

**1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER**  
**POWERDI®123**
**Features**

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

**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)

POWERDI®123

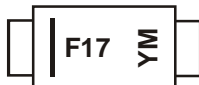


Top View

**Ordering Information** (Note 2)

Part Number	Case	Packaging
DFLS160-7	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**


F17 = 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	2010	2011	2012	2013	2014	2015	2016	2017
Code	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E

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

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DFLS160

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## Maximum Ratings @T<sub>A</sub> = 25°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 <sub>RRM</sub>	60	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	42	V
Average Forward Current	I <sub>F(AV)</sub>	1.0	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
Thermal Resistance Junction to Soldering Point (Note 3)	R <sub>θJS</sub>	—	6	°C/W
Thermal Resistance Junction to Ambient (Note 4)	R <sub>θJA</sub>	125	—	°C/W
Typical Thermal Resistance (Note 7)	R <sub>θJC</sub>	—	18	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 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 5)	V <sub>(BR)R</sub>	60	—	—	V	I <sub>R</sub> = 0.2mA
Forward Voltage	V <sub>F</sub>	—	—	0.50	V	I <sub>F</sub> = 1.0A
Leakage Current (Note 5)	I <sub>R</sub>	—	—	0.1	mA	V <sub>R</sub> = 60V, T <sub>A</sub> = 25°C
Total Capacitance	C <sub>T</sub>	—	67	—	pF	V <sub>R</sub> = 10V, f = 1.0MHz

- Notes:
3. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
  4. Device mounted on Polymide substrate, 1" x 1" 2oz copper double-sided PC board with minimum recommended pad layout, which can be found on our website at <http://www.diodes.com>.
  5. Short duration pulse test to minimize self-heating effect
  6. Part mounted on 50.8mm\*50.8mm GETEK board with 25.4mm\*25.4mm copper pad, 25% anode, 75% cathode. T<sub>A</sub> = 25°C
  7. 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

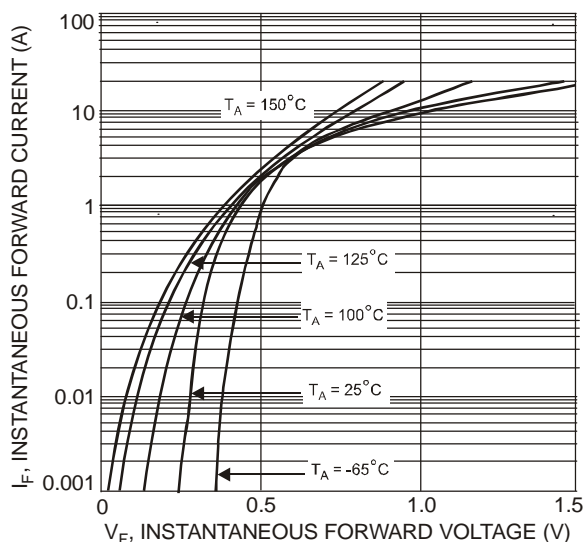


Fig. 1 Typical Forward Characteristics

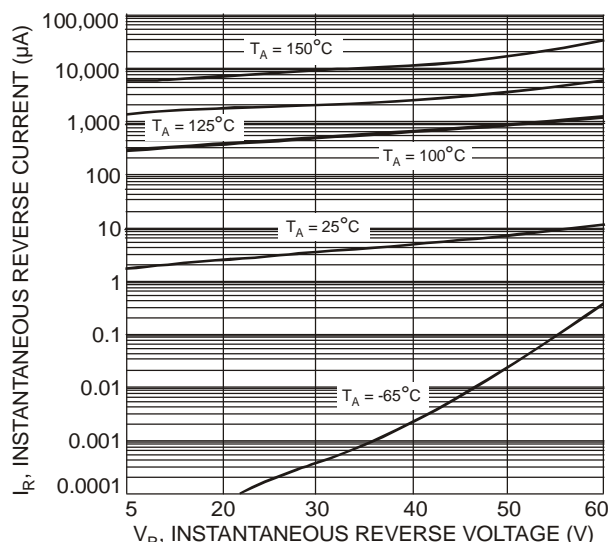


Fig. 2 Typical Reverse Characteristics

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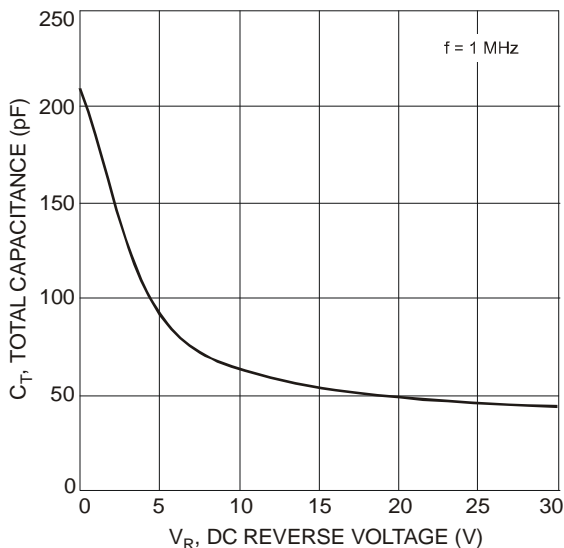


Fig. 3 Total Capacitance vs. Reverse Voltage

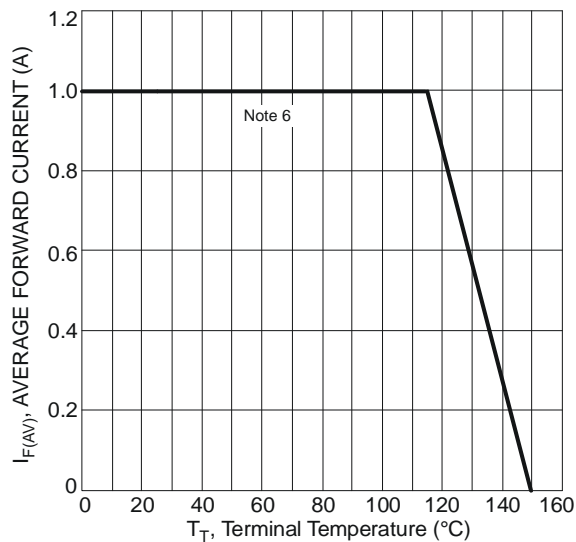
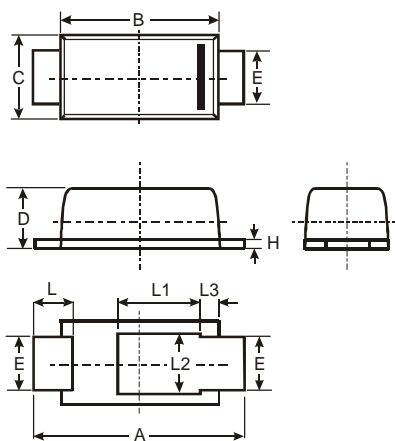


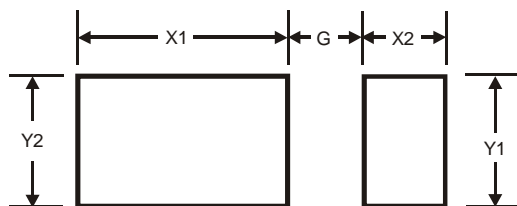
Fig.4 Forward Current Derating (Note 4)

## Package Outline Dimensions



POWERDI <sup>®</sup> 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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