

Balanced Three-chip *SIDACtor*[®] Device



This three-chip *SIDACtor* solution offers a guaranteed balanced protection, based on a Littelfuse patent (US Patent 4,905,119). The ‘Y’ configuration offers identical metallic and longitudinal protection in one through-hole modified TO-220 package. For primary protection applications, devices with higher holding current and integrated failsafe options are available.

SIDACtor devices enable equipment to comply with various regulatory requirements including GR 1089, ITU K.20,K.21 and K.45, IEC 60950, UL 60950, and TIA-968-A (formerly known as FCC Part 68).

Electrical Parameters

| Part Number * | V _{DRM} Volts | V _S Volts | V _{DRM} Volts | V _S Volts | V _T Volts | I _{DRM} μAmps | I _S mAmps | I _T Amps | I _H mAmps |
|---------------|------------------------|----------------------|------------------------|----------------------|----------------------|------------------------|----------------------|---------------------|----------------------|
| | Pins 1-2, 2-3 | | Pins 1-3 | | | | | | |
| P1553A_L | 130 | 180 | 130 | 180 | 8 | 5 | 800 | 2.2 | 150 |
| P1803A_L | 150 | 210 | 150 | 210 | 8 | 5 | 800 | 2.2 | 150 |
| P2103A_L | 170 | 250 | 170 | 250 | 8 | 5 | 800 | 2.2 | 150 |
| P2353A_L | 200 | 270 | 200 | 270 | 8 | 5 | 800 | 2.2 | 150 |
| P2703A_L | 230 | 300 | 230 | 300 | 8 | 5 | 800 | 2.2 | 150 |
| P3203A_L | 270 | 350 | 270 | 350 | 8 | 5 | 800 | 2.2 | 150 |
| P3403A_L | 300 | 400 | 300 | 400 | 8 | 5 | 800 | 2.2 | 150 |
| P5103A_L | 420 | 600 | 420 | 600 | 8 | 5 | 800 | 2.2 | 150 |
| A2106A_3L ** | 170 | 250 | 50 | 80 | 8 | 5 | 800 | 2.2 | 120 |
| A5030A_3L ** | 400 | 550 | 270 | 340 | 8 | 5 | 800 | 2.2 | 150 |

* “L” in part number indicates RoHS compliance. For non-RoHS compliant device, delete “L” from part number. For individual “AA”, “AB”, and “AC” surge ratings, see table below.

** Asymmetrical

General Notes:

- All measurements are made at an ambient temperature of 25 °C. I_{PP} applies to -40 °C through +85 °C temperature range.
- I_{PP} is a repetitive surge rating and is guaranteed for the life of the product.
- Listed *SIDACtor* devices are bi-directional. All electrical parameters and surge ratings apply to forward and reverse polarities.
- V_{DRM} is measured at I_{DRM}.
- V_S is measured at 100 V/μs.
- Special voltage (V_S and V_{DRM}) and holding current (I_H) requirements are available upon request.
- Device is designed to meet balance requirements of GTS 8700 and GR 974.

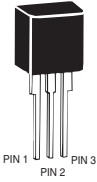
Surge Ratings in Amps

| Series | I _{PP} | | | | | | | | | I _{TSM} 50/60 Hz | di/dt Amps |
|--------|-----------------|---------|-----------|-----------|-----------|----------|-----------|------------|-----------|---------------------------|------------|
| | 0.2x310 * | 2x10 * | 8x20 * | 10x160 * | 10x560 * | 5x320 * | 10x360 * | 10x1000 * | 5x310 * | | |
| | 0.5x700 ** | 2x10 ** | 1.2x50 ** | 10x160 ** | 10x560 ** | 9x720 ** | 10x360 ** | 10x1000 ** | 10x700 ** | | |
| | Amps | Amps | Amps | Amps | Amps | Amps | Amps | Amps | Amps | Amps | Amps/μs |
| A | 20 | 150 | 150 | 90 | 50 | 75 | 75 | 45 | 75 | 20 | 500 |
| B | 25 | 250 | 250 | 150 | 100 | 100 | 125 | 80 | 100 | 30 | 500 |
| C | 50 | 500 | 400 | 200 | 150 | 200 | 175 | 100 | 200 | 50 | 500 |

* Current waveform in μs

** Voltage waveform in μs

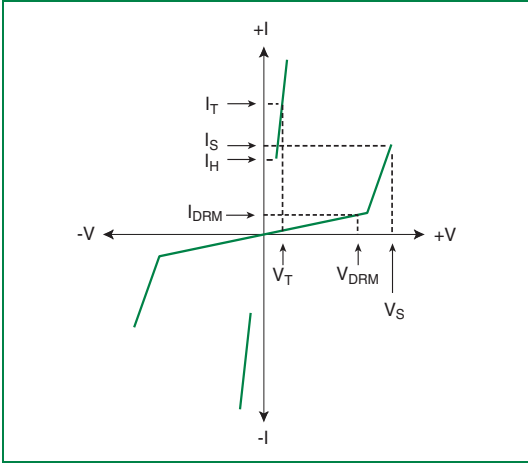
Thermal Considerations

| Package | Symbol | Parameter | Value | Unit |
|--|------------------|---|-------------|------|
| Modified TO-220  | T _J | Operating Junction Temperature Range | -40 to +150 | °C |
| | T _S | Storage Temperature Range | -65 to +150 | °C |
| | R _{θJA} | Thermal Resistance: Junction to Ambient | 50 | °C/W |

