**SERIES:**

**MGDU1**

3003 9th Avenue SW
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Watertown, SD 57201
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Ph: 605-886-3326
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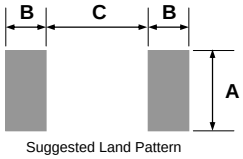
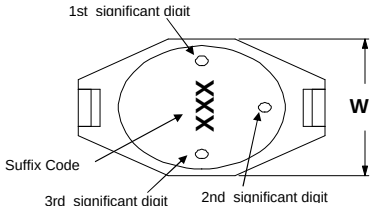
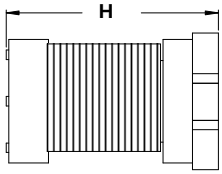
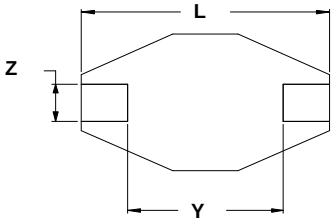
**Low Profile, High Current Power Inductors**




**Parts will be marked with Significant Digit Dots OR Suffix code**

| Series Number | Maximum Dimensions | | | | Reference Dimensions | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Units | L | W | H | Y | Z | A | B | C |
| MGDU1 | inches | 0.260" | 0.177" | 0.115" | 0.190" | 0.050" | 0.140" | 0.055" | 0.160" |
| | [ mm ] | [ 6.60 ] | [ 4.50 ] | [ 2.92 ] | [ 4.83 ] | [ 1.27 ] | [ 3.56 ] | [ 1.40 ] | [ 4.06 ] |

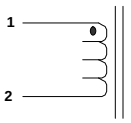
**Features:**

- High energy storage and low resistance
- Ideal for DC-DC step-up or step-down conversion.
- Reliable surface mounting, flat top for pick and place mounting
- Robust temperature deflection to prevent damage during solder reflow.
- Operating Temperature -40°C to +85°C.

RoHS Compliant

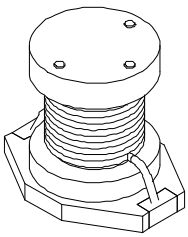
**Terminal Plating is Gold Flash over Ni**
**260°C Maximum reflow temperature per J-STD020**

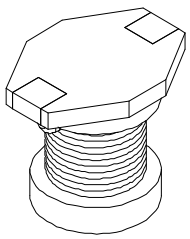
Schematic Diagram




**Notes:**

- Inductance measured at 100kHz, 100mVrms at 20°C.
- DCR (DC resistance) are maximum @ 20°C.
- Irms is the current applied to produce a typical 30°C temperaturer rise from nominal inductance.
- Isat is a maximum applied AC + DC current.
- Isat is the current applied to produce a typipcal 10% drop in nominal inductance
- Tolerance suffix of M = ±20%.

