high
- Insulation - Class B insulation $\left(130^{\circ} \mathrm{C}\right)$

Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)


| Part No. | $\begin{gathered} \text { VA } \\ \text { (Size) } \\ \hline \end{gathered}$ | Secondary RMS Rating |  |
| :---: | :---: | :---: | :---: |
|  |  | Series | Parallel |
| LP-10-250 | 2 | 10VCT @ 250mA | 5V @ 500mA |
| LP-10-600 | 6 | 10VCT @ 600mA | 5V @ 1.2A |
| LP-10-1200 | 12 | 10VCT@ 1200mA | 5V @ 2.4A |
| LP-10-2400 | 24 | 10VCT @ 2.40A | 5V @ 4.80A |
| LP-10-4800 | 48 | 10VCT @ 4.80A | 5V@9.60A |
| LP-12-200 | 2 | 12.6VCT @ 200mA | 6.3 V @ 400mA |
| LP-12-450 | 6 | 12.6VCT @ 450mA | $6.3 \mathrm{~V} @ 900 \mathrm{~mA}$ |
| LP-12-900 | 12 | 12.6VCT@ 900mA | 6.3V@1.8A |
| LP-12-1900 | 24 | 12.6VCT @ 1.90A | 6.3V@3.80A |
| LP-12-3800 | 48 | 12.6VCT @ 3.80A | 6.3V @ 7.60A |
| LP-16-150 | 2 | 16VCT @ 150mA | 8V @ 300mA |
| LP-16-350 | 6 | 16VCT @ 350mA | 8V @ 700mA |
| LP-16-700 | 12 | 16VCT @ 700mA | 8V @ 1.4A |
| LP-16-1500 | 24 | 16VCT @ 1.50A | 8V @ 3.00A |
| LP-16-3000 | 48 | 16VCT @ 3.00A | 8V @ 6.00A |
| LP-20-125 | 2 | 20VCT @ 125mA | 10V @ 250mA |
| LP-20-300 | 6 | 20VCT @ 300mA | 10V @ 600mA |
| LP-20-600 | 12 | 20VCT @ 600mA | 10V @ 1.2A |
| LP-20-1200 | 24 | 20VCT @ 1.20A | 10V @ 2.40A |
| LP-20-2400 | 48 | 20VCT @ 2.40A | 10V @ 4.80A |
| LP-24-100 | 2 | 24VCT @ 100mA | 12V @ 200mA |
| LP-24-250 | 6 | 24VCT @ 250mA | 12V @ 500mA |
| LP-24-500 | 12 | 24VCT @ 500mA | 12V @ 1A |
| LP-24-1000 | 24 | 24VCT@1.00A | 12V @ 2.00A |
| LP-24-2000 | 48 | 24VCT @ 2.00A | 12V @ 4.00A |
| LP-30-85 | 2 | 30VCT @ 85mA | 15V @ 170mA |
| LP-30-200 | 6 | 30VCT @ 200mA | 15 V @ 400mA |
| LP-30-400 | 12 | 30VCT @ 400mA | 15V @ 800mA |
| LP-30-800 | 24 | 30VCT @ 800mA | 15V @ 1.60A |
| LP-30-1600 | 48 | 30VCT @ 1.60A | 15V @ 3.20A |
| LP-34-75 | 2 | 34VCT @ 75mA | 17V @ 150mA |
| LP-34-170 | 6 | 34VCT @ 170mA | 17V@340mA |
| LP-34-340 | 12 | 34 VCT @ 340mA | 17V @ 680mA |
| LP-34-700 | 24 | 34VCT @ 700mA | 17V @ 1.40A |
| LP-34-1400 | 48 | 34VCT @ 1.40A | 17V @ 2.80A |
| LP-40-60 | 2 | 40VCT @ 60mA | 20V @ 120mA |
| LP-40-150 | 6 | 40VCT @ 150mA | 20V@300mA |
| LP-40-300 | 12 | 40VCT @ 300mA | 20V@ 600mA |
| LP-40-600 | 24 | 40VCT @ 600mA | 20V@1.20A |
| LP-40-1200 | 48 | 40VCT @ 1.20A | 20V@ 2.40A |
| LP-56-45 | 2 | 56VCT @ 45mA | 28V @ 90mA |
| LP-56-100 | 6 | 56VCT @ 100mA | 28V @ 200mA |
| LP-56-200 | 12 | 56VCT @ 200mA | 28V @ 400mA |
| LP-56-425 | 24 | 56VCT @ 425mA | 28V @ 850mA |
| LP-56-850 | 48 | 56VCT @ 850mA | 28V @ 1.70A |
| LP-88-28 | 2 | 88VCT @ 28mA | 44 V @ 56mA |
| LP-88-65 | 6 | 88VCT @ 65mA | 44V@130mA |
| LP-88-130 | 12 | 88VCT @ 130mA | 44V @ 260mA |
| LP-120-20 | 2 | 120VCT @ 20mA | 60V @ 40mA |
| LP-120-50 | 6 | 120VCT @ 50mA | 60V @ 100mA |
| LP-120-100 | 12 | 120VCT @ 100mA | 60V @ 200mA |
| LP-230-10 | 2 | 230VCT@ 10mA | 115V@ 20mA |
| LP-230-25 | 6 | 230VCT @ 25mA | 115 V @ 50mA |
| LP-230-50 | 12 | 230VCT @ 50mA | 115V @ 100mA |


| VA (Size) | A | B | C | L | W | H | N | D | P | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | $\begin{array}{r} 1.600^{\prime \prime} \\ 40.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & 0.375^{\prime \prime} \\ & 9.5 \mathrm{~mm} \end{aligned}$ | $\begin{aligned} & 0.375^{\prime \prime} \\ & 9.5 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{gathered} 1.87^{\prime \prime} \\ 47.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.56^{\prime \prime} \\ 39.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.650^{\prime \prime} \\ 16.5 \mathrm{~mm} \\ \hline \end{gathered}$ | - | $\begin{gathered} .041 \times .020^{\prime \prime} \\ 1.04 \times 0.51 \mathrm{~mm} \\ \hline \end{gathered}$ | - | $\begin{array}{r} 50 \mathrm{oz} \\ 0.14 \mathrm{~kg} \\ \hline \end{array}$ |
| 6 | $\begin{array}{r} 1.600^{\prime \prime} \\ 40.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & \hline 0.375^{\prime \prime} \\ & 9.5 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.375^{\prime \prime} \\ & 9.5 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{gathered} 1.87^{\prime \prime} \\ 47.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.56^{\prime \prime} \\ 39.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 0.850^{\prime \prime} \\ 21.6 \mathrm{~mm} \\ \hline \end{array}$ | - | $\begin{gathered} .041 \times .020^{\prime \prime} \\ 1.04 \times 0.51 \mathrm{~mm} \\ \hline \end{gathered}$ | - | $\begin{gathered} 7 \mathrm{Oz} \\ 0.20 \mathrm{~kg} \\ \hline \end{gathered}$ |
| 12 | $\begin{array}{r} 2.000^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 0.500 " \\ 12.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.500^{\prime \prime} \\ 12.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.065^{\prime \prime} \\ 27.1 \mathrm{~mm} \\ \hline \end{array}$ | - | $\begin{array}{r} .041 \times .020^{\prime \prime} \\ 1.04 \times 0.51 \mathrm{~mm} \\ \hline \end{array}$ | - | $\begin{gathered} 110 z \\ 0.31 \mathrm{~kg} \\ \hline \end{gathered}$ |
| 24 | $\begin{array}{r} 1.900^{\prime \prime} \\ 48.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.600 " \\ 15.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 0.530^{\prime \prime} \\ 13.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 72.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.250^{\prime \prime} \\ 31.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.41^{\prime \prime} \\ 61.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline .041(\mathrm{SQ} \mathrm{pin}) \\ & \text { 1.04SQmm } \end{aligned}$ | Clearance Hole for \#4 Screw | $\begin{gathered} 150 \mathrm{oz} \\ 0.43 \mathrm{~kg} \\ \hline \end{gathered}$ |
| 48 | $\begin{array}{r} 2.180^{\prime \prime} \\ 55.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.600^{\prime \prime} \\ 15.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.660^{\prime \prime} \\ 16.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.375^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.62^{\prime \prime} \\ 66.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & .041(\mathrm{SQ} \mathrm{pin}) \\ & \text { 1.04SQmm } \\ & \hline \end{aligned}$ | Clearance Hole for \#6 Screw | $\begin{gathered} 210 \mathrm{z} \\ 0.60 \mathrm{~kg} \\ \hline \end{gathered}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

## Printed Circuit Mount - Split Bobbin with High Isolation



Signal's ST and DST transformers use a split bobbin that provides superior isolation and low capacitive coupling.
General Specifications

- Power-1.1 VA to 36 VA
- Dieletric Strength - 2500VRMS Hipot
- Primaries - Single or dual primaries ( 115 V or $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondaries - Series or parallel secondaries
- Electrostatic Shield - Not necessary, split bobbin construction
- Insulation - Class B insulation ( $130^{\circ} \mathrm{C}$ )
- Mounting Hardware - See chart

Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)


| Size | VA | L | W | H | ML | A | B | C | Optional Mtg. <br> Screw \& Nut* | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | 1.1 | $\begin{gathered} 1.37 \prime \prime \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 1.31^{\prime \prime} \\ 23.8 \mathrm{~mm} \\ \hline \end{gathered}$ | — | $\begin{array}{r} .250 " \\ 6.4 \mathrm{~mm} \end{array}$ | $\begin{gathered} .250 " \\ 6.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.200^{\prime \prime} \\ 30.5 \mathrm{~mm} \end{gathered}$ | None | $\begin{aligned} & 0.17 \mathrm{lbs} \\ & 0.08 \mathrm{~kg} \end{aligned}$ |
| 3 | 2.4 | $\begin{array}{\|c\|} \hline 1.37 " \\ 34.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 1.18 " \\ 30.1 \mathrm{~mm} \\ \hline \end{gathered}$ | — | $\begin{array}{r} .250 " \\ 6.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} .250 " \\ 6.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c} \hline 1.200 \prime \prime \\ 30.5 \mathrm{~mm} \\ \hline \end{array}$ | None | $\begin{array}{\|c\|} \hline 0.25 \mathrm{lbs} \\ 0.11 \mathrm{~kg} \\ \hline \end{array}$ |
| 4 | 6 | $\begin{array}{\|c\|} \hline 1.62 \text { " } \\ 41.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.31^{\prime \prime} \\ 33.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.31^{\prime \prime} \\ 33.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.06 \\ 26.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} .250 " \\ 6.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} .350 " \\ 8.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.280 " \\ 32.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4-40 \times 1.37 \text { Nylon } \\ 4-40 \times 34.9 \mathrm{~mm} \end{gathered}$ | 0.44 lbs 0.20 kg |
| 5 | 12 | $\begin{array}{\|c\|} \hline 1.87 \text { " } \\ 47.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.56 " \\ 39.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.43^{\prime \prime} \\ 36.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.25 \\ 31.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} .300 " \\ 7.6 \mathrm{~mm} \end{gathered}$ | $\begin{array}{\|c\|} \hline .400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.410 " \prime \\ 35.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 4-40 \times 1.37 \text { Nylon } \\ 4-40 \times 34.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 0.70 \mathrm{lbs} \\ 0.32 \mathrm{~kg} \\ \hline \end{array}$ |
| 6 | 20 | $\begin{array}{\|c\|} \hline 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 1.87 \text { " } \\ 47.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 1.43^{\prime \prime} \\ 36.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 1.30^{\prime \prime} \\ 38.1 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} .300 " \\ 7.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} .400 " \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.600 " \\ 40.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 4-40 \times 1.37 \text { Nylon } \\ 4-40 \times 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & 0.80 \mathrm{lbs} \\ & 0.36 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 7 | 36 | $\begin{array}{\|c\|} \hline 2.62 " \\ 66.7 \mathrm{~mm} \end{array}$ | $\begin{array}{\|c\|} \hline 2.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \end{array}$ | $\begin{gathered} 1.56^{\prime \prime} \\ 39.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \dagger \\ & \dagger \end{aligned}$ | $\begin{gathered} .400 " \\ 10.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} .400 " \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.850 " \\ 47.0 \mathrm{~mm} \end{gathered}$ | $\begin{aligned} & \dagger \\ & \dagger \end{aligned}$ | 1.1 lbs 0.50 kg |

*Available from Signal: Part No. ST-MS (Screw) \& Part No. ST-MN (Nut).
$\dagger$ Size 7 has 4 mtg . holes on $2.18 \times 1.75$ centers for a \#6 screw. Need not be nylon.

