

**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

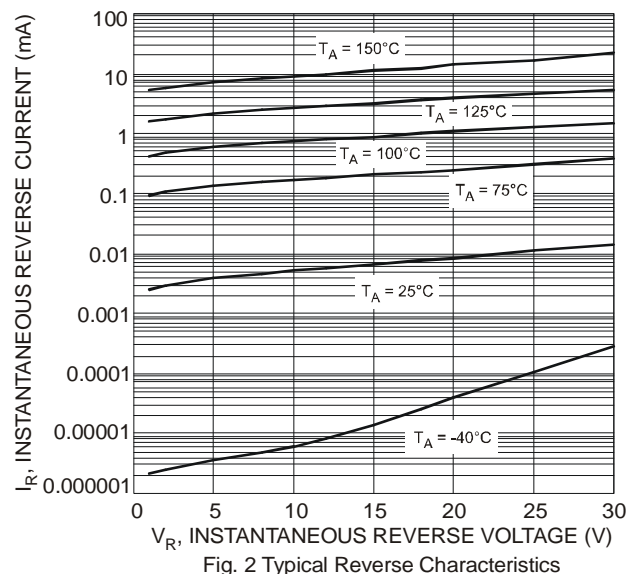
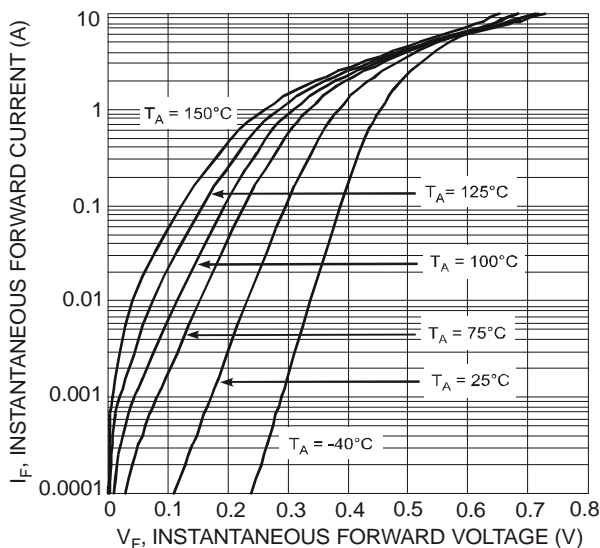
**Thermal Characteristics**

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>.  
 $T_A = 25^\circ\text{C}$



POWERDI is a registered trademark of Diodes Incorporated.

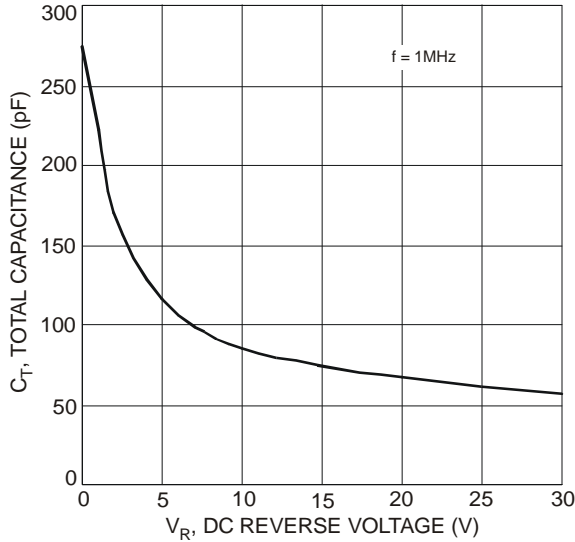


Fig. 3 Total Capacitance vs. Reverse Voltage

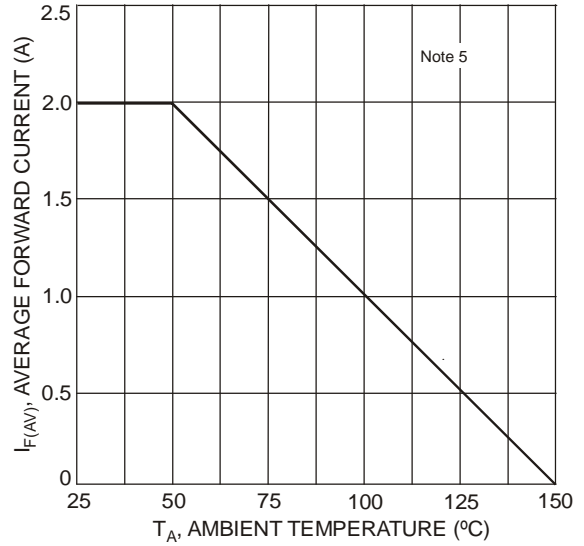
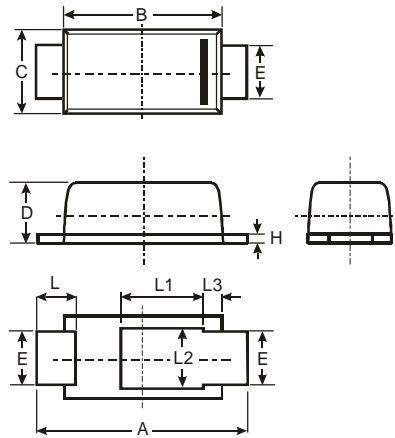


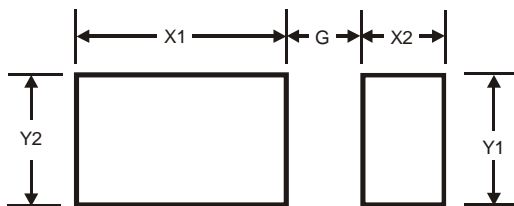
Fig. 4 Forward Current Derating Curve

## 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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