

### SIDACtor® Series - DO-15



#### Agency Approvals

| Agency  | Agency File Number |
|---|--------------------|
|  | E133083            |

#### Pinout Designation

Not Applicable

#### Schematic Symbol



#### Description

The DO-15 series are designed to protect baseband equipment such as modems, line cards, CPE and DSL from damaging overvoltage transients.

The series provides a cost-effective through-hole solution that enables equipment to comply with global regulatory standards.

#### Features and Benefits

- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within limit.
- Low capacitance
- Fails short circuit when surged in excess of ratings
- 2nd level interconnect is Pb-free per IPC/ JEDEC J-STD-609A.01
- RoHS compliant, lead-free and halogen-free.

#### Applicable Global Standards

- TIA-968-A
- TIA-968-B
- ITU K.20/21/45 Enhanced Level\*
- ITU K.20/21/45 Basic Level
- GR 1089 Inter-building\*
- GR 1089 Intra-building
- IEC 61000-4-5 2nd edition
- YD/T 1082
- YD/T 993
- YD/T 950

\* A/B-rated parts require series resistance

#### Electrical Characteristics

| Part Number | Marking | $V_{DRM}$<br>@ $I_{DRM}=5\mu A$ | $V_S$<br>@ 100V/ $\mu s$ | $I_H$  | $I_S$  | $I_T$ | $V_T$<br>@ $I_T=2.2$ Amps | Capacitance<br>@ 1MHz, 2V bias |        |
|-------------|---------|---------------------------------|--------------------------|--------|--------|-------|---------------------------|--------------------------------|--------|
|             |         | V min                           | V max                    | mA min | mA max | A max | V max                     | pF min                         | pF max |
| P0080GALRP  | P-8A    | 6                               | 25                       | 50     | 800    | 2.2   | 4                         | 10                             | 30     |
| P1100GALRP  | P11A    | 90                              | 130                      | 150    | 800    | 2.2   | 5                         | 30                             | 60     |
| P1300GALRP  | P13A    | 120                             | 160                      | 150    | 800    | 2.2   | 5                         | 25                             | 40     |
| P1500GALRP  | P15A    | 140                             | 180                      | 150    | 800    | 2.2   | 5                         | 25                             | 40     |
| P1800GALRP  | P18A    | 170                             | 220                      | 150    | 800    | 2.2   | 5                         | 25                             | 40     |
| P2300GALRP  | P23A    | 190                             | 260                      | 150    | 800    | 2.2   | 5                         | 25                             | 30     |
| P2600GALRP  | P26A    | 220                             | 300                      | 150    | 800    | 2.2   | 5                         | 25                             | 30     |
| P3100GALRP  | P31A    | 275                             | 350                      | 150    | 800    | 2.2   | 5                         | 10                             | 20     |
| P3500GALRP  | P35A    | 320                             | 400                      | 150    | 800    | 2.2   | 5                         | 20                             | 30     |
| P1100GBLRP  | P11B    | 90                              | 130                      | 150    | 800    | 2.2   | 5                         | 30                             | 60     |
| P1300GBLRP  | P13B    | 120                             | 160                      | 150    | 800    | 2.2   | 5                         | 25                             | 40     |
| P1500GBLRP  | P15B    | 140                             | 180                      | 150    | 800    | 2.2   | 5                         | 25                             | 40     |
| P1800GBLRP  | P18B    | 170                             | 220                      | 150    | 800    | 2.2   | 5                         | 25                             | 40     |
| P2300GBLRP  | P23B    | 190                             | 260                      | 150    | 800    | 2.2   | 5                         | 25                             | 30     |
| P2600GBLRP  | P26B    | 220                             | 300                      | 150    | 800    | 2.2   | 5                         | 25                             | 30     |
| P3100GBLRP  | P31B    | 275                             | 350                      | 150    | 800    | 2.2   | 5                         | 20                             | 30     |
| P3500GBLRP  | P35B    | 320                             | 400                      | 150    | 800    | 2.2   | 5                         | 20                             | 30     |
| P4500GBLRP  | P45B    | 400                             | 530                      | 150    | 800    | 2.2   | 5                         | 20                             | 45     |
| P4500GCLRP  | P45C    | 400                             | 530                      | 50     | 800    | 2.2   | 5                         | 20                             | 45     |

Notes:  
 - Absolute maximum ratings measured at  $T_A = 25^\circ C$  (unless otherwise noted).  
 - Components are bi-directional.