| Part Number |  | Secondary RMS Rating |  |
| :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { Single } 115 \mathrm{~V} \\ 6 \text { Pin } \\ \hline \end{gathered}$ | $\begin{gathered} \text { Dual } 115 / 230 \mathrm{~V} \\ 8 \text { Pin } \\ \hline \end{gathered}$ | Series | Parallel |
| ST-2-10 | DST-2-10 | 10VCT @ 0.11A | 5V @ 0.22A |
| ST-3-10 | DST-3-10 | 10VCT @ 0.25A | 5V @ 0.5A |
| ST-4-10 | DST-4-10 | 10VCT @ 0.6A | 5A@1.2A |
| ST-5-10 | DST-5-10 | 10VCT @ 1.2A | $5 \mathrm{~V} @ 2.4 \mathrm{~A}$ |
| ST-6-10 | DST-6-10 | 10VCT @ 2.0A | 5V@ 4.0A |
| ST-7-10 | DST-7-10 | 10VCT @ 3.6A | 5 V @ 7.2A |
| ST-2-12 | DST-2-12 | 12.6VCT @ 0.09A | 6.3 V @ 0.18A |
| ST-3-12 | DST-3-12 | 12.6VCT @ 0.2A | 6.3 V @ 0.4A |
| ST-4-12 | DST-4-12 | 12.6VCT @ 0.5A | 6.3 V @ 1.0A |
| ST-5-12 | DST-5-12 | 12.6VCT @ 1.0A | 6.3 V @ 2.0A |
| ST-6-12 | DST-6-12 | 12.6VCT @ 1.6A | $6.3 \mathrm{~V} @ 3.2 \mathrm{~A}$ |
| ST-7-12 | DST-7-12 | 12.6VCT @ 2.85A | 6.3V @ 5.7A |
| ST-2-16 | DST-2-16 | 16VCT @ 0.07A | 8V @ 0.14A |
| ST-3-16 | DST-3-16 | 16VCT @ 0.15A | 8V @ 0.3A |
| ST-4-16 | DST-4-16 | 16VCT @ 0.4A | 8V @ 0.8A |
| ST-5-16 | DST-5-16 | 16VCT @ 0.8A | 8 V @ 1.6A |
| ST-6-16 | DST-6-16 | 16VCT @ 1.25A | 8V @ 2.5A |
| ST-7-16 | DST-7-16 | 16VCT @ 2.25A | 8V@4.5A |
| ST-2-20 | DST-2-20 | 20VCT @ 0.055A | $10 \mathrm{~V} @ 0.11 \mathrm{~A}$ |
| ST-3-20 | DST-3-20 | 20VCT @ 0.12A | 10 V @ 0.24A |
| ST-4-20 | DST-4-20 | 20VCT @ 0.3A | 10V @ 0.6A |
| ST-5-20 | DST-5-20 | 20VCT @ 0.6A | 10V @ 1.2A |
| ST-6-20 | DST-6-20 | 20VCT @ 1.0A | 10V @ 2.0A |
| ST-7-20 | DST-7-20 | 20VCT @ 1.8A | 10V @ 3.6A |
| ST-2-24 | DST-2-24 | 24VCT @ 0.045A | 12 V @ 0.09A |
| ST-3-24 | DST-3-24 | 24VCT @ 0.1A | 12V@0.2A |
| ST-4-24 | DST-4-24 | 24VCT @ 0.25A | 12V @ 0.5A |
| ST-5-24 | DST-5-24 | 24VCT @ 0.5A | 12V @ 1.0A |
| ST-6-24 | DST-6-24 | 24VCT @ 0.8A | $12 \mathrm{~V} @ 1.6 \mathrm{~A}$ |
| ST-7-24 | DST-7-24 | 24VCT @ 1.5A | 12V @ 3.0A |
| ST-2-28 | DST-2-28 | 28VCT @ 0.04A | 14 V @ 0.08A |
| ST-3-28 | DST-3-28 | 28VCT @ 0.085A | 14 V @ 0.17A |
| ST-4-28 | DST-4-28 | 28VCT @ 0.2A | 14V @ 0.4A |
| ST-5-28 | DST-5-28 | 28VCT @ 0.42A | 14 V @ 0.84A |
| ST-6-28 | DST-6-28 | 28VCT @ 0.7A | 14V @ 1.4A |
| ST-7-28 | DST-7-28 | 28VCT @ 1.3A | 14V @ 2.6A |
| ST-2-36 | DST-2-36 | 36VCT @ 0.03A | 18 V @ 0.06A |
| ST-3-36 | DST-3-36 | 36VCT @ 0.065A | 18 V @ 0.13A |
| ST-4-36 | DST-4-36 | 36VCT @ 0.17A | 18 V @ 0.34A |
| ST-5-36 | DST-5-36 | 36VCT @ 0.35A | 18V @ 0.7A |
| ST-6-36 | DST-6-36 | 36VCT @ 0.55A | 18V @ 1.1A |
| ST-7-36 | DST-7-36 | 36VCT @ 1.0A | 18 V @ 2.0A |
| ST-2-48 | DST-2-48 | 48VCT @ 0.023A | 24 V @ 0.046A |
| ST-3-48 | DST-3-48 | 48VCT @ 0.05A | 24V @ 0.1A |
| ST-4-48 | DST-4-48 | 48VCT @ 0.125A | 24V @ 0.25A |
| ST-5-48 | DST-5-48 | 48VCT @ 0.25A | 24 V @ 0.5A |
| ST-6-48 | DST-6-48 | 48VCT @ 0.4A | 24V @ 0.8A |
| ST-7-48 | DST-7-48 | 48VCT @ 0.75A | 24V @ 1.5A |
| ST-2-56 | DST-2-56 | 56VCT @ 0.02A | 28 V @ 0.04A |
| ST-3-56 | DST-3-56 | 56VCT @ 0.045A | 28V @ 0.09A |
| ST-4-56 | DST-4-56 | 56VCT @ 0.11A | 28 V @ 0.22A |
| ST-5-56 | DST-5-56 | 56VCT @ 0.22A | $28 \mathrm{~V} @ 0.44 \mathrm{~A}$ |
| ST-6-56 | DST-6-56 | 56VCT @ 0.35A | 28V @ 0.7A |
| ST-7-56 | DST-7-56 | 56VCT @ 0.65A | 28V @ 1.3A |
| ST-2-120 | DST-2-120 | 120VCT @ 0.01A | $60 \mathrm{~V} @ 0.02 \mathrm{~A}$ |
| ST-3-120 | DST-3-120 | 120VCT @ 0.02A | 60 V @ 0.04A |
| ST-4-120 | DST-4-120 | 120VCT @ 0.05A | 60V @ 0.1A |
| ST-5-120 | DST-5-120 | 120VCT @ 0.1A | 60V @ 0.2A |
| ST-6-120 | DST-6-120 | 120VCT @ 0.16A | 60 V @ 0.32A |
| ST-7-120 | DST-7-120 | 120VCT @ 0.3A | 60V @ 0.6A |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.
Signal Transformer

# Printed Circuit Power Transformers Printed Circuit Mount 

## Miniature Low Power Transformers



Signal's PC low power transformers are designed to operate between 50 and 500 Hz without any degradation in output voltage.
General Specific ations

- Power - 1.0 VA to 24 VA
- Dielectric Strength - 1500VRMS Hipot
- Primaries - Single or dual primaries ( 115 V or $115 / 230 \mathrm{~V}-50-500 \mathrm{~Hz}$ )
- Secondaries - Series or parallel secondaries
- Insulation - Class B insulation $\left(130^{\circ} \mathrm{C}\right)$
- Mounting Brackets - See chart


## Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)


| Primary 50/500 Hz |  | $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | Secondary RMS Rating |  |
| :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { Single 115V } \\ \text { (6 Pin) } \\ \hline \end{gathered}$ | Dual 115/230V ( 8 Pin) |  | Series | Parallel |
| PC-10-90 | DPC-10-90 | 1.0 | 10VCT @ 90mA | 5V @ 180mA |
| PC-10-120 | DPC-10-120 | 1.2 | 10VCT@ 120mA | 5V@ 240mA |
| PC-10-440 | DPC-10-440 | 4.4 | 10VCT @ 440mA | 5 V @ 880mA |
| PC-10-1000 | DPC-10-1000 | 10.0 | 10VCT @ 1.0A | 5V @ 2.0A |
| PC-10-2400 | DPC-10-2400 | 24.0 | 10VCT @ 2.4A | 5V @ 4.8A |
| PC-12-70 | DPC-12-70 | 1.0 | 12.6VCT @ 70mA | 6.3V @ 140mA |
| PC-12-100 | DPC-12-100 | 1.2 | 12.6VCT@ 100mA | 6.3V@ 200mA |
| PC-12-350 | DPC-12-350 | 4.4 | 12.6VCT@ 350mA | 6.3V @ 700mA |
| PC-12-800 | DPC-12-800 | 10.0 | 12.6VCT @ 800mA | 6.3V @ 1.6A |
| PC-12-2000 | DPC-12-2000 | 24.0 | 12.6VCT @ 2.0A | 6.3V @ 4.0A |
| PC-16-55 | DPC-16-55 | 1.0 | 16VCT @ 55mA | 8V @110mA |
| PC-16-75 | DPC-16-75 | 1.2 | 16VCT @ 75mA | 8V @ 150mA |
| PC-16-260 | DPC-16-260 | 4.4 | 16VCT @ 260mA | 8V @ 520mA |
| PC-16-640 | DPC-16-640 | 10.0 | 16VCT @ 640mA | 8V @ 1.28A |
| PC-16-1500 | DPC-16-1500 | 24.0 | 16VCT @ 1.50A | 8V @ 3.0A |
| PC-20-45 | DPC-20-45 | 1.0 | 20VCT @ 45mA | 10V @ 90mA |
| PC-20-60 | DPC-20-60 | 1.2 | 20VCT @ 60mA | 10 V @ 120mA |
| PC-20-220 | DPC-20-220 | 4.4 | 20VCT @ 220mA | 10V @ 440mA |
| PC-20-500 | DPC-20-500 | 10.0 | 20VCT @ 500mA | 10V @ 1.0A |
| PC-20-1200 | DPC-20-1200 | 24.0 | 20VCT @ 1.20A | 10V @ 2.40A |
| PC-24-35 | DPC-24-35 | 1.0 | 24VCT @ 35mA | 12V @ 70mA |
| PC-24-50 | DPC-24-50 | 1.2 | 24VCT @ 50mA | 12 V @ 100mA |
| PC-24-180 | DPC-24-180 | 4.4 | 24VCT @ 180mA | 12V @ 360mA |
| PC-24-450 | DPC-24-450 | 10.0 | 24VCT @ 450mA | 12 V @ 900mA |
| PC-24-1000 | DPC-24-1000 | 24.0 | 24VCT @ 1.0A | 12V @ 2.0A |
| PC-28-30 | DPC-28-30 | 1.0 | 28VCT @ 30mA | 14V @ 60mA |
| PC-28-40 | DPC-28-40 | 1.2 | 28VCT@ 40mA | 14 V @ 80mA |
| PC-28-160 | DPC-28-160 | 4.4 | 28VCT @ 160mA | 14 V @ 320mA |
| PC-28-360 | DPC-28-360 | 10.0 | 28VCT @ 360mA | 14 V @ 720 mA |
| PC-28-800 | DPC-28-800 | 24.0 | 28VCT @ 800mA | 14V @ 1.60A |
| PC-34-25 | DPC-34-25 | 1.0 | 34VCT @ 25mA | 17V @ 50mA |
| PC-34-35 | DPC-34-35 | 1.2 | 34VCT@35mA |  |
| PC-34-125 | DPC-34-125 | 4.4 | 34VCT @ 125mA | 17 V @ 250mA |
| PC-34-300 | DPC-34-300 | 10.0 | 34VCT @ 300mA | 17 V @ 600 mA |
| PC-34-700 | DPC-34-700 | 24.0 | 34VCT @ 700mA | 17V @ 1.40A |
| PC-40-20 | DPC-40-20 | 1.0 | 40VCT @ 20mA | 20V @ 40mA |
| PC-40-30 | DPC-40-30 | 1.2 | 40VCT@30mA | 20V @ 60mA |
| PC-40-110 | DPC-40-110 | 4.4 | 40VCT @ 110mA | 20 V @ 220mA |
| PC-40-250 | DPC-40-250 | 10.0 | 40VCT @ 250mA | 20V @ 500mA |
| PC-40-600 | DPC-40-600 | 24.0 | 40VCT @ 600mA | 20V @ 1.20A |
| PC-56-15 | DPC-56-15 | 1.0 | 56VCT @ 15mA | 28 V @ 30mA |
| PC-56-20 | DPC-56-20 | 1.2 | 56VCT@ 20mA | 28V@ 40mA |
| PC-56-80 | DPC-56-80 | 4.4 | 56 VCT @ 80mA | 28 V @ 160mA |
| PC-56-180 | DPC-56-180 | 10.0 | 56VCT@ 180mA | 28 V @ 360mA |
| PC-56-420 | DPC-58-420 | 24.0 | 56VCT @ 420mA | 28V @ 840mA |
| PC-120-8 | DPC-120-8 | 1.0 | 120VCT @ 8mA | 60V @ 16mA |
| PC-120-10 | DPC-120-10 | 1.2 | 120VCT@ 10mA | 60V @ 20mA |
| PC-120-35 | DPC-120-35 | 4.4 | 120VCT @ 35mA | 60 V @ 70mA |
| PC-120-85 | DPC-120-85 | 10.0 | 120VCT @ 85mA | 60V @ 170mA |

See Table on page 38 for method of determining RMS secondary current ratings.

| $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | L | W | H | $\begin{gathered} \mathrm{A}-6 \\ (6 \mathrm{Pin}) \end{gathered}$ | $\begin{gathered} \mathrm{A}-8 \\ (8 \mathrm{Pin}) \end{gathered}$ | B | Wgt | OPTIONAL BRACKET* |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  | No. | MW | MD |
| 1.0 | $\begin{gathered} 1.00^{\prime \prime} \\ 25.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.37^{\prime \prime} \\ 34.92 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.83^{\prime \prime} \\ 21.08 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.250^{\prime \prime} \\ 6.35 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.200^{\prime \prime} \\ 5.08 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.230^{\prime \prime} \\ 31.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & 2.5 \mathrm{oz} \\ & 0.07 \mathrm{~kg} \\ & \hline \end{aligned}$ | - | - | - |
| 1.2 | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.18 \prime \prime \\ 30.15 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 0.312^{\prime \prime} \\ 7.92 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.200^{\prime \prime} \\ 5.08 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.030^{\prime \prime} \\ 26.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3 \mathrm{oz} \\ 0.08 \mathrm{~kg} \end{gathered}$ | - | - | - |
| 4.4 | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.25^{\prime \prime} \\ 31.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.37 \text { " } \\ 34.92 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.400^{\prime \prime} \\ 10.16 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.250^{\prime \prime} \\ 6.35 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.130^{\prime \prime} \\ 28.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5 \mathrm{oz} \\ 0.14 \mathrm{~kg} \\ \hline \end{gathered}$ | - | - | - |
| 10.0 | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.43^{\prime \prime} \\ 36.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.62^{\prime \prime} \\ 41.27 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.400^{\prime \prime} \\ 10.16 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 0.250^{\prime \prime} \\ 6.35 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.330^{\prime \prime} \\ 38.8 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 9 \mathrm{oz} \\ 0.23 \mathrm{~kg} \\ \hline \end{gathered}$ | 10-BR | $\begin{gathered} 1.64^{\prime \prime} \\ 41.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \end{gathered}$ |
| 24.0 | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.37^{\prime \prime} \\ 34.93 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.400^{\prime \prime} \\ 10.16 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 0.250^{\prime \prime} \\ 6.35 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.130^{\prime \prime} \\ 54.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 12 \mathrm{oz} \\ 0.34 \mathrm{~kg} \\ \hline \end{gathered}$ | 24-BR | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ |

*An optional "Slide On" Mounting Bracket is available for sizes $10 \& 24$. The brackets do not use up any extra "Floor Space" but add $1 / 32$ "to the height of the transformer.
If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.
Signal Transformer

## Printed Circuit Triple Output Transformers Printed Circuit Mount

For 5 VDC and $\pm 12$ VDC or $\pm 15$ VDC Regulated Power Supplies


Signal's MPC, DMPC and MPL transformer series have all of the performance features of our PC and LP series.
MPC and DMPC Series
General Specifications

- Power - 10 VA and 24 VA
- Dielectric Strength - 1500VRMS Hipot
- Primaries - Single or dual primaries ( 115 V or $115 / 230 \mathrm{~V}$ nominal - $50-500 \mathrm{~Hz}$ )

Input range ( 100 V to 130 V or 200 V to $260 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )

- Secondaries - Dual complimentary outputs ( 5 VDC with $\pm 12$ VDC or 5 VDC with $\pm 15$ VDC)
- Insulation - Class B insulation ( $130^{\circ} \mathrm{C}$ )
- Brackets - Available for 10 \& 24 VA sizes (PN 10-BR \& 24-BR)


## Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)

| Part Number Primary $50 / 60 \mathrm{~Hz}$ |  | DC Output |  | Size | Suggested Components |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & 115 \mathrm{~V} \\ & \text { (8 Pin) } \end{aligned}$ | $\begin{aligned} & \text { 115/230V } \\ & \text { (10) Pin } \end{aligned}$ | Regulator I | Regulator II |  | C ${ }_{1}$ | $\mathrm{C}_{2}$ | $\mathrm{C}_{3}$ | $\mathrm{C}_{4}$ | $\mathrm{D}_{1}(2)$ | $\mathrm{D}_{2}(4)$ | $\mathrm{IC}_{1}{ }^{\text {* }}$ | $1 C_{2}{ }^{*}$ |
| MPC-X-12 | DMPC-X-12 | 5 VDC 360 mA | $\pm 12 \mathrm{VDC} 60 \mathrm{~mA}$ | X | $\begin{gathered} 2100 \mathrm{MFD} \\ 30 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \text { 2.7MFD } \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \text { 250MFD } \\ 50 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{aligned} & \text { 10MFD } \\ & \hline 20 \mathrm{~V} \end{aligned}$ | 1N4001 | 1N4002 | LM341P-5.0 | LM326N |
| MPC-X-15 | DMPC-X-15 | 5 VDC 360 mA | $\pm 15$ VDC 50mA | X | $\begin{gathered} 2100 \mathrm{MFD} \\ 30 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} 2.7 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \text { 250MFD } \\ 50 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{aligned} & 10 \mathrm{MFD} \\ & 20 \mathrm{~V} \end{aligned}$ | 1N4001 | 1N4002 | LM341P-5.0 | LM325N |
| MPC-Y-12 | DMPC-Y-12 | 5 VDC 835 mA | $\pm 12$ VDC 150 mA | Y | $\begin{gathered} \hline 4000 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} 2.7 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 1000 \mathrm{MFD} \\ 50 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} 2.7 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | 1N4001 | 1N4002 | LM340K-5.0 | LM326N |
| MPC-Y-15 | DMPC-Y-15 | 5 VDC 835 mA | $\pm 15$ VDC 130 mA | Y | $\begin{gathered} \hline 4000 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 2.7 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 1000 \mathrm{MFD} \\ 50 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 2.7 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | 1N4001 | 1N4002 | LM340K-5.0 | LM325N |


| (Size) | L | W | H | $\begin{gathered} \mathrm{A}-8 \\ (8 \mathrm{Pin}) \end{gathered}$ | $\begin{gathered} \mathrm{A}-10 \\ (10 \mathrm{Pin}) \end{gathered}$ | B | Wgt | Optional Bracket |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  | No. | MW | MD |
| X | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.43^{\prime \prime} \\ 36.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} .250^{\prime \prime} \\ 6.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} .200^{\prime \prime} \\ 5.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.300^{\prime \prime} \\ 33.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & .56 \mathrm{lbs} \\ & .25 \mathrm{~kg} \\ & \hline \end{aligned}$ | 10-BR | $\begin{gathered} 1.64^{\prime \prime} \\ 41.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{array}$ |
| Y | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \end{gathered}$ | $\begin{array}{r} .250^{\prime \prime} \\ 6.4 \mathrm{~mm} \end{array}$ | $\begin{gathered} .200^{\prime \prime} \\ 5.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.100^{\prime \prime} \\ 53.3 \mathrm{~mm} \end{gathered}$ | $\begin{aligned} & .75 \mathrm{lbs} \\ & .34 \mathrm{~kg} \end{aligned}$ | 24-BR | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00 \\ 50.8 \mathrm{~mm} \end{gathered}$ |



