

**2.0A HIGH EFFICIENCY SCHOTTKY BARRIER RECTIFIER
POWERDI®123**
Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low V_F and Low Leakage Current
- Patented Interlocking Clip Design for High Surge Current Capacity
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: POWERDI®123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 ③
- Weight: 0.01 grams (approximate)



Top View

Ordering Information (Note 2)

| Part Number | Case | Packaging |
|-------------|-------------|------------------|
| DFLS230LH-7 | POWERDI®123 | 3000/Tape & Reel |

- Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes
2. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information


F03H = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: T = 2006)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|------|
| Code | S | T | U | V | W | X | Y | Z |

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

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

| Characteristic | Symbol | Value | Unit |
|--|--------------|-------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 30 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | | |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 21 | V |
| Average Forward Current | $I_{F(AV)}$ | 2.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I_{FSM} | 75 | A |

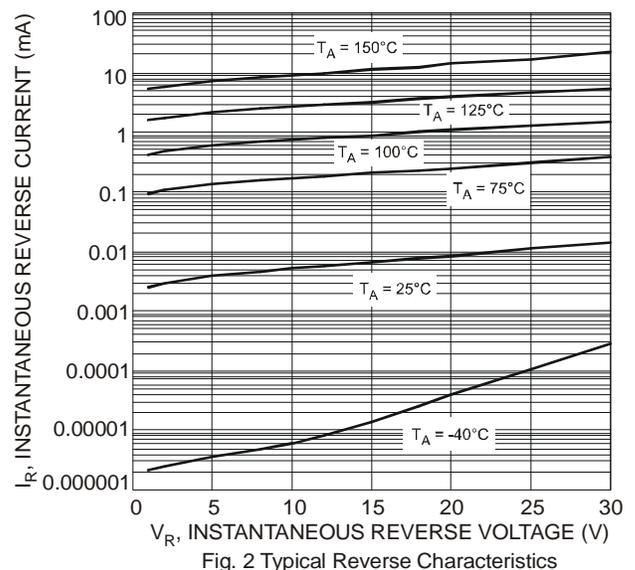
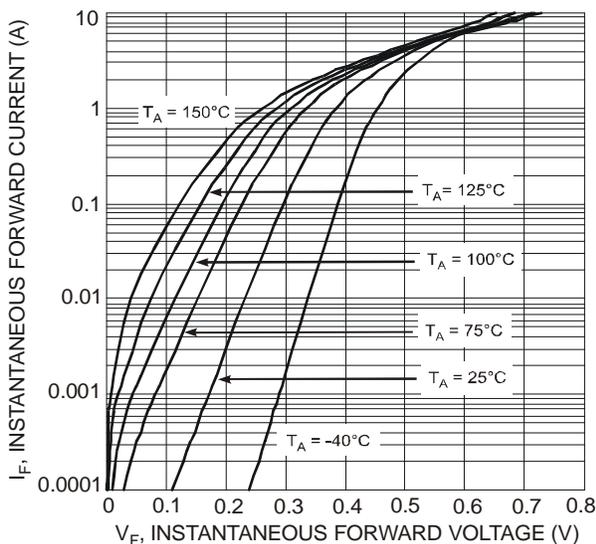
Thermal Characteristics

| Characteristic | Symbol | Typ | Max | Unit |
|---|-----------------|-------------|-----|--------------------|
| Thermal Resistance Junction to Soldering Point (Note 3) | $R_{\theta JS}$ | — | 6 | $^\circ\text{C/W}$ |
| Operating Temperature Range | T_J | -65 to +150 | | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -65 to +150 | | $^\circ\text{C}$ |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|-------------|-----|-----|---------------|------|---|
| Reverse Breakdown Voltage (Note 4) | $V_{(BR)R}$ | 30 | — | — | V | $I_R = 200\mu\text{A}$ |
| Forward Voltage | V_F | — | — | 0.45 0.375 | V | $I_F = 2\text{A}, T_J = 25^\circ\text{C}$ $I_F = 2\text{A}, T_J = 125^\circ\text{C}$ |
| Leakage Current (Note 4) | I_R | — | — | 0.200 15 | mA | $V_R = 30\text{V}, T_J = 25^\circ\text{C}$ $V_R = 30\text{V}, T_J = 100^\circ\text{C}$ |
| Total Capacitance | C_T | — | 85 | — | pF | $V_R = 10\text{V}, f = 1.0\text{MHz}$ |