### Surge Ratings

| Series | $I_{PP}$                                   |  |   | $I_{TSM}$  |
|--------|--|--|---|------------|
|        | 10/560 <sup>1</sup><br>10/560 <sup>2</sup> | 10/1000 <sup>1</sup><br>10/1000 <sup>2</sup> | 5/310 <sup>1</sup><br>10/700 <sup>2</sup> | 50 / 60 Hz |
|        | Amps min                                   | Amps min                                     | Amps min                                  | Amps min   |
| A      | 50   | 45   | -   | 20         |
| B      | 100  | 80   | 100                                       | 25         |
| C      | -  | -  | 150                                       | 25         |

Notes:

1 Current waveform in  $\mu$ s

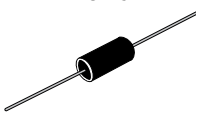
2 Voltage waveform in  $\mu$ s

- Peak pulse current rating ( $I_{PP}$ ) is repetitive and guaranteed for the life of the product that remains in thermal equilibrium.

-  $I_{PP}$  ratings applicable over temperature range of -40 to +85°C

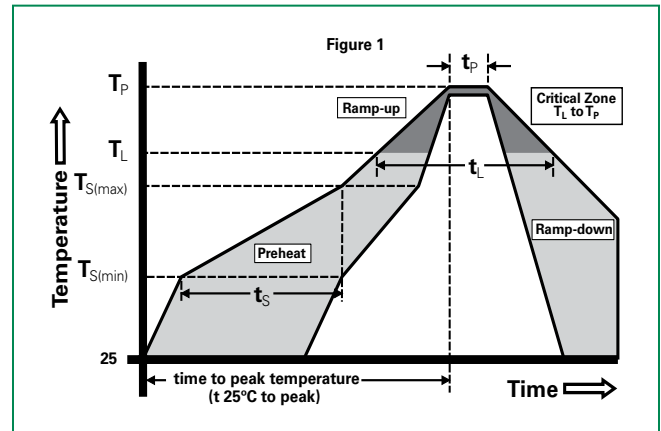
- The component must initially be in thermal equilibrium with -40°C  $\leq$  T<sub>j</sub>  $\leq$  +150°C

### Thermal Considerations

| Package  | Symbol           | Parameter                               | Value       | Unit |
|--|------------------|---|-------------|------|
|  DO-15 | T <sub>J</sub>   | Operating Junction Temperature Range    | -40 to +150 | °C   |
|  | T <sub>S</sub>   | Storage Temperature Range               | -65 to +150 | °C   |
|  | R <sub>θJA</sub> | Thermal Resistance: Junction to Ambient | 60          | °C/W |

### Soldering Parameters

|  |  |                               |
|--|--|-------------------------------|
| Reflow Condition   |  | Pb-Free assembly (see Fig. 1) |
| Pre Heat   | - Temperature Min (T <sub>s(min)</sub> )   | +150°C                        |
|  | - Temperature Max (T <sub>s(max)</sub> )   | +200°C                        |
|  | - Time (Min to Max) (t <sub>s</sub> )      | 60-180 secs.                  |
| Average ramp up rate (Liquidus Temp (T <sub>L</sub> ) to peak) |  | 3°C/sec. Max.                 |
| T <sub>S(max)</sub> to T <sub>L</sub> - Ramp-up Rate           |  | 3°C/sec. Max.                 |
| Reflow   | - Temperature (T <sub>L</sub> ) (Liquidus) | +217°C                        |
|  | - Temperature (t <sub>L</sub> )            | 60-150 secs.                  |
| Peak Temp (T <sub>p</sub> )                                    |  | +260(+0/-5)°C                 |
| Time within 5°C of actual Peak Temp (t <sub>p</sub> )          |  | 30 secs. Max.                 |
| Ramp-down Rate   |  | 6°C/sec. Max.                 |
| Time 25°C to Peak Temp (T <sub>p</sub> )                       |  | 8 min. Max.                   |
| Do not exceed  |  | +260°C                        |



### Additional Information



Datasheet



Resources



Samples

### Physical Specifications

|                 |   |
|-----------------|---|
| Lead Material   | Copper Alloy  |
| Terminal Finish | 100% Matte-Tin Plated                                       |
| Body Material   | UL recognized epoxy meeting flammability classification V-0 |