If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# Printed Circuit Triple Output Transformers Low Proffle Printed Circuit Mount 

## For 5 VDC and $\pm 12$ VDC or $\pm 15$ VDC Regulated Power Supplies



## MPL Series

## General Specifications

- Power - 6 VA and 12 VA
- Dielectric Strength - 1500VRMS Hipot
- Primaries - Dual primaries ( $115 / 230 \mathrm{~V}$ nominal - $50 / 60 \mathrm{~Hz}$ ) Input range ( 100 V to 130 V or 200 V to $260 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondaries - Dual complimentary outputs ( 5 VDC with $\pm 12$ VDC or 5 VDC with $\pm 15$ VDC)
- Electrostatic Shield - Not necessary, split bobbin construction
- Magnetic Field - Reduced magnetic riadiation

■ Height - .85 and 1.065 inches high

- Insulation - Class B insulation ( $130^{\circ} \mathrm{C}$ )

Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)

MPL TYPES (Dual 115/230V Primary is Standard)

| Part Number <br> Primary $50 / 60 \mathrm{~Hz}$ | DC Output |  | $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | Suggested Components |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Regulator I | Regulator II |  | $\mathrm{C}_{1}$ | $\mathrm{C}_{2}$ | $\mathrm{C}_{3}$ | $\mathrm{C}_{4}$ | $\mathrm{D}_{1}(2)$ | $\mathrm{D}_{2}(4)$ | $\mathrm{IC}_{1}{ }^{\text {* }}$ | $1 \mathrm{C}_{2}{ }^{\text {* }}$ |
| MPL-6-12 | 5 VDC 135mA | $\pm 12$ VDC 40mA | 6 | $\begin{aligned} & \hline 1000 \mathrm{MFD} \\ & 20 \mathrm{~V} \end{aligned}$ | $\begin{gathered} \text { 2.7MFD } \\ 20 \mathrm{~V} \end{gathered}$ | $\begin{gathered} \hline \text { 150MFD } \\ 50 \mathrm{~V} \end{gathered}$ | $\begin{gathered} \hline \text { 10MFD } \\ 20 \mathrm{~V} \end{gathered}$ | 1N4001 | 1N4002 | LM342P-5.0 | LM326N |
| MPL-6-15 | 5 VDC 135mA | $\pm 15$ VDC 35mA | 6 | $\begin{aligned} & \hline 1000 \mathrm{MFD} \\ & 20 \mathrm{~V} \end{aligned}$ | $\begin{gathered} 2.7 \mathrm{MFD} \\ 20 \mathrm{~V} \end{gathered}$ | $\begin{gathered} \hline 150 \mathrm{MFD} \\ 50 \mathrm{~V} \end{gathered}$ | $\begin{gathered} \hline 10 \mathrm{MFD} \\ 20 \mathrm{~V} \end{gathered}$ | 1N4001 | 1N4002 | LM342P-5.0 | LM325N |
| MPL-12-12 | 5 VDC 270mA | $\pm 12 \mathrm{VDC} 85 \mathrm{~mA}$ | 12 | $\begin{gathered} \hline 2100 \mathrm{MFD} \\ 30 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 2.7 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 250 \mathrm{MFD} \\ 50 \mathrm{~V} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 10 \mathrm{MFD} \\ 20 \mathrm{~V} \\ \hline \end{gathered}$ | 1N4001 | 1N4002 | LM341P-5.0 | LM326N |
| MPL-12-15 | 5 VDC 270 mA | $\pm 15 \mathrm{VDC} 70 \mathrm{~mA}$ | 12 | $\begin{gathered} \text { 2100MFD } \\ 30 \mathrm{~V} \end{gathered}$ | $\begin{gathered} \text { 2.7MFD } \\ 20 \mathrm{~V} \end{gathered}$ | $\begin{gathered} \hline 250 \mathrm{MFD} \\ 50 \mathrm{~V} \end{gathered}$ | $\begin{aligned} & 10 \mathrm{MFD} \\ & 20 \mathrm{~V} \end{aligned}$ | 1N4001 | 1N4002 | LM341P-5.0 | LM325N |


| VA <br> (Size) | L | W | H | A | B | C | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $1.87^{\prime \prime}$ | $1.56^{\prime \prime}$ | $0.850^{\prime \prime}$ | $1.600^{\prime \prime}$ | $0.375^{\prime \prime}$ | $0.187^{\prime \prime}$ | 0.43 lbs |
| 6 | 47.6 mm | 39.7 mm | 21.6 mm | 40.6 mm | 9.5 mm | 4.7 mm | 0.20 kg |
| 12 | $2.50^{\prime \prime}$ | $2.00^{\prime \prime}$ | $1.065^{\prime \prime}$ | $2.000^{\prime \prime}$ | $0.500^{\prime \prime}$ | $0.250^{\prime \prime}$ | 0.68 lbs |
|  | 63.5 mm | 50.8 mm | 27.1 mm | 50.8 mm | 12.7 mm | 6.4 mm | 0.31 kg |


MPL Type

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# Class 2 Transformers Printed Circuit 

## Inherently or Non-inherently Limited



Signal's CL2 transformers are available in printed circuit and chassis mount versions. They are supplied as inherently or non-inherently limited units that are UL 1585 recognized.

## General Specifications

- Power - 2.5 VA to 50 VA
- Dielectric Strength - 4000VRMS Hipot
- Primaries - Dual primaries ( $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondary - Single secondary
- Class 2 Rating - Inherently or non-inherently limited

See secondary fuse requirements in tables below

- Electrostatic Shield - Not necessary, split or dual bobbin construction
- Insulation - Class F insulation $\left(155^{\circ} \mathrm{C}\right)$
- Flammability Rating - Bobbin and shroud material meet UL 94V0

Agency Standards

- UL recognized to UL 1585 Class 2 (File \#E116583)


| Part No. | Secondary RMS Rating | Secondary Fuse Reqd. |
| :---: | :---: | :---: |
| CL2-2.5-12 | 12V @ .20A | N/A* |
| CL2-2.5-24 | 24V @ .10A | N/A* |
| CL2-5.0-12 | 12V @ .42A | N/A* |
| CL2-5.0-24 | 24V @ .20A | N/A* |
| CL2-10-12 | 12V @ .83A | N/A* |
| CL2-10-24 | 24V @ .42A | N/A* |
| CL2-20-12 | 12V @ 1.66A | N/A* |
| CL2-20-24 | 24V@.833A | N/A* |
| CL2-30-12 | 12V @ 2.50A | 3.0A** |
| CL2-30-24 | 24V @ 1.25A | N/A* |
| CL2-50-12 | 12V @ 4.20A | 5.0A** |
| CL2-50-24 | 24V @ 2.10A | 2.5A** |

* Inherently limited
** Non-inherently limited
Maximum secondary fuse value specified
All primaries are $115 / 230$ volt $50 / 60 \mathrm{~Hz}$

| Dimensions |  |  |  |  |  |  | Sq. Pin Dimension | Mtg. Dim. |  |  | Mtg. Screw |  | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { VA } \\ \text { (Size) } \end{gathered}$ | L | W | H | A | B | C |  | M | N | P | Size | Qty |  |
| 2.5 | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.31^{\prime \prime} \\ 33.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .200^{\prime \prime} \\ 5.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} .250^{\prime \prime} \\ 6.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.000^{\prime \prime} \\ 25.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.025 " \\ & 0.64 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{gathered} 1.06^{\prime \prime} \\ 26.9 \mathrm{~mm} \\ \hline \end{gathered}$ | - | - | \#4 | 2 | $\begin{aligned} & 0.25 \mathrm{lbs} \\ & 0.11 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 5.0 | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.31^{\prime \prime} \\ 33.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} .200^{\prime \prime} \\ 5.1 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} .400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.000^{\prime \prime} \\ 25.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & \hline 0.025 " \\ & 0.64 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.06^{\prime \prime} \\ 26.9 \mathrm{~mm} \\ \hline \end{array}$ | - | - | \#4 | 2 | $\begin{array}{r} 0.37 \mathrm{lbs} \\ 0.17 \mathrm{~kg} \\ \hline \end{array}$ |
| 10.0 | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.56^{\prime \prime} \\ 39.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} .200^{\prime \prime} \\ 5.1 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} .400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.140^{\prime \prime} \\ 29.0 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & \hline 0.038 " \\ & 0.97 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{gathered} 1.25^{\prime \prime} \\ 31.8 \mathrm{~mm} \\ \hline \end{gathered}$ | - | - | \#4 | 2 | $\begin{aligned} & \hline 0.53 \mathrm{lbs} \\ & 0.24 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 20.0 | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .400^{\prime \prime} \\ 10.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.460^{\prime \prime} \\ 37.1 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & \hline 0.038 " \\ & 0.97 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.50^{\prime \prime} \\ 38.1 \mathrm{~mm} \\ \hline \end{array}$ | - | - | \#4 | 2 | $\begin{aligned} & \hline 0.90 \mathrm{lbs} \\ & 0.41 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 30.0 | $\begin{gathered} 2.62^{\prime \prime} \\ 66.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.56^{\prime \prime} \\ 39.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .550^{\prime \prime} \\ 14.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} .275^{\prime \prime} \\ 7.0 \mathrm{~mm} \end{array}$ | $\begin{array}{r} 1.680^{\prime \prime} \\ 42.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & 0.405^{\prime \prime} \\ & 1.14 \mathrm{~mm} \end{aligned}$ | - | $\begin{gathered} 1.75^{\prime \prime} \\ 44.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \end{gathered}$ | \#6 | 4 | $\begin{aligned} & 1.15 \mathrm{lbs} \\ & 0.52 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 50.0 | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.81^{\prime \prime} \\ 46.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .600^{\prime \prime} \\ 15.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} .300^{\prime \prime} \\ 7.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.900^{\prime \prime} \\ 48.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{aligned} & \hline 0.405 " \\ & 1.14 \mathrm{~mm} \\ & \hline \end{aligned}$ | - | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | \#6 | 4 | $\begin{aligned} & \hline 1.70 \mathrm{lbs} \\ & 0.77 \mathrm{~kg} \\ & \hline \end{aligned}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# Class 2 Transformers Chassis Mount 

## Inherently or Non-inherently Limited



Signal's CL2 transformers are available in printed circuit and chassis mount versions. They are supplied as inherently or non-inherently limited units that are UL 1585 recognized.
General Specifications

- Power - 25 VA to 80 VA
- Dielectric Strength - 4000VRMS Hipot
- Primaries - Dual primaries ( $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondary - Single secondary
- Class 2 Rating - Inherently or non-inherently limited

See secondary fuse requirements in tables below

- Electrostatic Shield - Not necessary, split or dual bobbin construction
- Terminals - Solder lug / quick-connect type terminals
- Insulation - Class F insulation ( $155^{\circ} \mathrm{C}$ )

■ Flammability Rating - Bobbin and shroud material meet UL 94V0
Agency Standards

- UL recognized to UL 1585 Class 2 (File \#E116583)


| Part No. | Secondary <br> RMS Rating | Secondary <br> Fuse Reqd. |
| :---: | :---: | :---: |
| CL2-25-12 | $12 \mathrm{~V} @ 2.10 \mathrm{~A}$ | $2.5 \mathrm{~A}^{* *}$ |
| CL2-25-24 | $24 \mathrm{~V} @ 1.05 \mathrm{~A}$ | $\mathrm{~N} / \mathrm{A}^{*}$ |
| CL2-40-12 | $12 \mathrm{~V} @ 3.33 \mathrm{~A}$ | $4.0 \mathrm{~A}^{\star *}$ |
| CL2-40-24 | $24 \mathrm{~V} @ 1.66 \mathrm{~A}$ | $2.0 \mathrm{~A}^{* *}$ |
| CL2-80-24 | $24 \mathrm{~V} @ 3.33 \mathrm{~A}$ | $4.0 \mathrm{~A}^{* *}$ |

* Inherently limited
** Non-inherently limited
Maximum secondary fuse value specified
All primaries are $115 / 230$ volt $50 / 60 \mathrm{~Hz}$


| Dimensions |  |  |  |  |  |  | Terminals | Mtg. <br> Style | Mtg. Dim. |  | Mtg. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { VA } \\ \text { (Size) } \\ \hline \end{gathered}$ | L | W | H | A | B | C |  |  | ML | MW |  |  |
| 25 | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.31^{\prime \prime} \\ 58.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & .31^{\prime \prime} \\ & 7.92 \\ & \hline \end{aligned}$ | $\begin{gathered} .187 " \\ 4.75 \mathrm{~mm} \\ \hline \end{gathered}$ | C | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | 二 | \#6 | $\begin{gathered} \hline 1.25 \mathrm{lbs} \\ 0.57 \mathrm{~kg} \\ \hline \end{gathered}$ |
| 40 | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.06^{\prime \prime} \\ 57.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.68^{\prime \prime} \\ 68.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 5.72 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.12^{\prime \prime} \\ 28.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .31^{\prime \prime} \\ 7.92 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .187 " \\ 4.75 \mathrm{~mm} \\ \hline \end{gathered}$ | C | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | - | \#6 | $\begin{aligned} & \hline 1.6 \mathrm{lbs} \\ & 0.73 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 80 | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \end{gathered}$ | - | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .31^{\prime \prime} \\ 7.92 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} .187 " \\ 4.75 \mathrm{~mm} \\ \hline \end{gathered}$ | B | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.18^{\prime \prime} \\ 55.5 \mathrm{~mm} \\ \hline \end{gathered}$ | \#6 | $\begin{gathered} 2.8 \mathrm{lbs} \\ 1.27 \mathrm{~kg} \\ \hline \end{gathered}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# Two-4-One ${ }^{\text {TM }}$ Power Transformers Chassis Mount 

## Split Bobbin with High Isolation



Signal's 241 transformers use a split bobbin that provides superior isolation and low capacitive coupling.
General Specifications

- Power - 2.4 VA to 100 VA
- Dielectric Strength - 2500VRMS Hipot
- Primaries - Single or dual primaries ( 115 V or $115 / 230 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )
- Secondary - Single center tapped secondary
- Electrostatic Shield - Not necessary, split bobbin construction
- Terminals - Solder lug / quick-connect type terminals
- Insulation - Class B insulation ( $130^{\circ} \mathrm{C}$ )

Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \#LR 51265)


| Part Number |  | Secondary RMS Rating | Part Number |  | Secondary RMS Rating |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Single 115V | Dual 115/230V |  | Single 115V | Dual 115/230V |  |
| 241-3-10 | Not Available | 10VCT @ 0.25A | 241-3-28 | Not Available | 28VCT @ 0.085A |
| 241-4-10 | DP-241-4-10 | 10VCT @ 0.60A | 241-4-28 | DP-241-4-28 | 28VCT @ 0.20A |
| 241-5-10 | DP-241-5-10 | 10VCT@ 1.2A | 241-5-28 | DP-241-5-28 | 28VCT @ 0.42A |
| 241-6-10 | DP-241-6-10 | 10VCT @ 3.0A | 241-6-28 | DP-241-6-28 | 28VCT @ 1.1A |
| 241-7-10 | DP-241-7-10 | 10VCT@ 5.0A | 241-7-28 | DP-241-7-28 | 28VCT @ 2.0A |
| 241-8-10 | DP-241-8-10 | 10VCT @ 10A | 241-8-28 | DP-241-8-28 | 28VCT @ 3.6A |
| 241-3-12 | Not Available | 12.6VCT @ 0.20A | 241-3-36 | Not Available | 36VCT @ 0.065A |
| 241-4-12 | DP-241-4-12 | 12.6VCT @ 0.50A | 241-4-36 | DP-241-4-36 | 36VCT @ 0.17A |
| 241-5-12 | DP-241-5-12 | 12.6VCT @ 1.0A | 241-5-36 | DP-241-5-36 | 36VCT @ 0.35A |
| 241-6-12 | DP-241-6-12 | 12.6VCT @ 2.5A | 241-6-36 | DP-241-6-36 | 36VCT @ 0.85A |
| 241-7-12 | DP-241-7-12 | 12.6VCT @ 4.0A | 241-7-36 | DP-241-7-36 | 36VCT @ 1.5A |
| 241-8-12 | DP-241-8-12 | 12.6VCT @ 8.0A | 241-8-36 | DP-241-8-36 | 36VCT @ 2.8A |
| 241-3-16 | Not Available | 16VCT @ 0.15A | 241-3-48 | Not Available | 48VCT @ 0.05A |
| 241-4-16 | DP-241-4-16 | 16VCT @ 0.40A | 241-4-48 | DP-241-4-48 | 48VCT @ 0.125A |
| 241-5-16 | DP-241-5-16 | 16VCT @ 0.80A | 241-5-48 | DP-241-5-48 | 48VCT @ 0.25A |
| 241-6-16 | DP-241-6-16 | 16VCT @ 2.0A | 241-6-48 | DP-241-6-48 | 48VCT @ 0.63A |
| 241-7-16 | DP-241-7-16 | 16VCT @ 3.5A | 241-7-48 | DP-241-7-48 | 48VCT @ 1.2A |
| 241-8-16 | DP-241-8-16 | 16VCT @ 6.25A | 241-8-48 | DP-241-8-48 | 48VCT @ 2.0A |
| 241-3-20 | Not Available | 20VCT @ 0.12A | 241-3-56 | Not Available | 56VCT @ 0.045A |
| 241-4-20 | DP-241-4-20 | 20VCT @ 0.30A | 241-4-56 | DP-241-4-56 | 56VCT @ 0.11A |
| 241-5-20 | DP-241-5-20 | 20VCT @ 0.60A | 241-5-56 | DP-241-5-56 | 56VCT @ 0.22A |
| 241-6-20 | DP-241-6-20 | 20VCT @ 1.5A | 241-6-56 | DP-241-6-56 | 56VCT @ 0.54A |
| 241-7-20 | DP-241-7-20 | 20VCT @ 2.8A | 241-7-56 | DP-241-7-56 | 56VCT @ 1.00A |
| 241-8-20 | DP-241-8-20 | 20VCT @ 5.0A | 241-8-56 | DP-241-8-56 | 56VCT @ 1.8A |
| 241-3-24 | Not Available | 24VCT @ 0.10A | 241-3-120 | Not Available | 120VCT @ 0.02A |
| 241-4-24 | DP-241-4-24 | 24VCT @ 0.25A | 241-4-120 | DP-241-4-120 | 120VCT @ 0.05A |
| 241-5-24 | DP-241-5-24 | 24VCT @ 0.50A | 241-5-120 | DP-241-5-120 | 120VCT @ 0.10A |
| 241-6-24 | DP-241-6-24 | 24VCT @ 1.25A | 241-6-120 | DP-241-6-120 | 120VCT @ 0.25A |
| 241-7-24 | DP-241-7-24 | 24VCT @ 2.4A | 241-7-120 | DP-241-7-120 | 120VCT @ 0.50A |
| 241-8-24 | DP-241-8-24 | 24VCT @ 4.0A | 241-8-120 | DP-241-8-120 | 120VCT @ 0.85A |

See page 38 for method of determining RMS secondary current ratings.

| Dimensions |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Size | VA | L | W | H | A | B | ML | Wgt |
| 3 | 2.4 | $\begin{gathered} 2.06^{\prime \prime} \\ 52.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.06^{\prime \prime} \\ 26.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.18^{\prime \prime} \\ 30.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.56^{\prime \prime} \\ 14.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.75^{\prime \prime} \\ 44.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 0.25 \mathrm{lbs} \\ 0.11 \mathrm{~kg} \\ \hline \end{array}$ |
| 4 | 6 | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.25^{\prime \prime} \\ 31.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.68^{\prime \prime} \\ 42.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 0.68^{\prime \prime} \\ 17.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 0.44 \mathrm{lbs} \\ & 0.20 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 5 | 12 | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.37^{\prime \prime} \\ 34.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.62^{\prime \prime} \\ 41.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.93^{\prime \prime} \\ 49.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 0.81^{\prime \prime} \\ 20.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 0.7 \mathrm{lbs} \\ 0.32 \mathrm{~kg} \\ \hline \end{gathered}$ |
| 6 | 30 | $\begin{gathered} \hline 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.68^{\prime \prime} \\ 42.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.93^{\prime \prime} \\ 49.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.31^{\prime \prime} \\ 58.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 1.06^{\prime \prime} \\ 26.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.1 \mathrm{lbs} \\ & 0.50 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 7 | 56 | $\begin{gathered} 3.68^{\prime \prime} \\ 93.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.81^{\prime \prime} \\ 46.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.68^{\prime \prime} \\ 68.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 1.06^{\prime \prime} \\ 26.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & 1.7 \mathrm{Ibs} \\ & 0.77 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 8 | 100 | $\begin{gathered} \hline 4.03^{\prime \prime} \\ 102.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.56^{\prime \prime} \\ 65.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.06^{\prime \prime} \\ 77.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 1.31^{\prime \prime} \\ 33.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.50^{\prime \prime} \\ 90.5 \mathrm{~mm} \end{gathered}$ | $\begin{aligned} & 2.75 \mathrm{lbs} \\ & 1.25 \mathrm{~kg} \end{aligned}$ |

## Two-4-One ${ }^{T M}$ Triple Output Transformers • Chassis Mount

## For 5 VDC and $\pm 12$ VDC or $\pm 15$ VDC Regulated Power Supplies



Signal's MT and DMT transformers have all of the performance features of our 241 series.
General Specifications

- Power - 30 VA, 56 VA, and 100 VA
- Dielectric Strength - 2500VRMS Hipot

■ Primaries - Single or dual primaries ( 115 V or $115 / 230 \mathrm{~V}$ nominal $-50 / 60 \mathrm{~Hz}$ )
Input range ( 100 V to 130 V or 200 V to $260 \mathrm{~V}-50 / 60 \mathrm{~Hz}$ )

- Secondaries - Dual complimentary outputs ( 5 VDC with $\pm 12$ VDC or 5 VDC with $\pm 15$ VDC
- Electrostatic Shield - Not necessary, split bobbin construction
- Terminals - Solder lug / quick-connect type terminals
- Insulation - Class B insulation $\left(130^{\circ} \mathrm{C}\right)$

Agency Standards

- UL recognized to UL 506 (File \#E63829)
- CSA certified to C22.2 \#66 (File \# LR 51265)

| Part Number Primary $50 / 60 \mathrm{~Hz}$ |  | DC Output |  | Size | Suggested Components |  |  |  |  | $\mathrm{C}_{2} \mathrm{C}_{4}$ See Note ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 115V | 115/230V | Regulator I | Regulator II |  | $\mathrm{C}_{1}$ | $\mathrm{C}_{3}$ | $1 \mathrm{C}_{1}{ }^{(3)}$ | $\mathrm{IC}_{\mathbf{2}}{ }^{3}$ | $\mathrm{IC}_{3}{ }^{3}$ | D14 | D24 |
| MT-6-12 | DMT-6-12 | 5V@1.75A | $\pm 12 \mathrm{~V}$ @ 210mA | 6 | 10 KMFD | 1.5 KMFD | LM-323K-5 | LM-340K-12 | LM-320K-12 | 3N253 | 3N247 |
| MT-6-15 | DMT-6-15 | 5V@1.75A | $\pm 15 \mathrm{~V}$ @ 175mA | 6 | @ 20 VDC | @ 50 VDC | LM-323K-5 | LM-340K-15 | LM-320K-15 | 3N253 | 3N247 |
| MT-7-12 | DMT-7-12 | 5V @ 2.8A | $\pm 12 \mathrm{~V}$ @ 350mA | 7 | 15 KMFD | 2 KMFD | LM-323K-5 | LM-340K-12 | LM-320K-12 | MDA-400 | 3N247 |
| MT-7-15 | DMT-7-15 | 5V @ 2.8A | $\pm 15 \mathrm{~V}$ @ 280mA | 7 | @ 20 VDC | @ 50 VDC | LM-323K-5 | LM-340K-15 | LM-320K-15 | MDA-400 | 3N247 |
| MT-8-12 | DMT-8-12 | 5 V @ 4A | $\pm 12 \mathrm{~V}$ @ 600mA | 8 | 26 KMFD | 3.1 KMFD | LM-338 ${ }^{\text {2 }}$ | LM-340K-12 | LM-320K-12 | MDA-800 | 3N247 |
| MT-8-15 | DMT-8-15 | 5 V @ 4A | $\pm 15 \mathrm{~V}$ @ 500mA | 8 | @ 20 VDC | @ 50 VDC | LM-338(2) | LM-340K-15 | LM-320K-15 | MDA-800 | 3N247 |

Note (1): Output capacitors $\mathrm{C}_{2}$ and $\mathrm{C}_{4}$ are required to stablize regulators. Values can be 1MFD min. tantalum or 10MFD min. electrolytic, 20 V min .
Note (2): LM-338 is an adjustable regulator and MFR's specifications (National Semiconductor) should be consulted for values of external components.
Note (3): All IC's are National Semiconductor types.
Note (4): All diodes are Motorola types.


| Dimensions |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA (Size) | L | W | H | A | B | ML | Wgt |
| 6 | $3.25^{\prime \prime}$ | $1.75^{\prime \prime}$ | $1.93^{\prime \prime}$ | $2.31^{\prime \prime}$ | $1.06^{\prime \prime}$ | $2.81^{\prime \prime}$ | 1.1 lbs |
|  | 82.6 mm | 31.8 mm | 49.2 mm | 58.7 mm | 26.9 mm | 71.4 mm | 0.50 kg |
| 7 | $3.68^{\prime \prime}$ | $1.81^{\prime \prime}$ | $2.25^{\prime \prime}$ | $2.68^{\prime \prime}$ | $1.06^{\prime \prime}$ | $3.12^{\prime \prime}$ | 1.7 lbs |
|  | 93.6 mm | 46.0 mm | 57.2 mm | 68.2 mm | 26.9 mm | 79.4 mm | 0.77 kg |
| 8 | $4.03^{\prime \prime}$ | $2.25^{\prime \prime}$ | $2.56^{\prime \prime}$ | $3.06^{\prime \prime}$ | $1.31^{\prime \prime}$ | $3.56^{\prime \prime}$ | 2.75 lbs |
|  | 102.4 mm | 57.2 mm | 65.1 mm | 77.7 mm | 33.3 mm | 90.5 mm | 1.25 kg |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

## Conventional Rectifier Power Transformers • Chassis Mount



Signal＇s Rectifier Power transformers provide a wide variety of outputs． This series of conservatively designed transformers are manufactured using traditional materials and layer wound techniques．
General Specifications
－Power－ 10 VA to 2800 VA
－Dielectric Strength－1500VRMS Hipot
■ Primaries－Single，tapped，or dual primaries（105V， $115 \mathrm{~V}, 125 \mathrm{~V}, 230 \mathrm{~V}-50-500 \mathrm{~Hz}$ ）
－Secondaries－Center－tapped series or center－tapped parallel secondaries
－Insulation－Class A insulation（ $105^{\circ} \mathrm{C}$ ）

