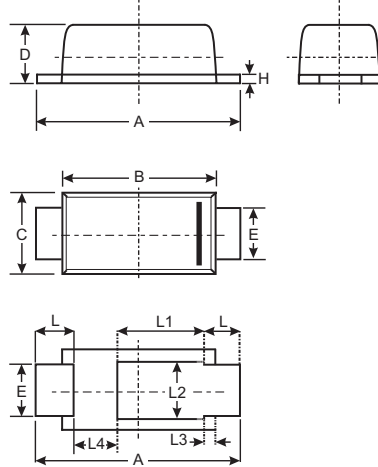


### Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- **Lead Free Finish, RoHS Compliant (Note 5)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**



| PowerDI™123 |       |       |       |
|-------------|-------|-------|-------|
| Dim         | Min   | Max   | Typ   |
| A           | 3.65  | 3.75  | 3.70  |
| B           | 2.775 | 2.825 | 2.80  |
| C           | 1.750 | 1.800 | 1.775 |
| D           | 0.955 | 1.000 | 0.98  |
| E           | 0.95  | 1.05  | 1.00  |
| H           | 0.15  | 0.25  | 0.20  |
| L           | 0.60  | 0.70  | 0.65  |
| L1          | —     | —     | 1.36  |
| L2          | —     | —     | 1.10  |
| L3          | —     | —     | 0.20  |
| L4          | 0.95  | 1.25  | 1.05  |

All Dimensions in mm

### Mechanical Data

- Case: PowerDI™123
- Case Material: Molding Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Marking & Type Code Information: See Last Page
- Weight: 0.01 grams (approx.)
- Ordering Information: See Last Page

### Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Characteristic   | Symbol   | Value | Unit |
|--|--|-------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage           | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 40    | V    |
| RMS Reverse Voltage  | V <sub>R(RMS)</sub>                                    | 28    | V    |
| Average Forward Current  | I <sub>F(AV)</sub>                                     | 2.0   | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>                                       | 50    | A    |

### Thermal Characteristics

| Characteristic                                    | Symbol           | Typ         | Max  | Unit |
|---|------------------|-------------|------|------|
| Power Dissipation (Note 1)                        | P <sub>D</sub>   | —           | 1.67 | W    |
| Power Dissipation (Note 2)                        | P <sub>D</sub>   | —           | 556  | mW   |
| Thermal Resistance Junction to Ambient (Note 1)   | R <sub>θJA</sub> | 60          | —    | °C/W |
| Thermal Resistance Junction to Ambient (Note 2)   | R <sub>θJA</sub> | 180         | —    | °C/W |
| Thermal Resistance Junction to Soldering (Note 3) | R <sub>θJS</sub> | —           | 5    | °C/W |
| Operating Temperature Range (See figure 4)        | T <sub>j</sub>   | -55 to +125 |      | °C   |
| Storage Temperature Range                         | T <sub>STG</sub> | -55 to +150 |      | °C   |

### Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                     | Symbol             | Min | Typ                 | Max                     | Unit | Test Condition   |
|------------------------------------|--------------------|-----|---------------------|-------------------------|------|--|
| Reverse Breakdown Voltage (Note 4) | V <sub>(BR)R</sub> | 40  | —                   | —                       | V    | I <sub>R</sub> = 500μA   |
| Forward Voltage                    | V <sub>F</sub>     | —   | 0.4<br>0.45<br>0.50 | 0.45<br>0.50<br>0.65    | V    | I <sub>F</sub> = 1.0A<br>I <sub>F</sub> = 2.0A<br>I <sub>F</sub> = 3.0A  |
| Leakage Current (Note 4)           | I <sub>R</sub>     | —   | —                   | 0.5<br>25<br>0.15<br>18 | mA   | V <sub>R</sub> = 40V<br>V <sub>R</sub> = 40V, T <sub>J</sub> = 85°C<br>V <sub>R</sub> = 20V<br>V <sub>R</sub> = 20V, T <sub>J</sub> = 85°C |
| Total Capacitance                  | C <sub>T</sub>     | —   | 55                  | —                       | pF   | V <sub>R</sub> = 10V, f = 1.0MHz   |

- Notes:
1. Part mounted on 50.8mm X 50.8mm GETEK board with 25.4mm X 25.4mm copper pad, 25% anode, 75% cathode.
  2. Part mounted on FR-4 board with 1.8mm X 2.5mm cathode and 1.8mm X 1.2mm anode, 1 oz. copper pads.
  3. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB cathode tab solder junction.
  4. Short duration pulse test to minimize self-heating effect.
  5. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex Notes 5 and 7.