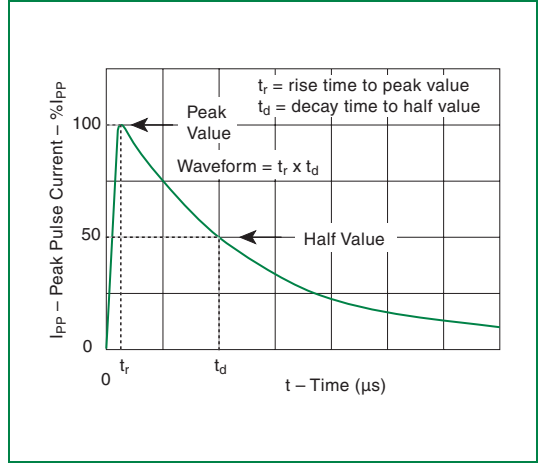
Capacitance Values

| Part Number | pF Pin 1-2 / 3-2 Tip-Ground, Ring-Ground | | pF Pin 1-3 Tip-Ring | |
|-------------|--|-----|---------------------------|-----|
| | MIN | MAX | MIN | MAX |
| P1553AAL | 10 | 45 | 10 | 30 |
| P1553ABL | 25 | 95 | 15 | 60 |
| P1553ACL | 30 | 95 | 20 | 60 |
| P1803AAL | 20 | 40 | 10 | 30 |
| P1803ABL | 25 | 85 | 15 | 55 |
| P1803ACL | 30 | 85 | 15 | 55 |
| P2103AAL | 15 | 35 | 10 | 25 |
| P2103ABL | 20 | 85 | 10 | 55 |
| P2103ACL | 30 | 85 | 15 | 55 |
| P2353AAL | 15 | 35 | 10 | 25 |
| P2353ABL | 20 | 75 | 15 | 50 |
| P2353ACL | 25 | 75 | 15 | 50 |
| P2703AAL | 15 | 35 | 10 | 25 |
| P2703ABL | 20 | 75 | 10 | 50 |
| P2703ACL | 25 | 75 | 15 | 50 |
| P3203AAL | 15 | 30 | 10 | 20 |
| P3203ABL | 20 | 70 | 10 | 45 |
| P3203ACL | 25 | 70 | 15 | 45 |
| P3403AAL | 15 | 30 | 10 | 20 |
| P3403ABL | 15 | 65 | 10 | 45 |
| P3403ACL | 20 | 65 | 15 | 45 |
| P5103AAL | 10 | 60 | 10 | 40 |
| P5103ABL | 15 | 60 | 10 | 40 |
| P5103ACL | 20 | 60 | 10 | 40 |
| A2106AA3L | 15 | 35 | 10 | 45 |
| A2106AB3L | 20 | 35 | 10 | 45 |
| A2106AC3L | 30 | 45 | 15 | 45 |
| A5030AA3L | 15 | 35 | 25 | 40 |
| A5030AB3L | 20 | 35 | 25 | 40 |
| A5030AC3L | 30 | 45 | 25 | 40 |

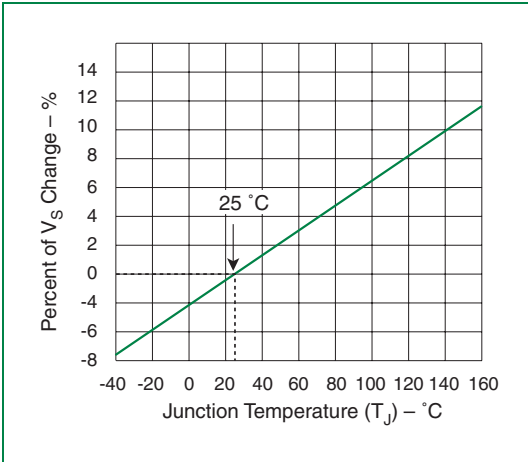
Note: Off-state capacitance (C_O) is measured at 1 MHz with a 2 V bias.



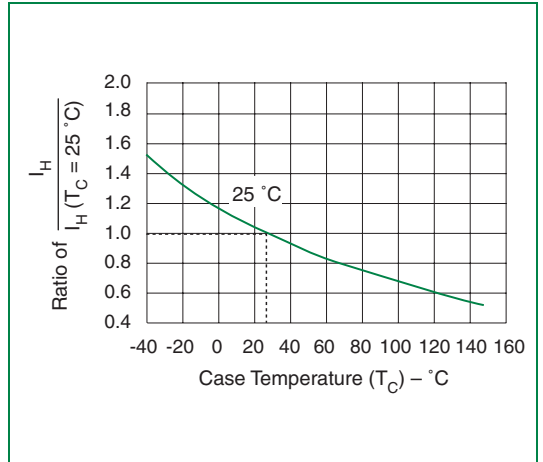
V-I Characteristics



$t_r \times t_d$ Pulse Waveform



Normalized V_S Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature

SIDACtor Devices