

**RoHS SIDACtor® Series - DO-15**



**Description**

The SIDACtor Series DO-15 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 with use
- Fails short circuit when surged in excess of ratings
- Low Capacitance

**Agency Approvals**

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

**Pinout Designation**

Not Applicable

**Schematic Symbol**



**Applicable Global Standards**

- TIA-968-A
- TIA-968-B
- ITU K.20/21 Enhanced Level\*
- ITU K.20/21 Basic Level
- GR 1089 Inter-building\*
- GR 1089 Intra-building
- IEC 61000-4-5
- 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 |
| 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                         | 20                             | 30     |
| 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     |

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

**Surge Ratings**

| Series | $I_{PP}$                                   |  | $I_{TSM}$  |
|--------|--|--|------------|
|        | 10x560 <sup>1</sup><br>10x560 <sup>2</sup> | 10x1000 <sup>1</sup><br>10x1000 <sup>2</sup> | 50 / 60 Hz |
|        | Amps min                                   | Amps min                                     | Amps min   |
| A      | 50   | 45   | 20         |
| B      | 100  | 80   | 25         |

Notes:

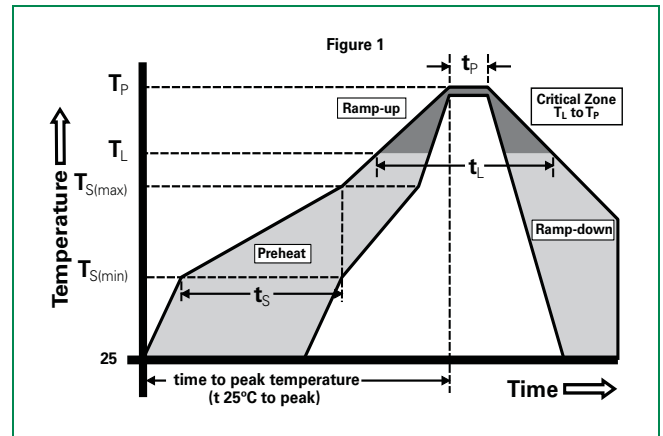
- 1 Current waveform in  $\mu s$
- 2 Voltage waveform in  $\mu s$
- Peak pulse current rating ( $I_{PP}$ ) is repetitive and guaranteed for the life of the product.
- $I_{PP}$  ratings applicable over temperature range of -40 to +85°C
- The device must initially be in thermal equilibrium with -40°C  $\leq T_J \leq$  +150°C

**Thermal Considerations**

| Package   | Symbol          | Parameter                               | Value       | Unit |
|---|-----------------|---|-------------|------|
|  DO-15 | $T_J$           | Operating Junction Temperature Range    | -40 to +150 | °C   |
|   | $T_S$           | Storage Temperature Range               | -65 to +150 | °C   |
|   | $R_{\theta JA}$ | Thermal Resistance: Junction to Ambient | 60          | °C/W |

**Soldering Parameters**

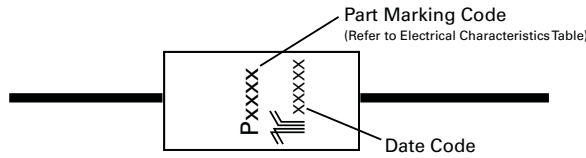
|  |                                    |                               |
|--|------------------------------------|-------------------------------|
| Reflow Condition                                       |                                    | Pb-Free assembly (see Fig. 1) |
| Pre Heat   | - Temperature Min ( $T_{s(min)}$ ) | +150°C                        |
|  | - Temperature Max ( $T_{s(max)}$ ) | +200°C                        |
|  | - Time (Min to Max) ( $t_s$ )      | 60-180 secs.                  |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak) |                                    | 3°C/sec. Max.                 |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                   |                                    | 3°C/sec. Max.                 |
| Reflow   | - Temperature ( $T_L$ ) (Liquidus) | +217°C                        |
|  | - Temperature ( $t_L$ )            | 60-150 secs.                  |
| Peak Temp ( $T_p$ )                                    |                                    | +260(+0/-5)°C                 |
| Time within 5°C of actual Peak Temp ( $t_p$ )          |                                    | 30 secs. Max.                 |
| Ramp-down Rate   |                                    | 6°C/sec. Max.                 |
| Time 25°C to Peak Temp ( $T_p$ )                       |                                    | 8 min. Max.                   |
| Do not exceed  |                                    | +260°C                        |



**Physical Specifications**

|                        |   |
|------------------------|---|
| <b>Lead Material</b>   | Copper Alloy  |
| <b>Terminal Finish</b> | 100% Matte-Tin Plated   |
| <b>Body Material</b>   | UL recognized epoxy meeting flammability classification 94V-0 |

