

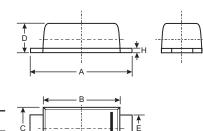
# 2.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER PowerDI<sup>™</sup>123

#### Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Patented Interlocking Clip Design for High Surge Current Capacity
- Low Forward Voltage Drop
- Lead Free Finish, RoHS Compliant (Note 5)
- "Green" Molding Compound (No Br, Sb)

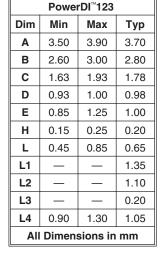
# Mechanical Data

- Case: PowerDI<sup>™</sup>123
- Case Material: Molded 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 (3)
- Marking & Type Code Information: See Last Page
- Ordering Information: See Last Page
- Weight: 0.01 grams (approximate)



13.

**∢**L4∍



**DFLS230** 

## **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> | 30          | V    |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub>                                    | 21          | V    |
| Average Forward Current @ T <sub>T</sub> = 120°C  | I <sub>F(AV)</sub>                                     | 2.0         | А    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>single half sine-wave superimposed on rated load | IFSM   | 40          | A    |
| Power Dissipation (Note 1)  | PD   | 1.67        | W    |
| Power Dissipation (Note 2)  | PD   | 556         | mW   |
| Thermal Resistance Junction to Ambient (Note 1)   | R <sub>0JA</sub>                                       | 60          | °C/W |
| Thermal Resistance Junction to Ambient (Note 2)   | R <sub>0JA</sub>                                       | 180         | °C/W |
| Thermal Resistance Junction to Soldering (Note 3)   | R <sub>0</sub> JS                                      | 10          | °C/W |
| Operating Temperature Range   | Tj   | -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 | Тур         | Max          | Unit | Test Condition                                 |
|------------------------------------|--------------------|-----|-------------|--------------|------|--|
| Reverse Breakdown Voltage (Note 4) | V <sub>(BR)R</sub> | 30  | —           |              | V    | I <sub>R</sub> = 1.5mA                         |
| Forward Voltage                    | V <sub>F</sub>     |     | 0.36<br>0.4 | 0.42<br>0.49 | V    | I <sub>F</sub> = 1.0A<br>I <sub>F</sub> = 2.0A |
| Leakage Current (Note 4)           | I <sub>R</sub>     | _   | 0.15        | 1.0          | mA   | $V_{R} = 30V, T_{A} = 25^{\circ}C$             |
| Total Capacitance                  | CT                 | _   | 75          | _            | 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. T<sub>A</sub> = 25°C

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. T<sub>A</sub> = 25°C

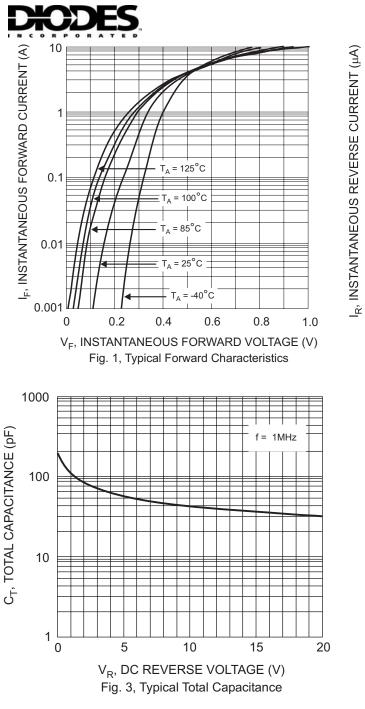
3. Theoretical R<sub>0JS</sub> calculated from the top center of the die straight down to the PCB cathode tab solder junction.

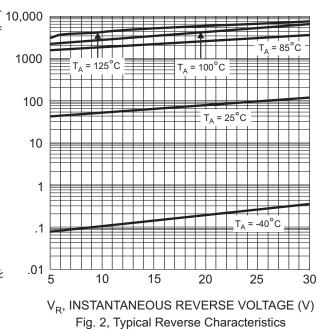
4. Short duration pulse test to minimize self-heating effect.

5. RoHS revision 13.2.2003. High Temperature Solder Exemption Applied, see EU Directive Annex Note 7.

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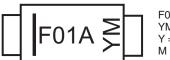


### Ordering Information (Note 6)

| Device    | Packaging                | Shipping         |  |  |
|-----------|--------------------------|------------------|--|--|
| DFLS230-7 | PowerDI <sup>™</sup> 123 | 3000/Tape & Reel |  |  |

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

## **Marking Information**



F01A = Product Type Marking Code YM = Date Code Marking Y = Year (ex: R = 2004) M = Month (ex: 9 = September)

Date Code Key

| Year  |     | 20  | 004 | 2005 | 2006 | 2007 | 2008 | 200 | 09 2 | 2010 | 2011 | 2012 |
|-------|-----|-----|-----|------|------|------|------|-----|------|------|------|------|
| Code  |     |     | R   | S    | Т    | U    | V    | V   | /    | Х    | Y    | Z    |
| Month | Jan | Feb | Mar | Apr  | Мау  | Jun  | Jul  | Aug | Sep  | Oct  | Nov  | Dec  |
| Code  | 1   | 2   | 3   | 4    | 5    | 6    | 7    | 8   | 9    | 0    | N    | D    |

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