| Primary 50／60 HZ |  | Secondary RMS Rating |  | Mtg． Style | L | W | H | ML | MW | Mtg． Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \hline \text { Single } \\ 115 \mathrm{~V} \end{gathered}$ | $\begin{gathered} \hline \text { Dual }^{*} \\ 115 / 230 \mathrm{~V} \end{gathered}$ | Series | Parallel |  |  |  |  |  |  |  |  |
| 10－1 | DL－10－1 | 10VCT＠1A | 5VCT＠2A | C | $\begin{array}{r} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 1.75^{\prime \prime} \\ 44.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.31^{\prime \prime} \\ 58.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | － | \＃8 | $\begin{aligned} & 1.0 \mathrm{lbs} \\ & .45 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 10－2 | DL－10－2 | 10VCT＠2A | 5VCT＠4A | C | $\begin{array}{r} 3.12^{\prime \prime} \\ \mathbf{7 9 . 4 m m} \\ \hline \end{array}$ | $\begin{array}{r} 2.12^{\prime \prime} \\ 53.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | － | \＃8 | $\begin{aligned} & 1.5 \mathrm{lbs} \\ & .68 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 10－4 | DL－10－4 | 10VCT＠4A | 5VCT＠8A | C | $\begin{array}{r} 3.56^{\prime \prime} \\ 90.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.06^{\prime \prime} \\ 77.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.12^{\prime \prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{array}$ | － | \＃8 | $\begin{aligned} & 2.3 \mathrm{lbs} \\ & 1.04 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 10－6 | DL－10－6 | 10VCT＠6A | 5VCT＠12A | B | $\begin{array}{r} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.12^{\prime \prime} \\ 53.9 \mathrm{~mm} \end{gathered}$ | \＃8 | $\begin{aligned} & 3.3 \mathrm{lbs} \\ & 1.50 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 10－8 | DL－10－8 | 10VCT＠8A | 5VCT＠16A | B | $\begin{array}{r} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | \＃8 | $\begin{aligned} & 4.0 \mathrm{lbs} \\ & 1.81 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 10－12 | DL－10－12 | 10VCT＠12A | 5VCT＠24A | B | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | \＃8 | $\begin{aligned} & 5.0 \mathrm{lbs} \\ & 2.27 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 10－25 | DL－10－25 | 10VCT＠25A | 5VCT＠50A | B | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \end{gathered}$ | \＃10 | $\begin{aligned} & 8.7 \mathrm{lbs} \\ & 3.95 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 10－50才 | DL－10－50 | 10VCT＠50A | 5VCT＠100A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.50^{\prime \prime} \\ 139.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.62^{\prime \prime} \\ 92.1 \mathrm{~mm} \end{gathered}$ | 1／4 | $\begin{aligned} & 17.0 \mathrm{lbs} \\ & 7.71 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 10－100 $\ddagger$ | DL－10－100 | 10VCT＠100A | 5VCT＠200A | B | $\begin{array}{r} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 7.25^{\prime \prime} \\ 184.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 5.31^{\prime \prime} \mathrm{m} \\ \hline \end{array}$ | $\begin{array}{r} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{array}$ | 1／4 | $\begin{array}{r} 34.5 \mathrm{lbs} \\ 15.65 \mathrm{~kg} \\ \hline \end{array}$ |
| 12．8－1 | DL－12．8－1 | 12．8VCT＠1A | 6．4VCT＠2A | C | $\begin{aligned} \hline 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{aligned}$ | $\begin{array}{r} 2.00^{\prime \prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.31^{\prime \prime} \\ 58.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{array}$ | － | \＃8 | $\begin{aligned} & 1.2 \mathrm{lbs} \\ & .54 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 12．8－2 | DL－12．8－2 | 12．8VCT＠2A | 6．4VCT＠4A | B | $\begin{array}{r} 3.00^{\prime \prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.50^{\prime \prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.50^{\prime \prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | \＃8 | $\begin{aligned} & 2.3 \mathrm{lbs} \\ & 1.04 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 12．8－4 | DL－12．8－4 | 12．8VCT＠4A | 6．4VCT＠8A | B | $\begin{array}{r} 3.00^{\prime \prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.87^{\prime \prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.50^{\prime \prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~m} \\ \hline \end{gathered}$ | \＃8 | $\begin{aligned} & 2.8 \mathrm{lbs} \\ & 1.27 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 12．8－6 | DL－12．8－6 | 12．8VCT＠6A | 6．4VCT＠12A | B | $\begin{array}{r} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 3.06^{\prime \prime} \\ 77.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | \＃8 | $\begin{aligned} & 4.0 \mathrm{lbs} \\ & 1.81 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 12．8－8 | DL－12．8－8 | 12．8VCT＠8A | 6．4VCT＠16A | B | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \＃8 | $\begin{aligned} & \hline 4.5 \mathrm{lbs} \\ & 2.04 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 12．8－12 | DL－12．8－12 | 12．8VCT＠12A | 6．4VCT＠24A | B | $\begin{gathered} \hline 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.25^{\prime \prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} \hline 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | \＃10 | $\begin{aligned} & 6.0 \mathrm{lbs} \\ & 2.72 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 12．8－25 | DL－12．8－25 | 12．8VCT＠25A | 6．4VCT＠50A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.25^{\prime \prime} \\ 108.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | \＃10 | $\begin{aligned} & 12.5 \mathrm{lbs} \\ & 5.69 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 12．8－50ł | DL－12．8－50 | 12．8VCT＠50A | 6．4VCT＠100A | B | $\begin{array}{r} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 6.00^{\prime \prime} \\ 152.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1／4 | $\begin{array}{r} 20.7 \mathrm{lbs} \\ 9.39 \mathrm{~kg} \\ \hline \end{array}$ |
| 12．8－100 $\ddagger$ | DL－12．8－100 | 12．8VCT＠100A | 6．4VCT＠200A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.25^{\prime \prime} \\ \\ \hline \end{gathered} 84.2 \mathrm{~mm}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | 1／4 | $\begin{array}{r} 34.5 \mathrm{lbs} \\ 15.65 \mathrm{~kg} \\ \hline \end{array}$ |
| 16－1 | DL－16－1 | 16VCT＠1A | 8VCT＠2A | C | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.31^{\prime \prime} \\ 58.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | － | \＃8 | $\begin{aligned} & 1.2 \mathrm{lbs} \\ & .54 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 16－2 | DL－16－2 | 16VCT＠2A | 8VCT＠4A | C | $\begin{array}{r} 3.12^{\prime \prime} \\ \mathbf{7 9 . 4 m m} \\ \hline \end{array}$ | $\begin{array}{r} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | － | \＃8 | $\begin{aligned} & 1.7 \mathrm{lbs} \\ & .77 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 16－4 | DL－16－4 | 16VCT＠4A | 8VCT＠8A | B | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.12^{\prime \prime} \\ 53.9 \mathrm{~mm} \end{gathered}$ | \＃8 | $\begin{aligned} & 3.3 \mathrm{lbs} \\ & 1.50 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 16－6 | DL－16－6 | 16VCT＠6A | 8VCT＠12A | B | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{array}{r} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \＃10 | $\begin{aligned} & 4.5 \mathrm{lbs} \\ & 2.04 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 16－8 | DL－16－8 | 16VCT＠8A | 8VCT＠16A | B | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.50^{\prime \prime \prime} \\ 89.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.62^{\prime \prime} \\ 66.7 \mathrm{~mm} \end{gathered}$ | \＃10 | $\begin{array}{r} 5.4 \mathrm{lbs} \\ 2.45 \mathrm{~kg} \\ \hline \end{array}$ |
| 16－12 | DL－16－12 | 16VCT＠12A | 8VCT＠24A | B | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \＃10 | $\begin{aligned} & 7.9 \mathrm{lbs} \\ & 3.58 \mathrm{~kg} \end{aligned}$ |
| 16－25 | DL－16－25 | 16VCT＠25A | 8VCT＠50A | B | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.37^{\prime \prime} \\ 136.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 4.00^{\prime \prime} \\ 101.6 \mathrm{~mm} \\ \hline \end{gathered}$ | \＃10 | $\begin{aligned} & 14.5 \mathrm{lbs} \\ & 6.58 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 16－50才 | DL－16－50 | 16VCT＠50A | 8VCT＠100A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.70^{\prime \prime} \\ 146.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | 1／4 | $\begin{array}{r} 26.5 \mathrm{lbs} \\ 12.02 \mathrm{~kg} \\ \hline \end{array}$ |
| 16－100才 | DL－16－100 | 16VCT＠100A | 8VCT＠200A | B | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.62^{\prime \prime} \\ 117.5 \mathrm{~mm} \end{gathered}$ | 1／4 | $\begin{aligned} & 50.0 \mathrm{lbs} \\ & 22.68 \mathrm{~kg} \end{aligned}$ |

$\Delta$ Available with dual primary only．Therefore，prefix＂ DL ＂is not required．
＊Items are not normally in stock．They are standard designs
$\ddagger$ Nominal 115 V primary has added taps，I．E．， $105 / 115 / 125 \mathrm{~V}$ ；Dual（DL）version is $115 / 230 \mathrm{~V}$ only． generally available in 3－4 weeks．
See page 38 for determining RMS secondary current ratings．

If you don＇t see a specific part that meets your requirement，see page 31 for our custom magnetics design data sheet．
Signal Transformer

## Conventional Rectifier Power Transformers • Chassis Mount (continued)



| Primary 50/60 HZ |  | Second RMS Rating |  | Mtg. Style | L | W | H | ML | MW | Mtg. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \hline \text { Single } \\ & 115 \mathrm{~V} \end{aligned}$ | $\begin{gathered} \text { Dual }^{*} \\ 115 / 230 \mathrm{~V} \end{gathered}$ | Series | Parallel |  |  |  |  |  |  |  |  |
| 24-1 | DL-24-1 | 24VCT @ 1A | 12VCT @ 2A | B | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.50^{\prime \prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 2.3 \mathrm{lbs} \\ & 1.04 \mathrm{~kg} \end{aligned}$ |
| 24-2 | DL-24-2 | 24VCT @ 2A | 12VCT @ 4A | B | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 2.9 \mathrm{lbs} \\ & 1.32 \mathrm{~kg} \end{aligned}$ |
| 24-4 | DL-24-4 | 24VCT @ 4A | 12VCT @ 8A | B | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 4.5 \mathrm{lbs} \\ & 2.04 \mathrm{~kg} \end{aligned}$ |
| 24-6 | DL-24-6 | 24VCT @ 6A | 12V.C.T. @ 12A | B | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 5.8 \mathrm{lbs} \\ & 2.63 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 24-8 | DL-24-8 | 24VCT @ 8A | 12VCT @ 16A | B | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 7.9 \mathrm{lbs} \\ & 3.58 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 24-12 $\ddagger$ | DL-24-12 | 24VCT @ 12A | 12VCT @ 24A | B | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 11.0 \mathrm{lbs} \\ & 4.99 \mathrm{~kg} \end{aligned}$ |
| 24-20才 | DL-24-20 | 24VCT @ 20A | 12VCT @ 40A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.75^{\prime \prime} \\ 120.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 15.3 \mathrm{lbs} \\ & 6.95 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 24-25 $\ddagger$ | DL-24-25 | 24VCT @ 25A | 12VCT @ 50A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.62^{\prime \prime} \\ 142.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 19.5 \mathrm{lbs} \\ & 8.85 \mathrm{~kg} \end{aligned}$ |
| 24-50 $\ddagger$ | DL-24-50 | 24VCT @ 50A | 12VCT @ 100A | B | $\begin{gathered} 6.37^{\prime \prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.25^{\prime \prime \prime} \\ 158.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.1^{\prime \prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 31.3 \mathrm{lbs} \\ & 14.20 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| - | 24-1004 | 24VCT @ 100A | 12VCT @ 200A | B | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.00^{\prime \prime} \\ 177.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{array}{r} 43.0 \mathrm{lbs} \\ 19.5 \mathrm{~kg} \\ \hline \end{array}$ |
| 36-1 | DL-36-1 | 36 VCT @ 1A | 18VCT @ 2A | B | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 2.6 \mathrm{lgs} \\ & 1.18 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 36-2 | DL-36-2 | 36VCT @ 2A | 18VCT @ 4A | B | $\begin{gathered} 3.27^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.93^{\prime \prime \prime} \\ 74.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 3.8 \mathrm{lbs} \\ & 1.72 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 36-4 | DL-36-4 | 36VCT @ 4A | 18VCT @ 8A | B | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.62^{\prime \prime} \\ 66.7 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 6.8 \mathrm{lbs} \\ & 3.08 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 36-6 | DL-36-6 | 36VCT @ 6A | 18VCT @ 12A | B | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 8.7 \mathrm{lbs} \\ & 3.95 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 36-8 $\ddagger$ | DL-36-8 | 36 VCT @ 8A | 18VCT @ 16A | B | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 11.0 \mathrm{lbs} \\ & 4.99 \mathrm{~kg} \end{aligned}$ |
| 36-12ł | DL-36-12 | 36VCT @ 12A | 18VCT @ 24A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.00^{\prime \prime} \\ 127.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 15.0 \mathrm{lbs} \\ & 6.80 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 36-20才 | DL-36-20 | 36VCT @ 20A | 18VCT @ 40A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.37^{\prime \prime} \\ 136.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 22.8 \mathrm{lbs} \\ & 10.34 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 36-25 $\ddagger$ | DL-36-25 | 36VCT @ 25A | 18VCT @ 50A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.75^{\prime \prime} \\ 146.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 26.5 \mathrm{lbs} \\ & 12.02 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 36-30 $\ddagger$ | DL-36-30 | 36VCT @ 30A | 18VCT @ 60A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.00^{\prime \prime} \\ 152.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 31.5 \mathrm{lbs} \\ & 14.28 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| - | 36-504 | 36VCT @ 50A | 18VCT @ 100A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 7.25^{\prime \prime} \\ 184.2 \mathrm{~m} \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.12^{\prime \prime \prime} \\ 130.2 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 40.0 \mathrm{lbs} \\ & 18.14 \mathrm{~kg} \end{aligned}$ |

$\Delta$ Available with dual primary only. Therefore, prefix " DL " is not required.
$\ddagger$ Nominal 115 V primary has added taps, I.E., $105 / 115 / 125 \mathrm{~V}$; Dual (DL) version is $115 / 230 \mathrm{~V}$ only.
See page 38 for determining RMS secondary current ratings.


| Primary 50/60 HZ |  | Second RMS Rating |  | Mtg. Style | L | W | H | ML | MW | Mtg. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \hline \text { Single } \\ 115 \mathrm{~V} \end{gathered}$ | $\begin{gathered} \hline \text { Dual }^{\star} \\ 115 / 230 \mathrm{~V} \\ \hline \end{gathered}$ | Series | Parallel |  |  |  |  |  |  |  |  |
| 56-1 | DL-56-1 | 56VCT @ 1A | 28VCT @ 2A | B | $\begin{array}{r} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 3.5 \mathrm{lbs} \\ & 1.59 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 56-2 | DL-56-2 | 56VCT @ 2A | 28 VCT @ 4A | B | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \end{gathered}$ | $\begin{array}{r} 3.12^{\prime \prime} \\ \mathbf{7 9 . 4 m m} \\ \hline \end{array}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | \#8 | $\begin{aligned} & 5.0 \mathrm{lbs} \\ & 2.27 \mathrm{~kg} \end{aligned}$ |
| 56-4 | DL-56-4 | 56VCT @ 4A | 28VCT @ 8A | B | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 7.7 \mathrm{lbs} \\ & 3.49 \mathrm{~kg} \end{aligned}$ |
| 56-6 | DL-56-6 | 56VCT @ 6A | 28VCT @ 12A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.25^{\prime \prime} \\ 108.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 12.0 \mathrm{lbs} \\ & 5.44 \mathrm{~kg} \end{aligned}$ |
| 56-8才 | DL-56-8 | 56VCT @ 8A | 28VCT @ 16A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.00^{\prime \prime} \\ 127.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.7^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37 \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.62^{\prime \prime} \\ 92.1 \mathrm{~mm} \\ \hline \end{gathered}$ | \#1/4 | $\begin{aligned} & 17.0 \mathrm{lbs} \\ & 7.71 \mathrm{~kg} \end{aligned}$ |
| 56-12 $\ddagger$ | DL-56-12 | 56VCT @ 12A | 28VCT @ 24A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime \prime} \\ 85.7 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 22.0 \mathrm{lbs} \\ & 9.98 \mathrm{~kg} \end{aligned}$ |
| 56-25 $\ddagger$ | DL-56-25 | 56VCT @ 25A | 28VCT @ 50A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.12^{\prime \prime} \\ 181.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.1^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.3^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.12^{\prime \prime} \\ 130.2 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 38.0 \mathrm{lbs} \\ & 17.24 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| - | 56-504 | 56VCT @ 50A | 28VCT @ 100A | B | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.24^{\prime \prime} \\ 158.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.87^{\prime \prime} \\ 123.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 56.3 \mathrm{lbs} \\ & 25.54 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 68-1 | DL-68-1 | 68VCT @ 1A | 34VCT @ 2A | B | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.93^{\prime \prime} \\ 74.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 3.8 \mathrm{lbs} \\ & 1.72 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 68-2 | DL-68-2 | 68VCT @ 2A | 34VCT @ 4A | B | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.62^{\prime \prime} \\ 66.7 \mathrm{~mm} \\ \hline \end{array}$ | \#10 | $\begin{aligned} & 6.8 \mathrm{lbs} \\ & 3.08 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 68-4 | DL-68-4 | 68 VCT @ 4A | 34VCT @ 8A | B | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & 3.75^{\prime \prime} \\ & 95.3 \mathrm{~mm} \\ & \hline \end{aligned}$ | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 11.5 \mathrm{lbs} \\ & 5.22 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 68-6 $\ddagger$ | DL-68-6 | 68VCT @ 6A | 34VCT @ 12A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.00^{\prime \prime} \\ 127.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 15.0 \mathrm{lbs} \\ & 6.80 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 68-8 $\ddagger$ | DL-68-8 | 68VCT @ 8A | 34VCT @ 16A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.50^{\prime \prime \prime} \\ 139.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 19.0 \mathrm{lbs} \\ & 8.62 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 68-12 $\ddagger$ | DL-68-12 | 68VCT @ 12A | 34VCT @ 24A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.75^{\prime \prime} \\ 146.1 \mathrm{~mm} \end{gathered}$ | $\begin{array}{r} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.75 " \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & 26.5 \mathrm{lbs} \\ & 12.02 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| - | 68-254 | 68VCT @ 25A | 34VCT @ 50A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.25^{\prime \prime} \\ 184.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 5.12^{\prime \prime} \\ 130.2 \mathrm{~mm} \\ \hline \end{array}$ | 1/4 | $\begin{array}{r} 39.7 \mathrm{lbs} \\ 18.01 \mathrm{~kg} \\ \hline \end{array}$ |
| 80-1 | DL-80-1 | 80VCT @ 1A | 40VCT @ 2A | B | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.06^{\prime \prime} \\ 77.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 4.0 \mathrm{lbs} \\ & 1.81 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 80-2 | DL-80-2 | 80VCT @ 2A | 40VCT @ 4A | B | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.62^{\prime \prime} \\ 66.7 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & 6.8 \mathrm{lbs} \\ & 3.08 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 80-4 | DL-80-4 | 80VCT @ 4A | 40VCT @ 8A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.25^{\prime \prime} \\ 108.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 12.3 \mathrm{lbs} \\ & 5.58 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 80-6 $\ddagger$ | DL-80-6 | 80VCT @ 6A | 40VCT @ 12A | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.50^{\prime \prime} \\ 139.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.7^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 19.0 \mathrm{lbs} \\ & 8.62 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 80-8 $\ddagger$ | DL-80-8 | 80VCT @ 8A | 40VCT @ 16A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 20.5 \mathrm{lbs} \\ & 9.30 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 80-12 $\ddagger$ | DL-80-12 | 80VCT @ 12A | 40VCT @ 24A | B | $\begin{gathered} 6.37^{\prime \prime} \\ 162.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.00^{\prime \prime} \\ 152.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{array}{r} 29.0 \mathrm{lbs} \\ 13.15 \mathrm{~kg} \\ \hline \end{array}$ |
| - | 80-25 ${ }^{\text {a }}$ | 80VCT @ 25A | 40VCT @ 50A | B | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.50^{\prime \prime} \\ 165.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.25^{\prime \prime} \\ 158.8 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 40.3 \mathrm{lbs} \\ & 18.28 \mathrm{~kg} \end{aligned}$ |

$\Delta$ Available with dual primary only. Therefore, prefix "DL" is not required.
$\ddagger$ Nominal 115 V primary has added taps, I.E., 105/115/125V; Dual (DL) version is $115 / 230 \mathrm{~V}$ only.
*Items are not normally in stock. They are standard designs generally available in 3-4 weeks.