**Part Marking**



**Part Numbering**



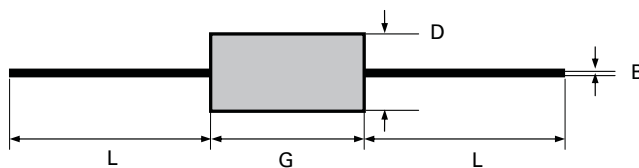
**Environmental Specifications**

|   |   |
|---|---|
| <b>High Temp Voltage Blocking</b>       | 80% Rated $V_{DRM}$ ( $V_{AC}$ Peak) +125°C or +150°C, 504 or 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101 |
| <b>Temp Cycling</b>                     | -65°C to +150°C, 15 min. dwell, 10 up to 100 cycles. MIL-STD-750 (Method 1051) EIA/JEDEC, JESD22-A104                 |
| <b>Biased Temp &amp; Humidity</b>       | 52 $V_{DC}$ (+85°C) 85%RH, 504 up to 1008 hrs. EIA/JEDEC, JESD22-A-101  |
| <b>High Temp Storage</b>                | +150°C 1008 hrs. MIL-STD-750 (Method 1031) JEDEC, JESD22-A-101  |
| <b>Low Temp Storage</b>                 | -65°C, 1008 hrs.  |
| <b>Thermal Shock</b>                    | 0°C to +100°C, 5 min. dwell, 10 sec. transfer, 10 cycles. MIL-STD-750 (Method 1056) JEDEC, JESD22-A-106               |
| <b>Autoclave (Pressure Cooker Test)</b> | +121°C, 100%RH, 2atm, 24 up to 168 hrs. EIA/JEDEC, JESD22-A-102   |
| <b>Resistance to Solder Heat</b>        | +260°C, 30 secs. MIL-STD-750 (Method 2031)  |
| <b>Moisture Sensitivity Level</b>       | 85%RH, +85°C, 168 hrs., 3 reflow cycles (+260°C Peak). JEDEC-J-STD-020, Level 1                                       |

**Packing Options**

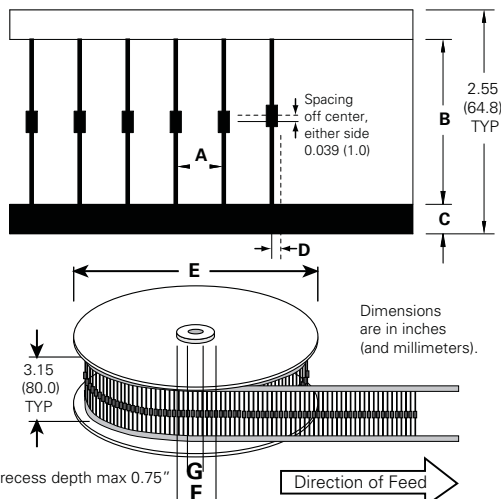
| Package Type | Description             | Quantity | Added Suffix | Industry Standard |
|--------------|-------------------------|----------|--------------|-------------------|
| G            | DO-15 Axial Tape & Reel | 5000     | RP           | EIA-RS-296-D      |

**Dimensions — DO-15**



| Dimension | Inches |       | Millimeters |       |
|-----------|--------|-------|-------------|-------|
|           | MIN    | MAX   | MIN         | MAX   |
| <b>B</b>  | 0.028  | 0.034 | 0.711       | 0.864 |
| <b>D</b>  | 0.12   | 0.14  | 3.048       | 3.556 |
| <b>G</b>  | 0.235  | 0.27  | 5.969       | 6.858 |
| <b>L</b>  | 1      |       | 25.4        |       |

**Tape and Reel Specification — DO-15**



| Symbols  | Description                      | Inches         | MM            |
|----------|----------------------------------|----------------|---------------|
| <b>A</b> | Component Spacing (lead to lead) | 0.200 ± 0.020" | 5.08 ± 0.508  |
| <b>B</b> | Inner Tape Pitch                 | 2.062 ± 0.059" | 52.37 ± 1.498 |
| <b>C</b> | Tape Width                       | 0.250"         | 6.35          |
| <b>D</b> | Max. Off Alignment               | 0.048"         | 1.219         |
| <b>E</b> | Reel Dimension                   | 13"            | 330.2         |
| <b>F</b> | Max. Hub Recess                  | 3"             | 76.19         |
| <b>G</b> | Max. Abor Hole                   | 0.68"          | 17.27         |

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В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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