

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
- 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**

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Top View

Mechanical Data

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

Ordering Information (Note 2)

Part Number	Case	Packaging
DFLS140-7	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



F04 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: T = 2006)
M = Month (ex: 9 = September)

Date Code Key

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

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Maximum Ratings @T_A = 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 _{RRM}	40	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	28	V
Average Forward Current @ T _J = 119°C	I _{F(AV)}	1.1	A
Non-Repetitive Peak Forward Surge Current 8.3ms	I _{FSM}	40	A
Single Half Sine-Wave Superimposed on Rated Load			

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P _D	1.67	W
Power Dissipation (Note 2)	P _D	556	mW
Thermal Resistance Junction to Ambient (Note 3)	R _{θJA}	60	°C/W
Thermal Resistance Junction to Ambient (Note 4)	R _{θJA}	180	°C/W
Thermal Resistance Junction to Soldering (Note 5)	R _{θJS}	10	°C/W
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V _{(BR)R}	40	—	—	V	I _R = 20μA
Forward Voltage	V _F	—	0.45 0.53	0.51	V	I _F = 0.5A I _F = 1.1A
Leakage Current (Note 6)	I _R	—	—	20 6.0	μA mA	V _R = 40V, T _J = 25°C V _R = 40V, T _J = 100°C
Total Capacitance	C _T	—	28	—	pF	V _R = 10V, f = 1.0MHz

- Notes:
- Part mounted on 50.8mm X 50.8mm GETEK board with 25.4mm X 25.4mm copper pad, 25% anode, 75% cathode. T_A = 25°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°C
 - Theoretical R_{θJS} 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.

