


2.0A 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
- High Current Capability and Low Forward Voltage Drop
- **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-02
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin Annealed Over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Weight: 0.01 grams (approximate)



Top View

Ordering Information (Note 2)

Part Number	Case	Packaging
DFLS230L-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


F03A = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: T = 2006)
 M = Month (ex: 9 = September)

Date Code Key

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	R	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

PowerDI is a registered trademark of Diodes Incorporated.

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 @ $T_T = 121^\circ\text{C}$	$I_{F(AV)}$	2.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	33	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P_D	1.67	W
Power Dissipation (Note 4)	P_D	556	mW
Thermal Resistance Junction to Ambient (Note 3)	$R_{\theta JA}$	60	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 4)	$R_{\theta JA}$	180	$^\circ\text{C/W}$
Thermal Resistance Junction to Soldering (Note 5)	$R_{\theta JS}$	10	$^\circ\text{C/W}$
Operating Temperature Range	T_J	-40 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-40 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 6)	$V_{(BR)R}$	30	—	—	V	$I_R = 1.0\text{mA}$
Forward Voltage	V_F	—	0.310 0.375	— 0.420	V	$I_F = 1.0\text{A}$ $I_F = 2.0\text{A}$
Leakage Current (Note 6)	I_R	—	0.260	—	mA	$V_R = 5\text{V}, T_A = 25^\circ\text{C}$ $V_R = 30\text{V}, T_A = 25^\circ\text{C}$
Total Capacitance	C_T	—	76	—	pF	$V_R = 10\text{V}, f = 1.0\text{MHz}$

- Notes:
- Part mounted on 2"x2" GETEK board with 1"x1" copper pad, 25% anode, 75% cathode. $T_A = 25^\circ\text{C}$.
 - Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.
 - 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.