See page 38 for determining RMS secondary current ratings.

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# Filter and Dual Chokes <br> Chassis Mount 

## Available in Single and Dual Windings



Signal's CH and CL chokes are designed to compliment the rectifier power
transformers so that a set may be specified for DC power supplies using inductive filters.
General Specifications
■ Inductance - 0.12 MHY to 100 MHY

- DC Current - 1.0 ADC to 200 ADC

■ Insulation - Class A insulation $\left(105^{\circ} \mathrm{C}\right)$


| Part No. | Inductance (MHY) | $\begin{aligned} & \text { Current } \\ & \text { (Amps) } \end{aligned}$ | $\begin{array}{c\|} \hline \text { Resistance } \\ \text { (Ohms) } \end{array}$ | Mtg. Style | L | W | H | ML | MW | Mtg. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CH-1 | 100 | 1 | 1.5 | B | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \end{gathered}$ | \#8 | $\begin{aligned} & 2.3 \mathrm{lbs} \\ & 1.04 \mathrm{~kg} \end{aligned}$ |
| CH-2 | 70 | 2 | 0.9 | B | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.12^{\prime \prime} \\ 53.9 \mathrm{~mm} \\ \hline \end{array}$ | \#8 | $\begin{aligned} & 3.2 \mathrm{lbs} \\ & 1.45 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| CH-4 | 70 | 4 | 0.6 | B | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | \#8 | $\begin{aligned} & 5.3 \mathrm{lbs} \\ & 2.40 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| CH-6 | 40 | 6 | 0.4 | B | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.62^{\prime \prime} \\ 92.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \end{gathered}$ | \#8 | $\begin{aligned} & \hline 6.5 \mathrm{lbs} \\ & 2.95 \mathrm{~kg} \end{aligned}$ |
| CH-8 | 30 | 8 | 0.3 | B | $\begin{array}{c\|} \hline 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.62^{\prime \prime} \\ 92.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.50^{\prime \prime} \\ 88.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.43^{\prime \prime} \\ 87.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{gathered} 8 \mathrm{lbs} \\ 3.63 \mathrm{~kg} \\ \hline \end{gathered}$ |
| CH-12 | 15 | 12 | 0.1 | B | $\begin{array}{c\|} \hline 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 4.00^{\prime \prime} \\ 101.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 4.43^{\prime \prime} \\ 112.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{aligned} & \hline 13.71 \mathrm{bs} \\ & 6.21 \mathrm{~kg} \end{aligned}$ |
| CH-16 | 15 | 16 | 0.08 | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 4.62^{\prime \prime} \\ 117.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 4.43^{\prime \prime} \\ 112.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.62^{\prime \prime} \\ 92.0 \mathrm{~mm} \\ \hline \end{array}$ | \#10 | $\begin{aligned} & \hline 17.5 \mathrm{lbs} \\ & 7.94 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| CH-20 | 7 | 20 | 0.05 | B | $\begin{gathered} 5.25^{\mathrm{m}} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 4.00^{\prime \prime} \\ 101.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 4.43^{\prime \prime} \\ 112.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 98.4 \mathrm{~mm} \end{gathered}$ | \#10 | $\begin{aligned} & \hline 13.3 \mathrm{lbs} \\ & 6.03 \mathrm{~kg} \end{aligned}$ |
| CH-25 | 5 | 25 | 0.025 | B | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 4.75^{\prime \prime} \\ 120.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 4.43^{\prime \prime} \\ 112.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{array}{r} \hline 17.8 \mathrm{lbs} \\ 8.07 \mathrm{~kg} \\ \hline \end{array}$ |
| CH-30 | 4 | 30 | 0.01 | B | $\begin{array}{c\|} \hline 6.37^{\prime \prime} \\ 161.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 5.00^{\prime \prime} \\ 127.0 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 5.37^{\prime \prime} \\ 136.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{array}$ | 1/4 | $\begin{aligned} & \hline 24.4 \mathrm{lbs} \\ & 11.07 \mathrm{~kg} \end{aligned}$ |
| CH-50 | 1.4 | 50 | 0.01 | B | $\begin{array}{c\|} \hline 6.37^{\prime \prime} \\ 161.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 5.37^{\prime \prime} \\ 136.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{array}{r} 26.7 \mathrm{lbs} \\ 12.11 \mathrm{~kg} \\ \hline \end{array}$ |
| CH-100 | 0.5 | 100 | 0.005 | B | $\begin{array}{c\|} \hline 6.37^{\prime \prime} \\ 161.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 6.25^{\prime \prime} \\ 158.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 5.37^{\prime \prime} \\ 136.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{aligned} & \hline 31.4 \mathrm{lbs} \\ & 14.24 \mathrm{~kg} \end{aligned}$ |
| CH-200 | 0.3 | 200 | 0.001 | B | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \end{gathered}$ | $\begin{array}{c\|} \hline 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 6.25^{\prime \prime} \\ 158.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} \hline 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 48.0 \mathrm{lbs} \\ & 21.77 \mathrm{~kg} \end{aligned}$ |



| Part No. | Series Connected |  |  | Parallel Connected |  |  | $\begin{array}{\|l} \hline \text { Mtg. } \\ \text { Style } \\ \hline \end{array}$ | Dimensions |  |  |  |  | Mtg. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { Ind. } \\ \text { (MHY) } \\ \hline \end{gathered}$ | $\begin{array}{\|c} \hline \text { Curr. } \\ \text { (Amps) } \\ \hline \end{array}$ | $\begin{gathered} \hline \text { Res. } \\ \Omega \\ \hline \end{gathered}$ | $\begin{gathered} \text { Ind. } \\ \text { (MHY) } \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline \text { Curr. } \\ \text { (Amps) } \\ \hline \end{array}$ | $\begin{gathered} \hline \text { Res. } \\ \Omega \\ \hline \end{gathered}$ |  | L | W | H | ML | MW |  |  |
| CL-1-2 | 72 | 1 | 1.4 | 18 | 2 | 0.35 | C | $\begin{gathered} \hline 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 1.75^{\prime \prime} \\ 44.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r\|} \hline 2.31^{\prime \prime} \\ 58.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{array}$ | - | \#8 | $\begin{aligned} & \hline 0.9 \mathrm{lbs} \\ & 0.41 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| CL-2-4 | 40 | 2 | 0.7 | 10 | 4 | 0.18 | C | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c} \hline 2.12^{\prime \prime} \\ 53.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{array}$ | - | \#8 | $\begin{gathered} 1.5 \mathrm{lbs} \\ 0.68 \mathrm{~kg} \\ \hline \end{gathered}$ |
| CL-4-8 | 20 | 4 | 0.3 | 5 | 8 | 0.075 | B | $\begin{gathered} 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | \#8 | $\begin{aligned} & 3.0 \mathrm{lbs} \\ & 1.36 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| CL-6-12 | 12 | 6 | 0.15 | 3 | 12 | 0.038 | B | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 3.06^{\prime \prime} \\ 77.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | \#8 | $\begin{aligned} & \hline 4.0 \mathrm{lbs} \\ & 1.81 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| CL-12-24 | 4.8 | 12 | 0.052 | 1.2 | 24 | 0.013 | B | $\begin{array}{\|c\|} \hline 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.56^{\prime \prime} \\ 90.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 3.00^{\prime \prime} \\ 76.2 \mathrm{~mm} \\ \hline \end{array}$ | \#8 | $\begin{aligned} & 5.3 \mathrm{lbs} \\ & 2.40 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| CL-25-50 | 1.2 | 25 | 0.012 | 0.3 | 50 | 0.003 | B | $\begin{gathered} 3.75^{\prime \prime} \\ 98.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \\ \hline \end{array}$ | \#8 | $\begin{aligned} & 6.0 \mathrm{lbs} \\ & 2.72 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| CL-50-100 | 0.5 | 50 | 0.0043 | 0.12 | 100 | 0.0011 | B | $\begin{array}{c\|} \hline 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | \#8 | $\begin{aligned} & 8.0 \mathrm{lbs} \\ & 3.63 \mathrm{~kg} \\ & \hline \end{aligned}$ |

Signal's Dual Chokes are supplied with 2 windings which may be series or parallel connected with rating shown on chart. This line is basically designed for application requiring lower inductance value at high currents, such as low voltage, DC supplies or SCR filters.
See page 38 for determining RMS secondary current ratings.

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

## Industrial Grade Step-Up or Step-Down Transformers



## Signal's DU and SU transformers have been designed to provide a multitude of step-up or step-down voltages to accommodate the various input voltages available throughout the world. <br> General Specifications <br> - Power - 250 VA to 10 KVA ( 500 VA to 20 KVA possible if used as auto-transformer) <br> - Dielectric Strength - 2500VRMS Hipot <br> - Primaries - Dual/tapped primaries: Parallel connected (104V, 110V, 120V - $50-500 \mathrm{~Hz}$ ) Series connected (208V, 220V, 230V, $240 \mathrm{~V}-50-500 \mathrm{~Hz}$ ) <br> ■ Secondaries - Dual/tapped secondaries: DU Series

Parallel connected ( $104 \mathrm{~V}, 110 \mathrm{~V}, 120 \mathrm{~V}-50-500 \mathrm{~Hz}$ )
Series connected (208V, 220V, $230 \mathrm{~V}, 240 \mathrm{~V}-50-500 \mathrm{~Hz}$ )

- Electrostatic Shield - 2 mil thick copper foil connected to ground. The connection may be opened if an ungrounded shield is desired.
- Terminals - Plated brass screw type terminals
- Insulation - Class A insulation $\left(105^{\circ} \mathrm{C}\right)$

As shown on the schematic diagram the "DU" line is designed with dual primaries and secondaries. All four windings are identically rated at 0/104/110/120 volts. This permits series or parallel connections on either primary or secondary. Therefore, a nominal 110 to 110 volt, 220 to 220 volt, 110 to 220 volt, or 220 to 110 volt transformer can be set up. The winding taps permit intermediate series ratings such as 208, 214 , or 230 volts. It is also possible to make auto-transformer connections by connecting a primary group in series with a secondary group. Such nominal ratings as 440 to 220 volts or 220 to 440 volts can be set up, in addition to the standard ratings described above. A further advantage to auto-transformer connection is the fact that the KVA rating of a particular type is doubled.

| Part No. | KVA | Series Secondaries |  | Parallel Secondaries |  | Mechanical Dimensions |  |  |  |  | Mtg. \& Term. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Volts | Max. Amps | Volts | Max. Amps | * | W | ${ }_{\text {H }}^{\text {H }}$ | $\begin{gathered} \mathrm{ML} \\ \mathrm{t} \end{gathered}$ | $\underset{\ddagger}{\text { MW }}$ |  |  |
| DU-1/4 | 1/4 | 0/208/220/240 | 1.1 | 0/104/110/120 | 2.2 | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.25^{\prime \prime} \\ 107.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \end{gathered}$ | \#10 | $\begin{aligned} & 12 \mathrm{lbs} \\ & 5.44 \mathrm{~kg} \end{aligned}$ |
| DU-1/2 | 1/2 | 0/208/220/240 | 2.3 | 0/104/110/120 | 4.6 | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 3.62^{\prime \prime} \\ 92.1 \mathrm{~mm} \\ \hline \end{array}$ | \#10 | $\begin{gathered} 18 \mathrm{lbs} \\ 8.16 \mathrm{~kg} \\ \hline \end{gathered}$ |
| DU-1 | 1 | 0/208/220/240 | 4.5 | 0/104/110/120 | 9 | $\begin{gathered} 7.56^{\prime \prime} \\ 192.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.25^{\prime \prime} \\ 158.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.37^{\prime \prime} \\ 187.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{gathered} 33 \mathrm{lbs} \\ 14.97 \mathrm{~kg} \\ \hline \end{gathered}$ |
| DU-2 | 2 | 0/208/220/240 | 9 | 0/104/110/120 | 18 | $\begin{gathered} 7.56^{\prime \prime} \\ 192.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 8.25^{\prime \prime} \\ 209.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.37^{\prime \prime} \\ 187.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.00^{\prime \prime} \\ 152.4 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{array}{r} 56 \mathrm{lbs} \\ 25.40 \mathrm{~kg} \\ \hline \end{array}$ |
| DU-3 | 3 | 0/208/220/240 | 14 | 0/104/110/120 | 28 | $\begin{gathered} 7.56^{\prime \prime} \\ 192.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 9.25^{\prime \prime} \\ 234.9 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 7.37^{\prime \prime} \\ 187.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.00^{\prime \prime} \\ 177.8 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{gathered} 70 \mathrm{lbs} \\ 31.75 \mathrm{~kg} \\ \hline \end{gathered}$ |
| DU-5 | 5 | 0/208/220/240 | 23 | 0/104/110/120 | 46 | $\begin{gathered} 7.56^{\prime \prime} \\ 192.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 10.75^{\prime \prime} \\ 273.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.37^{\prime \prime} \\ 187.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 8.50^{\prime \prime} \\ 215.9 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{gathered} 89 \mathrm{lbs} \\ 40.37 \mathrm{~kg} \\ \hline \end{gathered}$ |
| DU-7.5 | 7.5 | 0/208/220/240 | 31 | 0/104/110/120 | 62 | $\begin{gathered} 9.00^{\prime \prime} \\ 228.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 10.75^{\prime \prime} \\ 273.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 8.00^{\prime \prime} \\ 203.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.50^{\prime \prime} \\ 165.1 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{gathered} 105 \mathrm{lbs} \\ 47.63 \mathrm{~kg} \\ \hline \end{gathered}$ |
| DU-10 | 10 | 0/208/220/240 | 41 | 0/104/110/120 | 82 | $\begin{gathered} 9.00^{\prime \prime} \\ 228.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 13.00^{\prime \prime} \\ 330.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 8.00^{\prime \prime} \\ 203.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 9.00 \\ 228.6 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{aligned} & 150 \mathrm{lbs} \\ & 68.04 \mathrm{~kg} \end{aligned}$ |

*Maximum $\dagger \pm 0.6$ " $(1.6 \mathrm{~mm}) \ddagger \pm .12^{\prime \prime}(3.2 \mathrm{~mm})$


If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.
Signal Transformer

## Industrial Grade Step-Up or Step-Down Transformers



Signal's DU and SU transformers have been designed to provide a multitude of step-up or step-down voltages to accommodate the various input voltages available throughout the world.