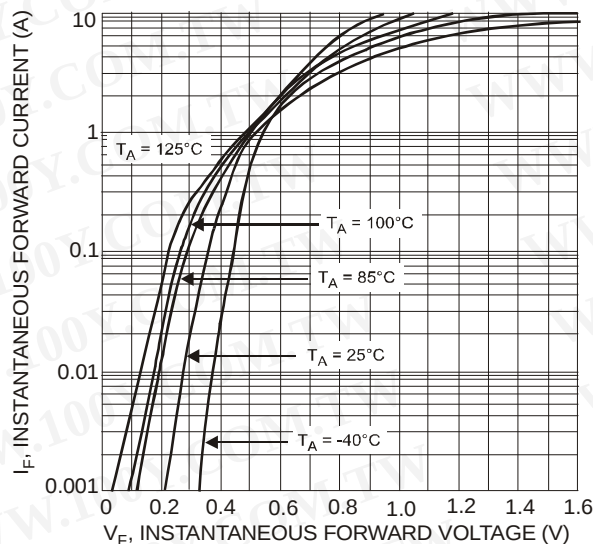


Fig. 1 Typical Forward Characteristics

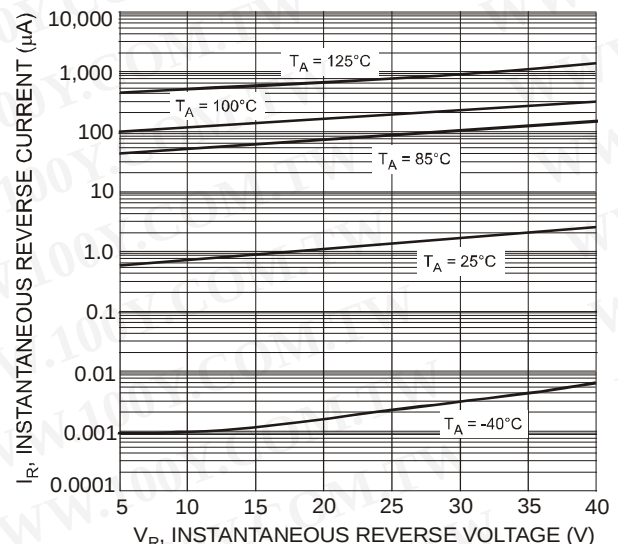


Fig. 2 Typical Reverse Characteristics

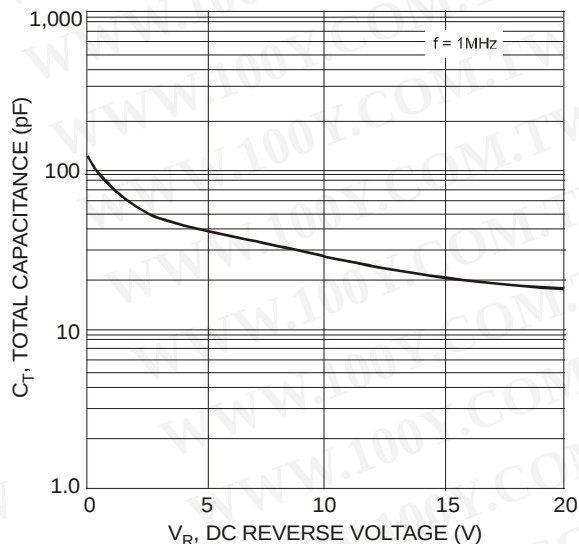


Fig. 3 Total Capacitance vs. Reverse Voltage

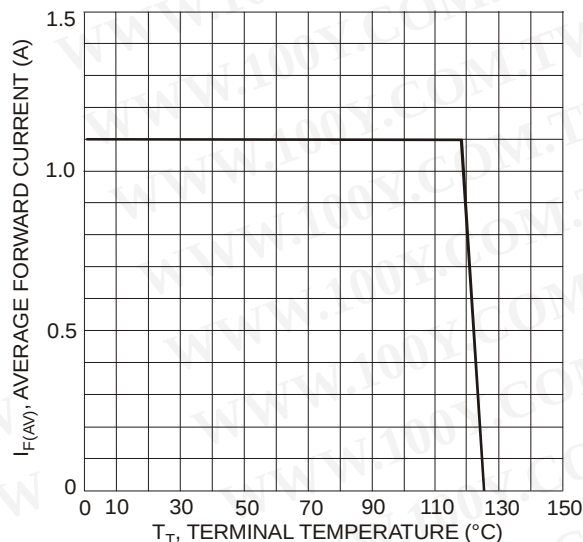


Fig. 4 Forward Current Derating Curve

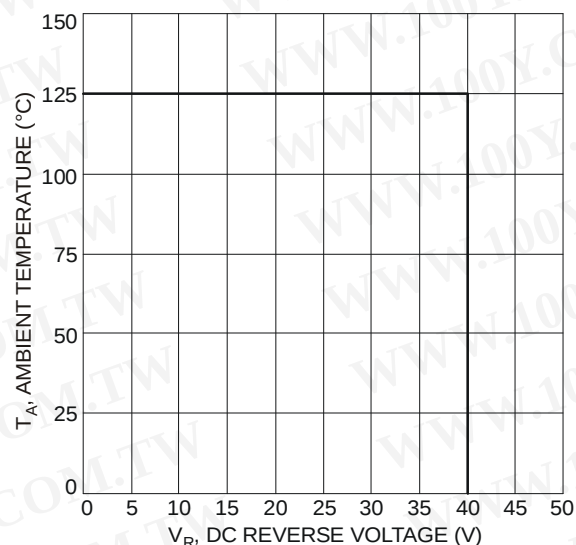


Fig. 5 Operating Temperature Derating

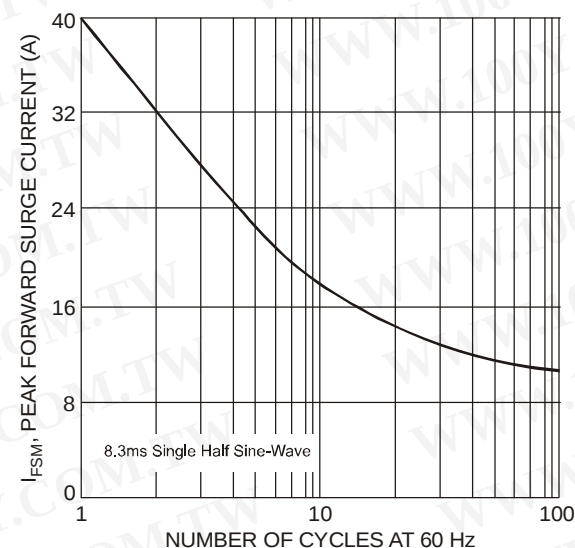
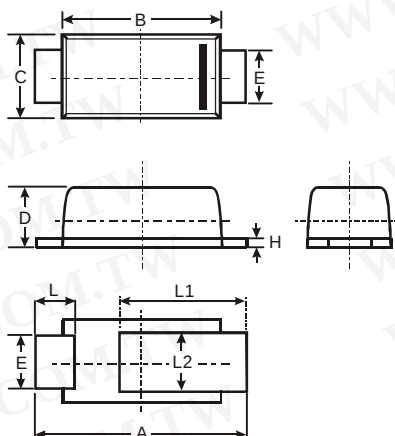


Fig. 6 Maximum Non-Repetitive Peak Forward Surge Current

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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DFLS140

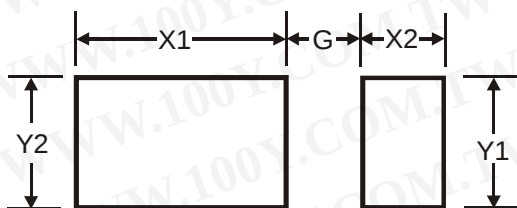
Document number: DS30446 Rev. 8 - 2

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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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