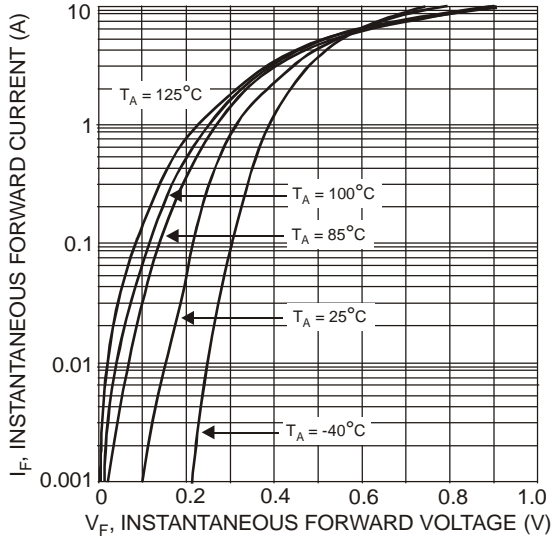


Fig. 1 Typical Forward Characteristics

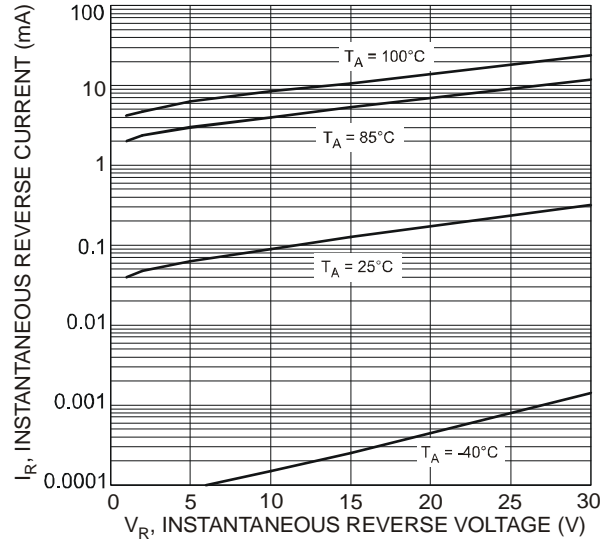


Fig. 2 Typical Reverse Characteristics

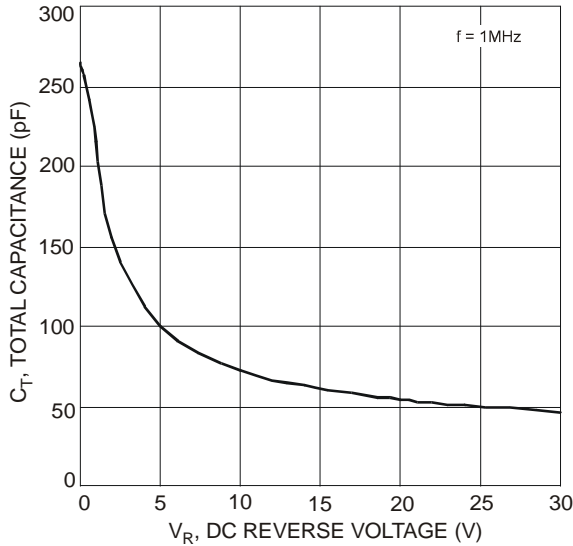


Fig. 3 Total Capacitance vs. Reverse Voltage

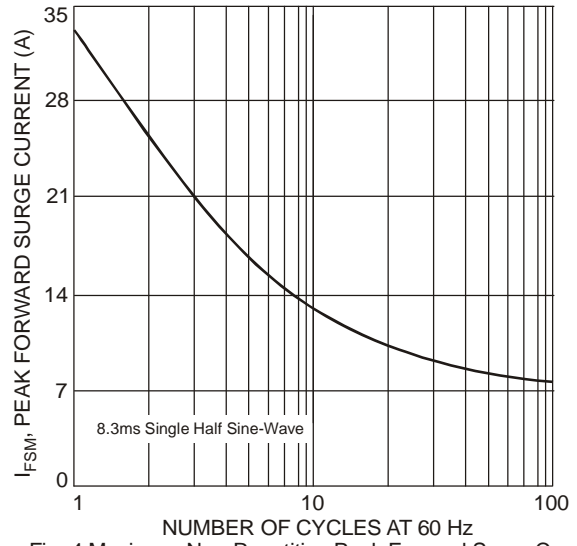
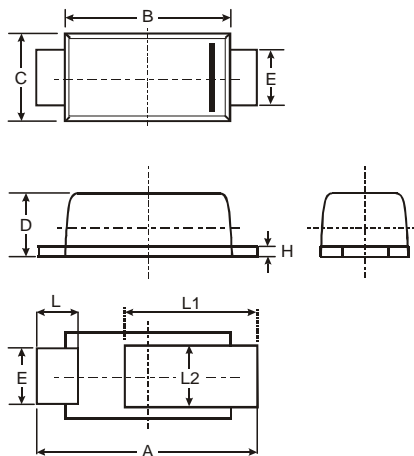


Fig. 4 Maximum Non-Repetitive Peak Forward Surge Current

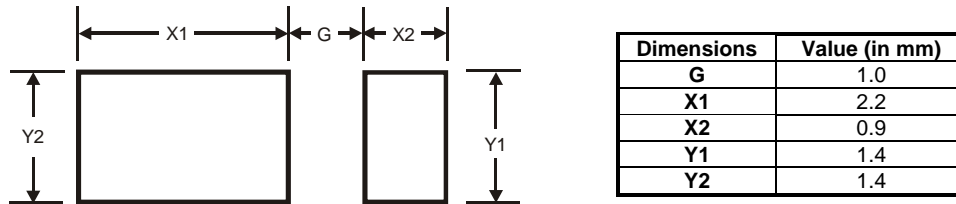
Package Outline Dimensions



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	0.55	0.75	0.65
L1	1.80	2.20	2.00
L2	0.95	1.25	1.10
All Dimensions in mm			

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Suggested Pad Layout



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