## General Specifications

- Power - 250 VA to 10 KVA ( 500 VA to 20 KVA possible if used as auto-transformer)

■ Dielectric Strength - 2500VRMS Hipot

- Primaries - Dual/tapped primaries: Parallel connected (104V, 110V, 120V - $50-500 \mathrm{~Hz}$ ) Series connected (208V, 220V, 230V, $240 \mathrm{~V}-50-500 \mathrm{~Hz}$ )
- Secondaries - Dual/tapped secondaries: SU Series

Parallel connected (208V, 220 V , $240 \mathrm{~V}-50-500 \mathrm{~Hz}$ )
Series connected ( $416 \mathrm{~V}, 440 \mathrm{~V}, 460 \mathrm{~V}, 480 \mathrm{~V}-50-500 \mathrm{~Hz}$ )

- Electrostatic Shield - 2 mil thick copper foil connected to ground. The connection may be opened if an ungrounded shield is desired.
- Terminals - Plated brass screw type terminals
- Insulation - Class A insulation ( $105^{\circ} \mathrm{C}$ )

As shown on the schematic diagram the "SU" line is designed with dual primaries and secondaries. Two primary windings are identically rated at 0/104/110/120. Two secondary windings are identically rated at $0 / 208 / 220 / 240$. This permits series or parallel connections on either primary or secondary. Therefore a nominal 110 to 220 volt, 220 to 440 volt, 110 to 440 volt, or 440 to 110 volt transformer can be set up. The winding tape permits intermediate series ratings such as 416,428 , and 460 volts. It is also possible to make auto-transformer connections by connecting a primary group in series with a secondary group. Such nominal ratings as 660 to 330 volts or 330 to 660 volts can be set up, in addition to the standard ratings described above. A further advantage to auto-transformer connection is the fact that the KVA rating of a particular type is doubled.

| Part No. | KVA | Series Secondaries |  | Parallel Secondaries |  | Mechanical Dimensions |  |  |  |  | Mtg. \& Term. Screw | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Volts | Max. Amps | Volts | Max. Amps | * | W | ${ }_{\text {H }}$ | $\begin{gathered} \mathrm{ML} \\ \mathrm{t} \end{gathered}$ | $\begin{gathered} \hline \text { MW } \\ \ddagger \\ \hline \end{gathered}$ |  |  |
| SU-1/4 | 1/4 | 0/416/440/480 | 0.55 | 0/208/220/240 | 1.1 | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.25^{\prime \prime} \\ 107.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.50^{\prime \prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | \#10 | $\begin{gathered} 12 \mathrm{lbs} \\ 5.44 \mathrm{~kg} \\ \hline \end{gathered}$ |
| SU-1/2 | 1/2 | 0/416/440/480 | 1.15 | 0/208/220/240 | 2.3 | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.31^{\prime \prime} \\ 134.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.62^{\prime \prime} \\ 92.1 \mathrm{~mm} \\ \hline \end{gathered}$ | \#10 | $\begin{gathered} \hline 18 \mathrm{lbs} \\ 8.16 \mathrm{~kg} \\ \hline \end{gathered}$ |
| SU-1 | 1 | 0/416/440/480 | 2.25 | 0/208/220/240 | 4.5 | $\begin{gathered} 7.56^{\prime \prime} \\ 192.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.25^{\prime \prime} \\ 158.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.37^{\prime \prime} \\ 187.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.12^{\prime \prime} \\ 104.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{gathered} 33 \mathrm{lbs} \\ 14.97 \mathrm{~kg} \\ \hline \end{gathered}$ |
| SU-2 | 2 | 0/416/440/480 | 4.5 | 0/208/220/240 | 9 | $\begin{gathered} 7.56^{\prime \prime} \\ 192.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 8.25^{\prime \prime} \\ 209.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} \hline 7.37^{\prime \prime} \\ 187.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.00^{\prime \prime} \\ 152.4 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{gathered} 56 \mathrm{lbs} \\ 25.40 \mathrm{~kg} \\ \hline \end{gathered}$ |
| SU-3 | 3 | 0/416/440/480 | 7 | 0/208/220/240 | 14 | $\begin{gathered} 7.56^{\prime \prime} \\ 192.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 9.25^{\prime \prime} \\ 234.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.37^{\prime \prime} \\ 187.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.00^{\prime \prime} \\ 177.8 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{gathered} 70 \mathrm{lbs} \\ 31.75 \mathrm{~kg} \\ \hline \end{gathered}$ |
| SU-5 | 5 | 0/416/440/480 | 11.5 | 0/208/220/240 | 23 | $\begin{gathered} 7.56^{\prime \prime} \\ 192.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 10.75^{\prime \prime} \\ 273.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 7.37^{\prime \prime} \\ 187.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.75^{\prime \prime} \\ 171.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 8.50^{\prime \prime} \\ 215.9 \mathrm{~mm} \end{gathered}$ | 1/4 | $\begin{array}{r} 89 \mathrm{lbs} \\ 40.37 \mathrm{~kg} \\ \hline \end{array}$ |
| SU-7.5 | 7.5 | 0/416/440/480 | 15.5 | 0/208/220/240 | 31 | $\begin{gathered} 9.00^{\prime \prime} \\ 228.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 10.75^{\prime \prime} \\ 273.1 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 8.00^{\prime \prime} \\ 203.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.50^{\prime \prime} \\ 165.1 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{array}{r} 105 \mathrm{lbs} \\ 47.63 \mathrm{~kg} \\ \hline \end{array}$ |
| SU-10 | 10 | 0/416/440/480 | 20.5 | 0/208/220/240 | 41 | $\begin{array}{r} 9.00^{\prime \prime} \\ 228.6 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 13.00^{\prime \prime} \\ 330.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 8.00^{\prime \prime} \\ 203.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.50^{\prime \prime} \\ 190.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 9.00 \\ 228.6 \mathrm{~mm} \\ \hline \end{gathered}$ | 1/4 | $\begin{array}{r} \hline 150 \mathrm{lbs} \\ 68.04 \mathrm{~kg} \\ \hline \end{array}$ |

*Maximum $\dagger \pm 0.6^{\prime \prime}(1.6 \mathrm{~mm}) \ddagger \pm .12^{\prime \prime}(3.2 \mathrm{~mm})$


If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.

# Step Down Auto Transformers Chassis Mount 

## Available with Receptical and Line Cord or Leads

```
Signal's auto transformers provide the user the capability of adapting
voltages for worldwide applications.
General Specifications
■ Power - }100\mathrm{ VA to 2000 VA
- Voltage - EB version (230V to 115V - 50/60 Hz)
    OF version (230V to 115V or 115V to 230V - 50/60 Hz)
- Connections - EB version (receptacle and 2-prong line cord)
    OF version (8 inch long leads)
- Insulation - Class A insulation (105 C)
```



| Part. No. | VA (Size) | Width | Depth | Height | Mtg. Centers | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 110 | 100 | $\begin{gathered} 1.87^{\prime \prime} \\ 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.37^{\prime \prime} \\ 60.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 1.50 \times 1.68^{\prime \prime} \\ 38.1 \times 42.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 1.5 \mathrm{lbs} \\ & 0.68 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 112 | 120 | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.12^{\prime \prime} \\ 54.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.50^{\prime \prime} \\ 88.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25 \times 1.75^{\prime \prime} \\ 57.2 \times 44.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 3.0 \mathrm{lbs} \\ & 1.36 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 115 | 150 | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.50^{\prime \prime} \\ 88.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25 \times 2.00^{\prime \prime} \\ 57.2 \times 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 3.5 \mathrm{lbs} \\ & 1.59 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 120 | 200 | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.50^{\prime \prime} \\ 88.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.50^{\prime \prime} \\ 88.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25 \times 2.12^{\prime \prime} \\ 57.2 \times 54.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & 4.0 \mathrm{lbs} \\ & 1.81 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 125 | 250 | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.50^{\prime \prime} \\ 88.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.25 \times 2.50^{\prime \prime} \\ 57.2 \times 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 4.8 \mathrm{lbs} \\ 2.18 \mathrm{~kg} \\ \hline \end{array}$ |
| 130 | 300 | $\begin{gathered} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50 \times 2.43^{\prime \prime} \\ 63.5 \times 61.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 5.5 \mathrm{lbs} \\ 2.49 \mathrm{~kg} \\ \hline \end{array}$ |
| 150 | 500 | $\begin{gathered} \hline 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.87^{\prime \prime} \\ 123.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 2.50 \times 3.43^{\prime \prime} \\ 63.5 \times 87.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 8 \mathrm{lbs} \\ 3.63 \mathrm{~kg} \\ \hline \end{array}$ |
| 175 | 750 | $\begin{gathered} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.87^{\prime \prime} \\ 149.2 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.87^{\prime \prime} \\ 98.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50 \times 4.43^{\prime \prime} \\ 63.5 \times 112.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 11 \mathrm{lbs} \\ 5.00 \mathrm{~kg} \\ \hline \end{array}$ |
| 1100 | 1000 | $\begin{gathered} \hline 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.12^{\prime \prime} \\ 130.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.50^{\prime \prime} \\ 139.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.50 \times 3.50^{\prime \prime} \\ 88.9 \times 88.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 14 \mathrm{lbs} \\ 6.35 \mathrm{~kg} \\ \hline \end{array}$ |
| 1150 | 1500 | $\begin{gathered} \hline 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 6.12^{\prime \prime} \\ 155.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.50^{\prime \prime} \\ 139.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.50 \times 4.50^{\prime \prime} \\ 88.9 \times 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 20 \mathrm{lbs} \\ 9.07 \mathrm{~kg} \\ \hline \end{array}$ |
| 1200 | 2000 | $\begin{gathered} \hline 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 7.12^{\prime \prime} \\ 181.0 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.50^{\prime \prime} \\ 139.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.50 \times 5.50^{\prime \prime} \\ 88.9 \times 139.7 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} \hline 26 \mathrm{lbs} \\ 11.79 \mathrm{~kg} \end{gathered}$ |



| Part. No. | VA (Size) | Width | Depth | Height | Mtg. Centers | Wgt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 110-OF | 100 | $\begin{gathered} 2.25^{\prime \prime} \\ 57.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.00^{\prime \prime} \\ 50.8 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 1.93^{\prime \prime} \\ 49.2 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 2.81^{\prime \prime} \\ 71.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} \hline 1.3 \mathrm{lbs} \\ 0.59 \mathrm{~kg} \\ \hline \end{array}$ |
| 112-OF | 120 | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.50^{\prime \prime} \\ 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81 \times 1.87^{\prime \prime} \\ 71.4 \times 47.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 2.5 \mathrm{lbs} \\ & 1.13 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 115-OF | 150 | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.75^{\prime \prime} \\ 69.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81 \times 2.12^{\prime \prime} \\ 71.4 \times 54.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 3.0 \mathrm{lbs} \\ & 1.36 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 120-OF | 200 | $\begin{gathered} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81 \times 2.25^{\prime \prime} \\ 71.4 \times 57.2 \mathrm{~mm} \end{gathered}$ | $\begin{aligned} & \hline 3.5 \mathrm{lbs} \\ & 1.59 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 125-OF | 250 | $\begin{array}{r} 3.37^{\prime \prime} \\ 85.7 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.87^{\prime \prime} \\ 73.0 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 2.81 \times 2.62^{\prime \prime} \\ 71.4 \times 66.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 4.2 \mathrm{lbs} \\ & 1.90 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 130-OF | 300 | $\begin{array}{r} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{gathered} 3.25^{\prime \prime} \\ 82.6 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12 \times 2.50^{\prime \prime} \\ 79.4 \times 63.5 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 5.0 \mathrm{lbs} \\ & 2.27 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 150-OF | 500 | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.25^{\prime \prime} \\ 107.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12 \times 3.50^{\prime \prime} \\ 79.4 \times 88.9 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 8.0 \mathrm{lbs} \\ & 3.63 \mathrm{~kg} \\ & \hline \end{aligned}$ |
| 175-OF | 750 | $\begin{gathered} 3.75^{\prime \prime} \\ 95.3 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 3.12^{\prime \prime} \\ 79.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 3.12 \times 4.50^{\prime \prime} \\ 79.4 \times 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 11 \mathrm{lbs} \\ 5.00 \mathrm{~kg} \\ \hline \end{array}$ |
| 1100-0F | 1000 | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.50^{\prime \prime} \\ 114.3 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 4.37 \times 3.12^{\prime \prime} \\ 111.1 \times 79.4 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 14 \mathrm{lbs} \\ 6.35 \mathrm{~kg} \\ \hline \end{array}$ |
| 1150-OF | 1500 | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 5.50^{\prime \prime} \\ 139.7 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 4.37 \times 4.12^{\prime \prime} \\ 111.1 \times 104.8 \mathrm{~mm} \\ \hline \end{array}$ | $\begin{array}{r} 19 \mathrm{lbs} \\ 8.62 \mathrm{~kg} \\ \hline \end{array}$ |
| 1200-OF | 2000 | $\begin{gathered} 5.25^{\prime \prime} \\ 133.4 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 6.50^{\prime \prime} \\ 165.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37^{\prime \prime} \\ 111.1 \mathrm{~mm} \end{gathered}$ | $\begin{gathered} 4.37 \times 5.12^{\prime \prime} \\ 111.1 \times 130.2 \mathrm{~mm} \\ \hline \end{gathered}$ | $\begin{array}{r} 25 \mathrm{lbs} \\ 11.34 \mathrm{~kg} \\ \hline \end{array}$ |

If you don't see a specific part that meets your requirement, see page 31 for our custom magnetics design data sheet.
Signal Transformer

Application: Power transformer (50/60/400 Hz)
Switching mode power conversion
Other
Frequency:
Voltage(s):
Primary $\qquad$
Secondary $\qquad$
$\qquad$
(Topology

Name
Address $\qquad$

Contact $\qquad$
Phone $\qquad$
Fax $\qquad$
Type of Rectification (or Secondary Loading):
$\qquad$

Duty Cycle (0 to 100\%): $\qquad$
Dielectric Withstanding Voltage (Isolation Voltage):
Other Requirements: $\qquad$
$\qquad$

Quote Price \& Delivery on Quantity of: $\qquad$
Schematic:


## Signal Transformer



# BUSINESS REPLY MAIL <br> FIRST CLASS MAIL PERMIT NO. 953 FAR ROCKAWAY, NY 

POSTAGE WILL BE PAID BY ADDRESSEE

SIGNAL TRANSFORMER CO., INC.
500 BAYVIEW AVE.
INWOOD, NY 11096-9898

Application: Power transformer (50/60/400 Hz)
Switching mode power conversion
Other
Frequency:
Voltage(s):
Primary $\qquad$
Secondary $\qquad$
$\qquad$
(Topology

Name
Address $\qquad$

Contact $\qquad$
Phone $\qquad$
Fax $\qquad$
Type of Rectification (or Secondary Loading):
$\qquad$

Duty Cycle (0 to 100\%): $\qquad$
Dielectric Withstanding Voltage (Isolation Voltage):
Other Requirements: $\qquad$
$\qquad$

Quote Price \& Delivery on Quantity of: $\qquad$
Schematic:


## Signal Transformer



# BUSINESS REPLY MAIL <br> FIRST CLASS MAIL PERMIT NO. 953 FAR ROCKAWAY, NY 

POSTAGE WILL BE PAID BY ADDRESSEE

SIGNAL TRANSFORMER CO., INC.
500 BAYVIEW AVE.
INWOOD, NY 11096-9898

## How to specify power transformer \& filter ratings

The purpose of this section is to provide a practical guide for the selection of a power supply transformer and filter components. A number of basic assumptions are made to avoid an academic discussion of unnecessary material. For those interested in a rigorous theoretical analysis, there are a number of fine references available. Additionally, circuit analysis using appropriate analysis software (SPICE or its equivalent) is recommended in the rare circumstances where a better understanding of a particular situation is needed, or when it becomes necessary to optimize some aspect of the design. Computer analysis is particularly useful in understanding areas that are difficult to approach using traditional circuit analysis methods, areas such as capacitor RMS ripple current.

One of the more esoteric problems encountered by the circuit designer is the selection of power transformer ratings for a particular DC power supply. The designer is immediately confronted with a number of rectifier circuits and filter configurations. For the sake of simplicity, we will make some assumptions which should be valid for 99\% of the average designer's applications and present some useful rules of thumb appropriate for conservative design.