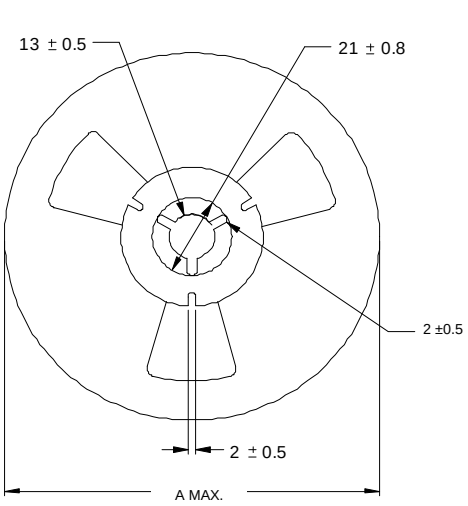


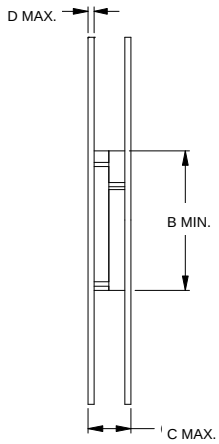


**Contact CoEv for additional inductance values**

| MGDU1 | | | | | |
|---|---|---|---|---|---|
| Lead Free Part Number | L µH | DCR W | $I_{SAT}$ A | $I_{RMS}$ A | Tolerance Suffix |
| MGDU1-00001 | 1.0 | 0.050 | 2.90 | 2.90 | M |
| MGDU1-00002 | 1.5 | 0.050 | 2.60 | 2.80 | M |
| MGDU1-00003 | 2.2 | 0.070 | 2.30 | 2.40 | M |
| MGDU1-00004 | 3.3 | 0.080 | 2.00 | 2.00 | M |
| MGDU1-00005 | 4.7 | 0.090 | 1.50 | 1.50 | M |
| | 5.6 | | | | |
| MGDU1-00006 | 6.8 | 0.130 | 1.20 | 1.40 | M |
| | 8.0 | | | | |
| MGDU1-00007 | 10 | 0.160 | 1.10 | 1.30 | M |
| MGDU1-00008 | 15 | 0.230 | 0.90 | 1.20 | M |
| MGDU1-00009 | 22 | 0.370 | 0.70 | 0.80 | M |
| MGDU1-00010 | 33 | 0.510 | 0.58 | 0.60 | M |
| MGDU1-00011 | 47 | 0.640 | 0.50 | 0.50 | M |
| MGDU1-00012 | 68 | 0.860 | 0.40 | 0.40 | M |
| MGDU1-00013 | 100 | 1.270 | 0.31 | 0.30 | M |
| MGDU1-00014 | 150 | 2.000 | 0.27 | 0.25 | M |
| MGDU1-00015 | 220 | 3.110 | 0.22 | 0.20 | M |
| MGDU1-00016 | 330 | 4.800 | 0.18 | 0.16 | M |
| MGDU1-00017 | 470 | 6.600 | 0.16 | 0.15 | M |
| MGDU1-00018 | 680 | 9.200 | 0.10 | 0.12 | M |
| MGDU1-00019 | 1000 | 13.800 | 0.10 | 0.07 | M |

**Specifications subject to change**

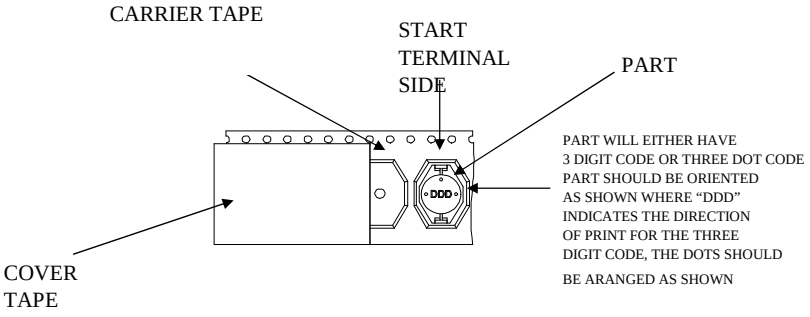


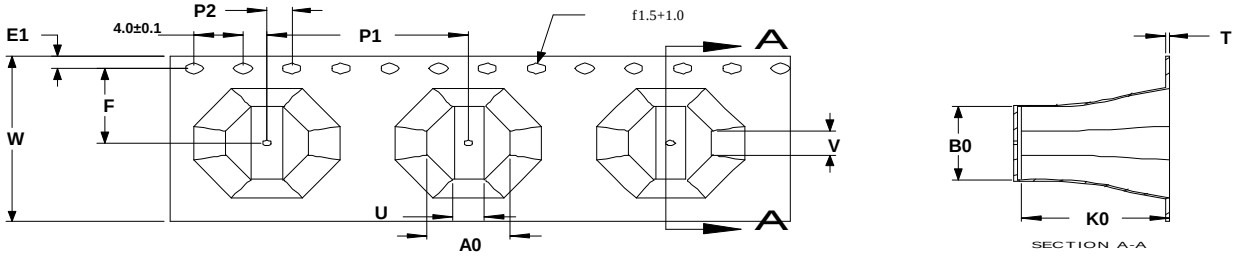




Dimensions are in millimeters unless specified.