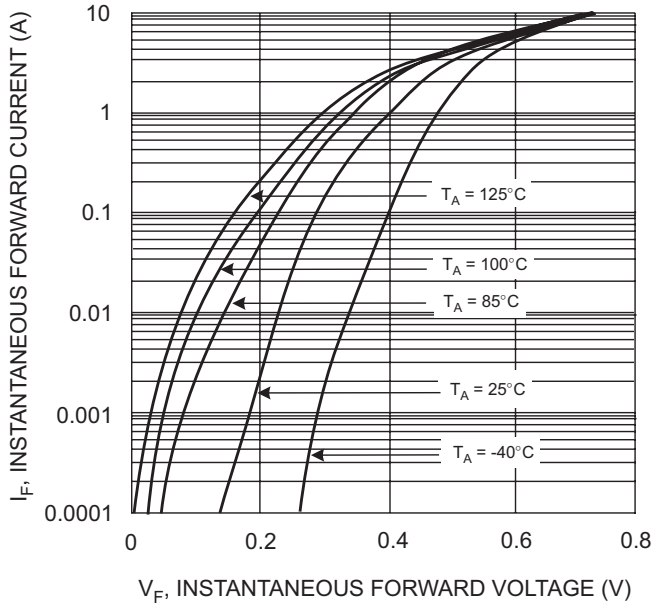


Fig. 1 Typical Forward Characteristics

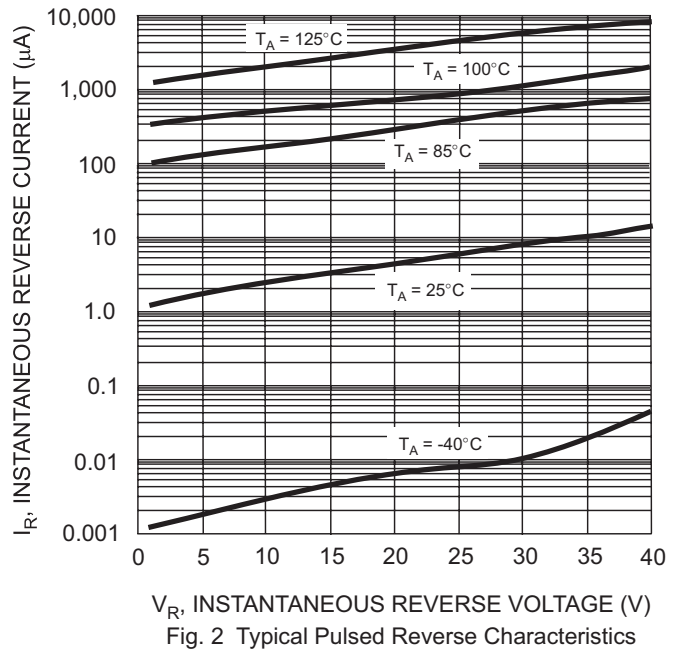


Fig. 2 Typical Pulsed Reverse Characteristics

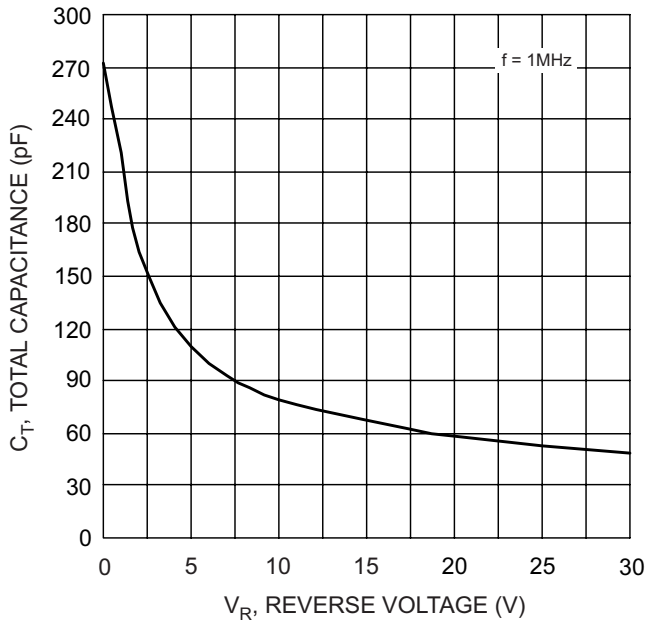


Fig. 3 Typical Total Capacitance vs Reverse Voltage

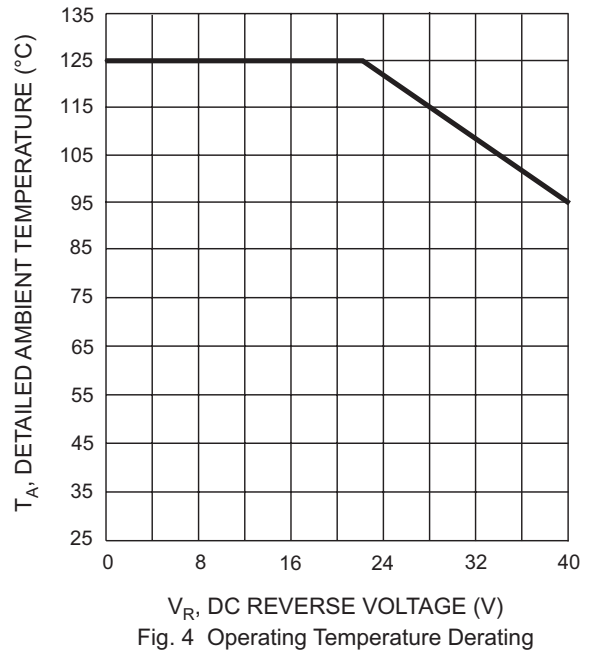


Fig. 4 Operating Temperature Derating

**Ordering Information** (Note 6)

| Device     | Packaging   | Shipping         |
|------------|-------------|------------------|
| DFLS240L-7 | PowerDI™123 | 3000/Tape & Reel |

Notes: 6. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



F06A = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: R = 2004)  
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|
| Code | R    | S    | T    | U    | V    | W    |

| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3     | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

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