## Filters

We will immediately discard the consideration of choke input filters and confine our choice to capacitor input filters because of the following:

1. It is desirable to eliminate the weight and cost of chokes.
2. It can be assumed that if a regulator is used it will provide sufficient extra ripple reduction so that an L-C section is not required. In addition, the regulator will compensate for the poor output voltage regulation with load, inherent in capacitor input systems.
The remaining disadvantages of the capacitive input filter system are caused by the discontinuous secondary current flow (high peak-to-average ratio of forward diode current). Current is drawn in short, high amplitude pulses to replace the charge of the filter capacitor which discharges into the load during diode off time. This results in higher effective RMS values of transformer secondary current. However, the transformer average VA rating is the same as the choke input filter because the higher DC output voltage obtained at the capacitor compensates for this effect. In addition, except perhaps for supplies handling very high currents, average semiconductor diodes will meet most of the peak or surge current requirements of capacitive filters.

## Rectifier Circuit

The remaining choice is that of a rectifier circuit configuration. The most common single phase circuits are:

1. Half-Wave (single diode)
2. Full-Wave Center-Tapped (two diodes)
3. Full-Wave Bridge (four diodes)
4. Dual Complementary Supply - "Full-Wave Center-Tap" (four diodes)
The only advantages of the half-wave rectifier are its simplicity and the savings in cost of one diode. Its disadvantages are many:
5. Extremely high current spikes are drawn during the capacitor charging interval (only one current surge per cycle). This current is limited only by the effective transformer and rectifier series impedance, but it must not be too high or it will result in rectifier damage. This short once-per-cycle current spike also results in very high secondary RMS currents.
6. The unidirectional DC current in the transformer secondary biases the transformer core with a component of DC flux density. As a result, more "iron" is needed to avoid core saturation.
About the only time it would pay to consider using the half-wave rectifier is for very low DC power levels of about $1 / 2$ watt or less. At these levels a power transformer cannot be reduced very much in size (at reasonable cost) and a small filter capacitor will be large enough for adequate DC smoothing.

The remaining single-phase rectifier circuits are of the "full-wave" type. Secondary current surges occur twice per cycle so that they are of smaller magnitude and the fundamental ripple frequency is double the supply frequency (i.e., 120 Hz rather than the 60 Hz of a half-wave system). All full-wave rectifiers also have the same basic rectified waveform applied to the filter capacitor.

## Other Factors

- Full-Wave Center-Tap

Uses $1 / 2$ of secondary winding at a time Requires center-tap
Uses 2 diodes

## - Full-Wave Bridge

Uses full secondary winding continuously No center-tap required Uses 4 diodes
As can be seen above, the choice between FWCT and Bridge configurations is a tradeoff. The bridge rectifier has the best transformer utilization but requires the use of 4 diodes. The extra diodes result in twice the diode voltage drop of a FWCT circuit so that the FWCT is usually preferable in low voltage supplies.


## How to specify power transformer \& filter ratings



Dual Complementary Rectifier

The "dual complementary rectifier circuit" is the combination of two FWCT circuits and is a very efficient way of obtaining two identical outputs of reversed polarity sharing a common ground. It is also called a "centertapped bridge rectifier."

The diagram below represents a full-wave center-tapped rectifier using a capacitive filter and is the most common selection for moderate power, regulated DC supplies. The following assumptions can safely be made:


1. VREG is approximately 3 volts DC or greater.
2. VRECT is about 1.25 volts DC.
3. VRIPPLE is about $10 \%$ VDC peak.
The following formula may be used for determining the transformer secondary voltage:


VNOM is
VLOWLINE
the ratio of the nominal $A C$ line voltage to the required low line conditions.
A sample illustration of the above will be shown for a supply requiring an output of 5V DC at 2A DC to operate down to an input voltage of 95V RMS.

VOUT $=5 \mathrm{~V}$
VREG $=3 \mathrm{~V}$
VRECT $=1.25 \mathrm{~V}$
VRIPPLE $=0.5(1 \mathrm{~V} p-\mathrm{p})$
VAC $=\frac{9.75}{0.9} \times \frac{115}{95} \times \frac{1}{\sqrt{2}}=9.27$ VAC
Therefore, the transformer secondary voltage can be specified as about 18 V CT . For a bridge rectifier of the same output requirements, the only change is that:
VRECT $=2 \times 1.25=2.5 \mathrm{~V}$
As a result VAC will be reformulated as:

$$
\mathrm{VAC}=\frac{11}{0.9} \times \frac{115}{95} \times \frac{1}{\sqrt{2}}=10.46 \mathrm{VAC}
$$

so that the transformer secondary voltage
now becomes about 10.5 V .

## Transformer Secondary Current

The remaining step is to determine the transformer RMS secondary circuit. This can be accurately determined only by complex analysis. However, for practical engineering purposes the chart below may be used.

| Rectifier <br> Type | Filter Type* | Required RMS <br> Secondary Current <br> Rating |
| :--- | :--- | :--- |
| Full-Wave <br> Center-Tap | Choke Input | $0.7 \times$ DC Current |
| Full-Wave <br> Center-Tap | Capacitor <br> Input | $1.2 \times$ DC Current |
| Full-Wave <br> Bridge | Choke Input | DC Current |
| Full-Wave <br> Bridge | Capacitor <br> Input | $1.8 \times$ DC Current |

*Even though we have dropped choke input filters from this discussion, they are included for reference.
For instance, in our particular example ( $5 \mathrm{~V}, 2 \mathrm{~A}$ DC supply) the transformer RMS current would be:

$$
\begin{array}{ll}
\text { for FWCT } & 1.2 \times 2=2.4 \mathrm{~A} \\
\text { for bridge } & 1.8 \times 2=3.6 \mathrm{~A}
\end{array}
$$

The total transformer specification would then be:

| Circuit | Secondary Rating | $\begin{aligned} & \hline \text { Possible "Signal" } \\ & \text { Parts } \end{aligned}$ |
| :---: | :---: | :---: |
| FWCT | $\begin{aligned} & 18.5 \mathrm{CT} @ 2.4 \mathrm{~A} \\ & \text { RMS = 43.2 VA } \end{aligned}$ | 241-7-20, 36-1 |
| bridge | $\begin{aligned} & 10.5 @ 3.6 \mathrm{~A} \\ & \mathrm{RMS}=36 \mathrm{VA} \end{aligned}$ | $\begin{gathered} \text { ST-7-10, 241-6 or } \\ 7-10,10-4 \end{gathered}$ |

## Dual Complementary Supply

One more common example will be given, i.e., a dual complementary supply for $\pm 15 \mathrm{~V} @ 100 \mathrm{mADC}$.
VOUT $= \pm 15 \quad$ VRECT $=1.25$
$\mathrm{VREG}=3$
VRIPPLE $=0.75(1.5 \mathrm{~V} p-\mathrm{p})$
VAC =
$\frac{(15+3+1.25+0.75)}{0.9} \times \frac{115}{95} \times 1=19 \mathrm{~V}$
$1 \mathrm{AC}=1.8 \times 100 \mathrm{~mA}=180 \mathrm{~mA}$ RMS
The transformer secondary rating is 38 V CT @ 180 mA RMS. Possible Signal parts would be ST-4-36, PC-34-300, PC-40-250. A precautionary calculation remains to be made. That is, the increase in voltage at the filter capacitor (into the regulator) caused by a high line condition. If we assume our highest line voltage to be 130 V AC then the transformer output (compared to low line) would rise by the ratio 130/95. In the 5 V supply, for instance, the following would happen:
$\mathrm{VAC}=\frac{130}{95} \times 9.27=12.7 \mathrm{~V}$
In the dual complementary +15 V supply:
VAC $=\frac{130}{95} \times 19=26 \mathrm{~V}$
The increase in output must be absorbed by the regulator, which results in higher regulator power dissipation. The illustrated values are safe for the typical IC regulator but should be checked in any specific application.


# How to specify power transformer \& filter ratings 

## ADDITIONAL FACTORS TO BE CONSIDERED IN TRANSFORMER SELECTION

## Load Regulation

It has been assumed in the previous discussion of the change in transformer secondary voltage with line voltage that no change has been occurring in load current. Therefore, the transformers would seem to be ideal and the transformer secondary voltage (VAC) will always be the same. Actually, all the voltages calculated are assumed to be full load.

Since transformers are not ideal and have an internal impedance or "regulation" characteristic, variations in load current may cause a problem. If the load should be "light" at "high line," then there will be an additional rise in secondary voltage, beyond that due to the rising line voltage, caused by the decreasing voltage drop in the transformer windings.

Most smaller VA transformers (<10VA) have a load regulation of $20 \%$ or higher. This means that the transformer no-load voltage will be $20 \%$ or more higher than rated full-load voltage. This must then be taken into account in the calculation of maximum VAC (and DC voltage into regulator) with low-load currents.

Due to the inherent design characteristics of transformers, "regulation" will vary inversely with size (or VA rating). In larger transformers size is determined primarily by the heat generated by internal losses. In smaller transformers (low VA rating) size is determined by the maximum permissible no-load to full-load regulation. Even though this is an important design limitation, most transformer manufacturers do not publish load regulation data. The chart below tabulates load regulation for Signal standard transformers.

It is possible to estimate the output voltage at intermediate loads since load regulation varies in an almost linear manner. For example, the 241-8-16 has a full-load rating of $16 \mathrm{~V} @$ 6.25 A and a regulation of $10 \%$. Its no-load output would be $10 \%$ more than 16 or 17.6 V . At half-load (3.12 A) its output would be $5 \%$ more than 16 or 16.8 V . Similar estimates can be made for any \% load.

Another factor to bear in mind is that it is possible to safely exceed the VA rating of many small power transformers. If the added regulation (drop in output voltage) is acceptable, an "overload" may be permissible because the design is regulation-limited rather than heat rise-limited. If such a choice is being considered, the decision should be checked with our Design Engineering department.

## Temperature Rise

In power transformers over 25 VA , temperature rise becomes a factor. The transformer may be constructed with materials capable of withstanding higher temperatures and be a perfectly valid design. However, the extra power dissipated may cause heating of nearby components. This added power loss increases the total power dissipated in the circuit area. The problem is not the internal temperature of the transformer, but the actual increase in watts lost.

## Shielding

Certain AC power line noise and transients will be fed through to the transformer secondary because of the capacitance between windings. This is a problem which is very difficult to analyze. Whether or not it is a problem in a particular applicaton can be best determined empirically.

If such feedthrough is a problem, the most common first step is to use an electro-static shield between windings. This effectively reduces the inter-winding capacitance. An equal and sometimes superior approach is to choose transformers with non-concentric windings, i.e., with primary and secondary wound side-by-side rather than one over the other. Both result in at least order of magnitude reductions in capacitance. The "non-concentric" approach, however, gives superior reductions. It also results in higher insulation resistance and makes it simpler to obtain higher insulation test voltages.

Certain types of feedthrough cannot be much affected by the transformer design and other approaches such as line filters or "MOVs" or ZNR's (transient surge suppressors) may have to be considered.

## Summary

This has been an attempt to provide a simple, practical method of determining transformer ratings. Certain basic assumptions have been made and this section is not meant as a rigorous academic analysis. However, such material is readily available in the literature (see below). This, we feel, may help bridge the gap for the working designer.

## References

For more detailed theoretical analysis the following are recommended:

1. Reuben Lee, Electronic

Transformers \& Circuits, 1947, John Wiley \& Sons
2. EE Staff - MIT, Magnetic Circuits \&

Transformers, 1943, John Wiley \& Sons
3. O.H. Schade, Proc. IRE, vol 31,
p. 356, 1943

# How to specify power transformer \& filter ratings 

## COMMENTS ON CAPACITOR \& DIODE SELECTION

## Capacitor Selection

For low current supplies (IOUT<IA) capacitor selection is relatively straight-forward. Capacitance is found by the simple formula:

$$
\mathrm{C}=\frac{1 \mathrm{~L}}{\Delta \mathrm{~V}} \times 6 \times 10^{-3}
$$

where: $1 \mathrm{~L}=\mathrm{DC}$ load current $\Delta \mathrm{V}=$ peak-to-peak ripple voltage ripple frequency $=120 \mathrm{~Hz}$.

This yields $2000 \mu$ F/amp for $3 V$ p-p ripple. At DC currents below 1 amp , capacitor heating is usually not a problem and peak-to-peak ripple voltage is the determining factor in capacitor size.

At higher values of capacitance, where the ratio of capacitor outside surface area to volume is significantly lower, internal heating becomes a problem. Ripple current rating may be a determining factor in capacitor selection, rather than ripple voltage. In many cases, capacitor size will have to be increased to prevent excessive internal heating. Manufacturers' data sheets should be consulted (after an initial selection is made) to ensure that capacitor ripple current ratings are met. Remember that the RMS ripple current ratings shown on capacitor data sheets are not the same as DC load current. RMS ripple current in a capacitor input filter is 2 to 3 times the load current. In addition, the time-to-failure used to rate capacitors on data sheets is often 10,000 hours. For five-year life ( 40,000 hours), ambient temperature may have to be derated $30^{\circ} \mathrm{C}$ from the date sheet rating. Capacitor life roughly doubles for each $15^{\circ} \mathrm{C}$ reduction in operating temperature. The following calculations illustrate a typical design example: assume $1 \mathrm{~L}=3 \mathrm{~A}, \Delta \mathrm{~V}=4 \mathrm{~V} p-\mathrm{p}$,
VDC $=12 \mathrm{~V}$
$C=\frac{\left(6 \times 10^{-3}\right)(3 \mathrm{~A})}{4 \mathrm{~V}}=4,500 \mu \mathrm{~F}$

Manufacturer's rating on a $4,600 \mu \mathrm{~F} / 20 \mathrm{~V}$ capacitor @ TA $=65^{\circ} \mathrm{C}$ is 3.1 A RMS. Dividing by 2.5 to convert from RMS ripple current to output current yields a maximum DC load current of 1.24 amps. Obviously either a large capacitor is required or ambient temperature must be reduced.

As a final note, be sure to check whether the data sheet ratings are for still or moving air. Computer grade capacitors are often rated only for moving air. Other types may be rated for still air and are, therefore, actually more conservatively rated.

Remember that capacitors are the number one cause of power supply failure. Don't let your supplies dominate the statistics column!

## Diode Selection

The RMS value of the current flowing into a capacitor input filter is 2 to 3 times the DC output current because the current is delivered in short pulses. Assuming a full-wave center-tap or bridge, this means that although each diode is conducting only on alternate half cycles, it should be rated for at least the full output current. To ensure adequate surge capability during turn-on, a diode rating of at least twice the output current is recommended, especially for higher current supplies where the ratio of filter capacitance to output current is somewhat higher. Keep in mind that axial lead diodes achieve most of their heat sinking through the leads. Short leads soldered to large area standoffs or printed circuit pads are definitely recommended.

For "short circuit proof" IC regulated supplies using three-terminal regulators, an additional diode derating may have to be used. Long-term output shorts do not harm the regulator, which goes into a current limit or thermal limit mode to protect itself. The diodes, however, may experience a substantial current increase during the short. Regulator data sheets should be consulted for current limit values, keeping in mind that current limit is a function of input-output voltage differential. At high input voltages, the short circuit current of IC regulators is often less than full load current, tending to alleviate this problem.

## METHOD OF DETERMINING SECONDARY CURRENT RATINGS

The secondary currents shown in the tables are RMS ratings. Depending upon rectifier circuit configurations, the RMS secondary current is different from the DC output current. This is indicated in the chart below:

| Rectifier <br> Type | Filter Type | RMS <br> Secondary <br> Current is |
| :--- | :---: | :---: |
| Full-Wave <br> Center-Tap | Choke Input | $=0.7 \times$ <br> DC Amps |
| Full-Wave <br> Center-Tap | Capacitor Input | 1 to $1.2 \times$ <br> DC Amps |
| Full-Wave <br> Bridge | Choke Input | $=$ DC Amps |
| Full-Wave <br> Bridge | Capacitor Input | $=1.6$ to 1.8 x <br> DC Amps |

For example, in a F.W. Bridge circuit with a capacitive filter, if the load is 1 Amp DC, the RMS Secondary current is 1.6 to 1.8 Amp RMS.