| Series Number | Reel dimensions | | | | | Reel Qty | Carton (Box) Qty. | Packaging Specification |
|---|---|---|---|---|---|---|---|---|
| | Units | A | B | C | D | | | |
| MGDU1 | in. | 12.99" | 3.94" | 0.88" | 0.094" | 2500 | 15000 | 90-0057 |
| | [mm] | [ 360 ] | [ 100.0 ] | [ 22.4 ] | [ 2.40 ] | | | |

**PACKAGING NOTE: Only pressure sensitive cover tape is to be used.**




| Series | A0 ± 0.1 | U ± 0.1 | V ± 0.1 | P1 ± 0.1 | P2 ± 0.1 | W ± 0.3 | F ± 0.1 | E1 MIN. | B0 ± 0.1 | K0 ± 0.05 | | T ± 0.05 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGDU1 | 4.55 | 1.45 | 2.70 | 8.00 | 2.00 | 16.00 | 5.5 ± 0.05 | 1.75 | 6.70 | 3.45 | | 0.35 |

RoHS Compliant

| Item | Specification | Test Method/Condition |
|---|---|---|
| **Environmental** | | |
| Static Humidity | After exposure part remains within specified electrical parameters for L, Q and DCR. | Expose parts to an environment of +50°C with 90 to 95% R.H. for 100 hours. After exposure, allow parts to dry for 2 hours before measurements are taken. |
| Storage Life | After exposure part remains within specified electrical parameters for L, Q and DCR. | Subject parts to an environment of +50°C 90 to 100% R.H. for 46 to 50 hours. After exposure, allow parts to dry for 2 hours before measurements are taken. |
| Moisture Resistance | After exposure, part shall not have a shorted or open winding. | Per MIL-STD 202 Method 106, ten 24 hour cycles at +25°C to +65°C at 80 to 95% R.H. During any of the first 9 cycles, inductors are revolved from the chamber and exposed to -10°C for 3 hours. Allow parts to dry for 2 hours before measurements are taken. |
| Temperature Cycle | After exposure part remains within specified electrical parameters for L, Q and DCR. | 10 cycles (Air to Air) 1 cycle shall consist of:<br>30 minutes exposure to +85°C<br>30 minutes exposure to -40°C<br>Allow 20 minutes transition between extremes. |
| Temperature Shock | After exposure part remains within specified electrical parameters for L, Q and DCR. | 10 cycles (Air to Air) 1 cycle shall consist of:<br>30 minutes exposure to -45°C<br>30 minutes exposure to +125°C<br>15 seconds maximum transition between temperatures |
| **General** | | |
| Storage Temperature Range | -40°C to +85°C | |
| Operating Temperature Range | -40°C to +85°C | |
| Flammability | IEC 695-2-2 | Withstands needle-flame test |
| **Other** | | |
| Vibration | After exposure part remains within specified electrical parameters for L, Q and DCR. | Inductors shall be randomly vibrated per NAVMAT P9492 profile. Samples shall be subjected to 0.04G/Hz for a minimum of 15 minutes per axis, for each of the three axes. |
| Mechanical Shock | After exposure part remains within specified electrical parameters for L, Q and DCR. | Test per MIL-STD 202 method 213 test condition A, test mounted samples 3 axes, 6 times, totaling 18 shocks. (50Gs, 11ms, half-sine). |
| Solderability | Wetting shall cover 90% minimum of each termination | Dip pads in RMA flux, 63/37 solder (Sn/Pb) at 232°C for 5 seconds ±2 seconds. |
| Component Adhesion (Push Test) | 4 pounds | Apply and measure force with a digital force gauge set. |
| Resistance to Solvent | No sign of degradation in appearance or marking detail. | Withstands 6 minutes of alcohol.<br>Withstands 3 minutes forced spray Freon TMS |
| Load Life | After exposure, part shall not have a shorted or open winding. | Parts to be stored at 110°C for 1000 hours with rated current applied. Parts to be tested at: start, 500 and 1000 hours. Allow 2 hours at room temperature before testing. |