

**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



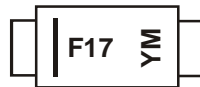
Top View

**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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### 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	$V_{RRM}$	60	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	42	V
Average Forward Current	$I_{F(AV)}$	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	50	A

### Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point (Note 3)	$R_{\theta JS}$	—	6	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 4)	$R_{\theta JA}$	125	—	$^\circ\text{C/W}$
Typical Thermal Resistance (Note 7)	$R_{\theta JC}$	—	18	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-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 5)	$V_{(BR)R}$	60	—	—	V	$I_R = 0.2\text{mA}$
Forward Voltage	$V_F$	—	—	0.50	V	$I_F = 1.0\text{A}$
Leakage Current (Note 5)	$I_R$	—	—	0.1	mA	$V_R = 60\text{V}, T_A = 25^\circ\text{C}$
Total Capacitance	$C_T$	—	67	—	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.
  - 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>.
  - Short duration pulse test to minimize self-heating effect
  - Part mounted on 50.8mm\*50.8mm GETEK board with 25.4mm\*25.4mm copper pad, 25% anode, 75% cathode.  $T_A = 25^\circ\text{C}$
  - Part mounted on FR-4 board with 1.8mm X 2.5mm cathode and 1.8mm X 1.2mm anode, 1 oz. copper pads.  $T_A = 25^\circ\text{C}$

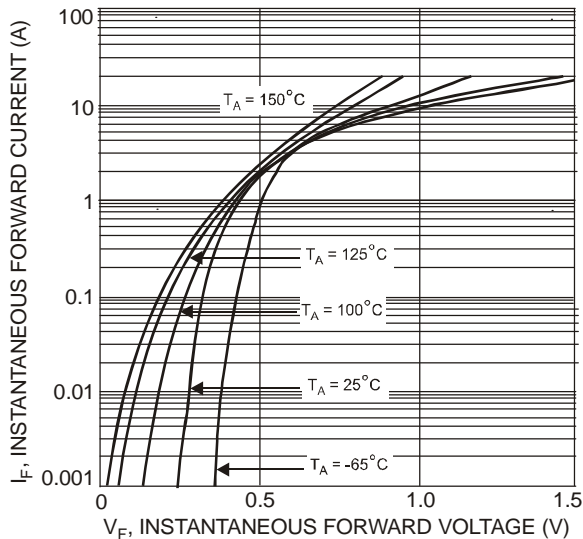


Fig. 1 Typical Forward Characteristics

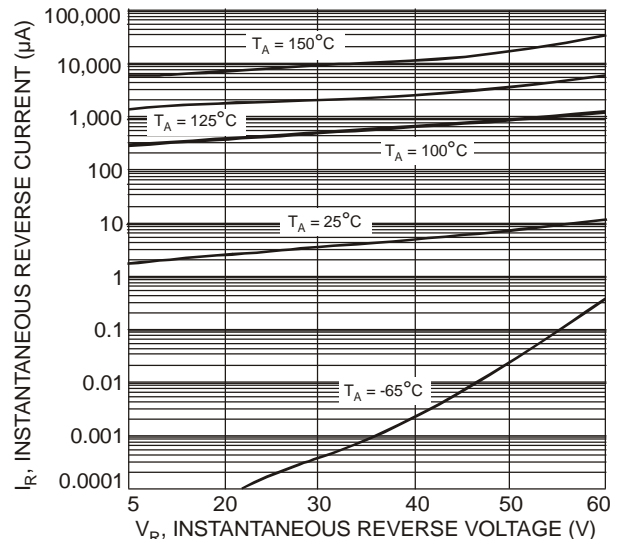


Fig. 2 Typical Reverse Characteristics

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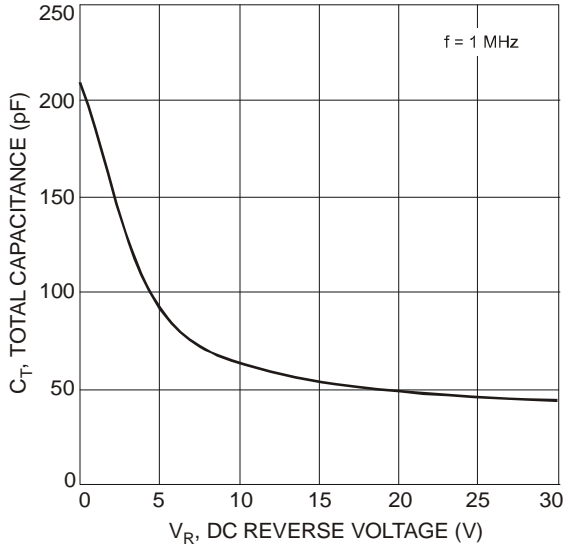


Fig. 3 Total Capacitance vs. Reverse Voltage

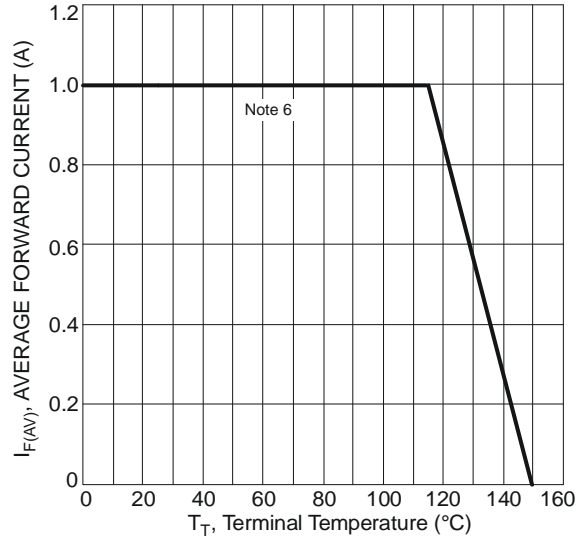
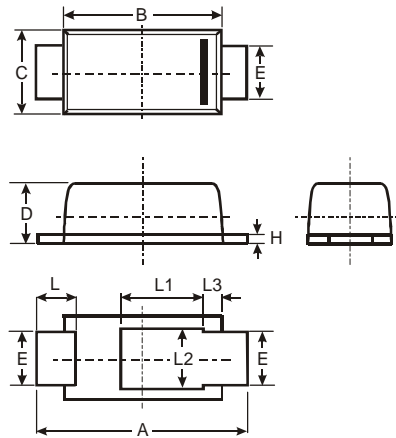


Fig.4 Forward Current Derating (Note 4)

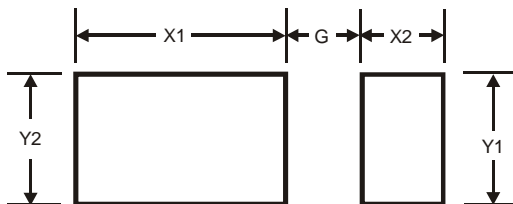
## Package Outline Dimensions



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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