- Notes:
- Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
 - Short duration pulse test used to minimize self-heating effect.
 - Part mounted on FR-4 board with 2 oz., minimum recommended copper pad layout which can be found on our website at <http://www.diodes.com>.
 $T_A = 25^\circ\text{C}$



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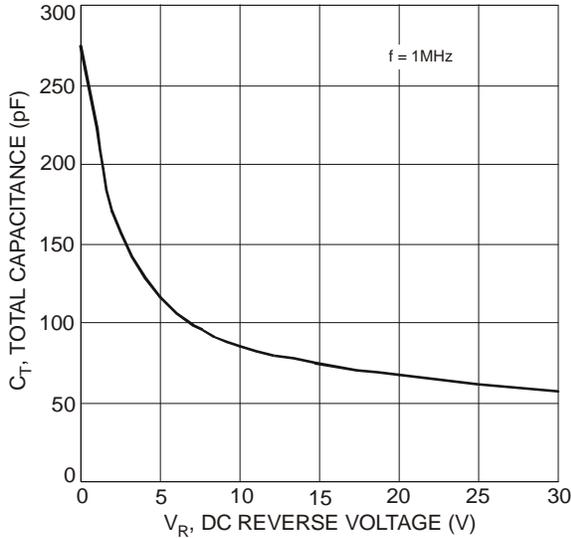


Fig. 3 Total Capacitance vs. Reverse Voltage

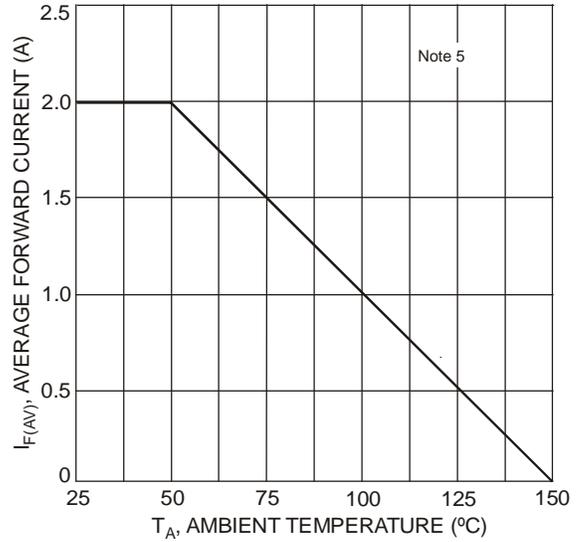
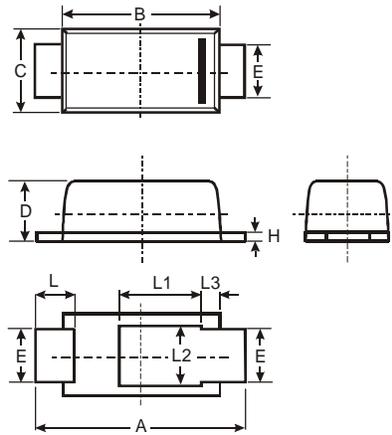


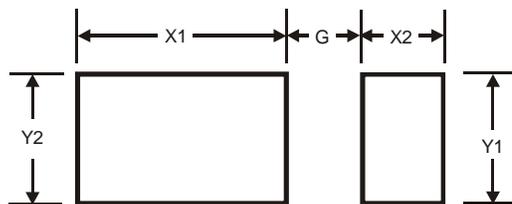
Fig. 4 Forward Current Derating Curve

Package Outline Dimensions



| POWERDI [®] 123 | | | |
|--------------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 3.50 | 3.90 | 3.70 |
| B | 2.60 | 3.00 | 2.80 |
| C | 1.63 | 1.93 | 1.78 |
| D | 0.93 | 1.00 | 0.98 |
| E | 0.85 | 1.25 | 1.00 |
| H | 0.15 | 0.25 | 0.20 |
| L | 0.40 | 0.50 | 0.45 |
| L1 | - | - | 1.35 |
| L2 | - | - | 1.10 |
| L3 | - | - | 0.20 |
| All Dimensions in mm | | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| G | 1.0 |
| X1 | 2.2 |
| X2 | 0.9 |
| Y1 | 1.4 |
| Y2 | 1.4 |

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