2.0A LOW VF SCHOTTKY BARRIER RECTIFIER

PowerDI®123

Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- **Lead Free Finish, RoHS Compliant (Note 4)**
- **"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 e3
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.01 grams (approximate)

Top View

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	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}	50	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Power Dissipation (Note 1)	P_D	—	1.67	W
Power Dissipation (Note 2)	P_D	—	556	mW
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	60	—	°C/W
Thermal Resistance Junction to Ambient (Note 2)	$R_{\theta JA}$	180	—	°C/W
Thermal Resistance Junction to Soldering (Note 3)	$R_{\theta JS}$	—	5	°C/W
Operating Temperature Range (See figure 4)	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 5)	$V_{(BR)R}$	40	—	—	V	I_R = 500μA
Forward Voltage	V_F	— — —	0.4 0.45 0.50	0.45 0.50 0.65	V	I_F = 1.0A I_F = 2.0A I_F = 3.0A
Leakage Current (Note 5)	I_R	— — — —	— — — —	0.1 10 0.05 5	mA	V_R = 40V V_R = 40V, T_J = 85°C V_R = 20V V_R = 20V, T_J = 85°C
Total Capacitance	C_T	—	90	—	pF	V_R = 10V, f = 1.0MHz

Notes:
1. Part mounted on 50.8mm X 50.8mm GETEK board with 25.4mm X 25.4mm copper pad, 25% anode, 75% cathode.
2. Part mounted on FR-4 board with 1.8mm X 2.5mm cathode and 1.8mm X 1.2mm anode, 1 oz. copper pads.
3. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB cathode tab solder junction.
4. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/products/lead_free.html.
5. Short duration pulse test used to minimize self-heating effect.

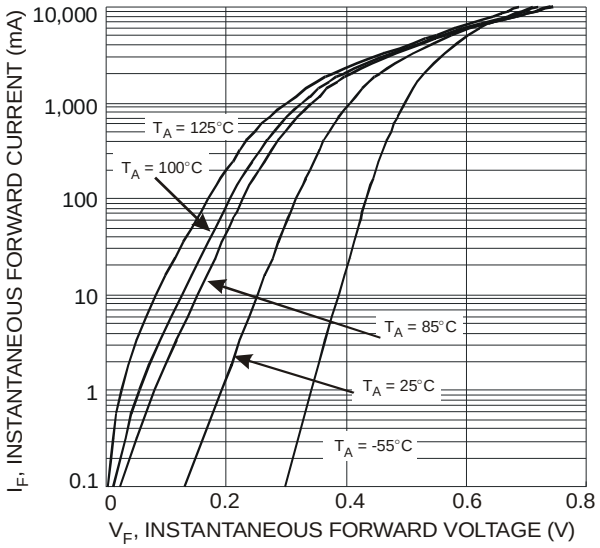

Fig. 1 Typical Forward Characteristics

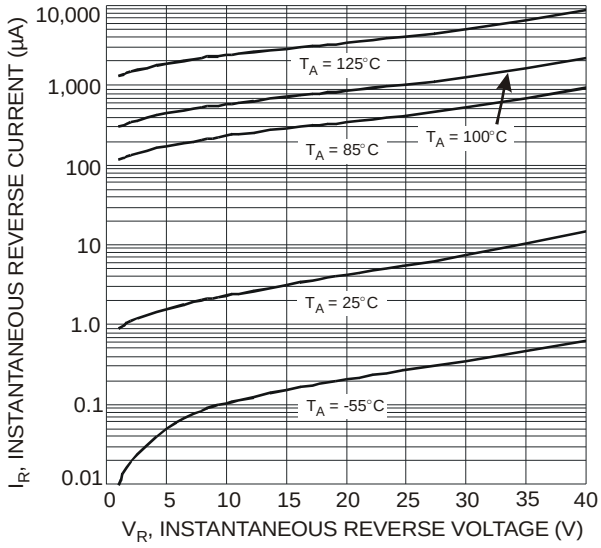

Fig. 2 Typical Reverse Characteristics

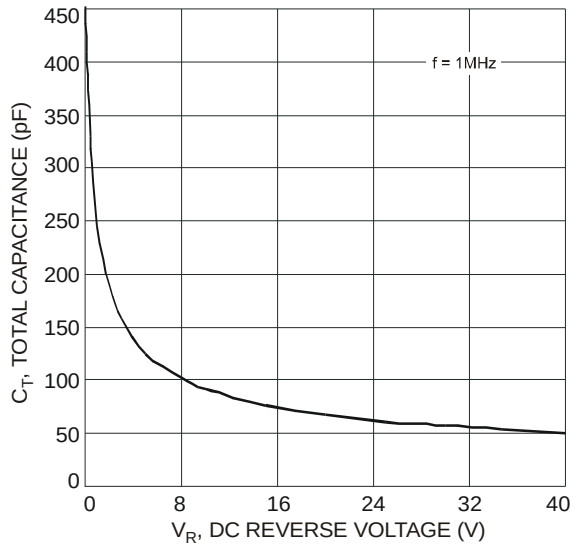

Fig. 3 Total Capacitance vs. Reverse Voltage

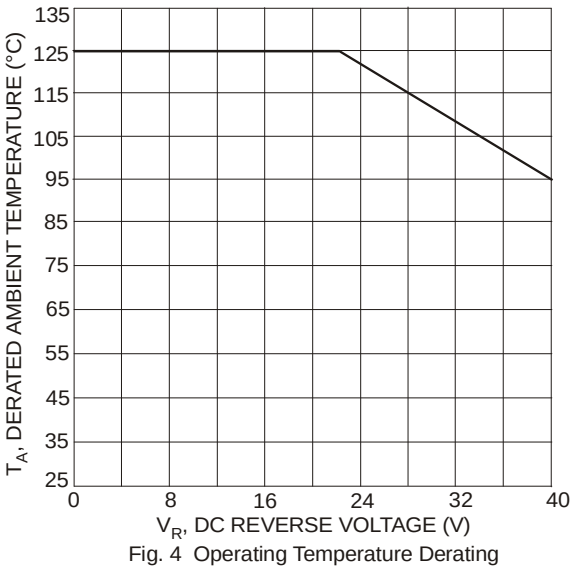

Fig. 4 Operating Temperature Derating

Ordering Information (Note 6)

Part Number	Case	Packaging
DFLS240L-7	PowerDI®123	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information

F06A = 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

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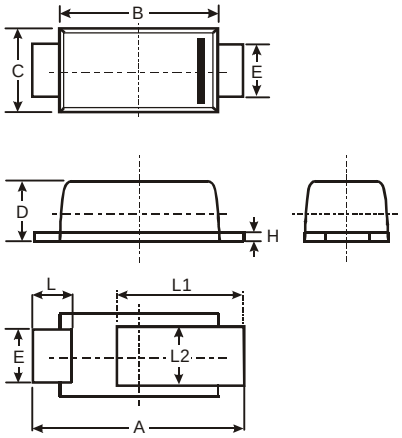
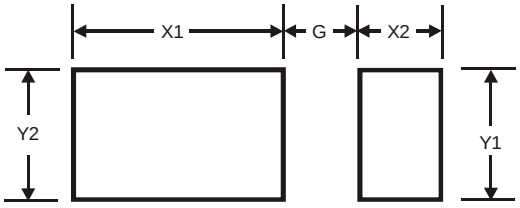
Package Outline Dimensions



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			

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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