

**1.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER**  
**PowerDI<sup>®</sup>123**
**Features**

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Patented Interlocking Clip Design for High Surge Current Capacity
- **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<sup>®</sup>123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 <sup>(3)</sup>
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.01 grams (approximate)



Top View

**Maximum Ratings** @T<sub>A</sub> = 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 <sub>RRM</sub>	100	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	71	V
Average Forward Current	I <sub>F(AV)</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	40	A

**Thermal Characteristics**

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering (Note 2)	R <sub>θJS</sub>	—	7	°C/W
Thermal Resistance Junction to Ambient (Note 1)	R <sub>θJA</sub>	125	—	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175		°C

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 3)	V <sub>(BR)R</sub>	100	—	—	V	I <sub>R</sub> = 1μA
Forward Voltage	V <sub>F</sub>	—	—	0.77 0.86	V	I <sub>F</sub> = 1.0A I <sub>F</sub> = 2.0A
Leakage Current (Note 3)	I <sub>R</sub>	—	—	1	μA	V <sub>R</sub> = 100V, T <sub>A</sub> = 25°C
Total Capacitance	C <sub>T</sub>	—	36	—	pF	V <sub>R</sub> = 5VDC, f = 1MHz

- Notes:
1. 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/datasheets/ap02001.pdf>. T<sub>A</sub> = 25°C
  2. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
  3. Short duration pulse test used to minimize self-heating effect.
  4. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.

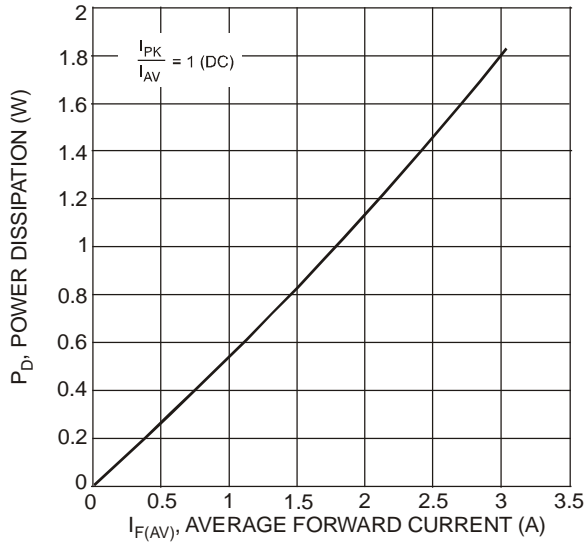


Fig. 1 Forward Power Dissipation

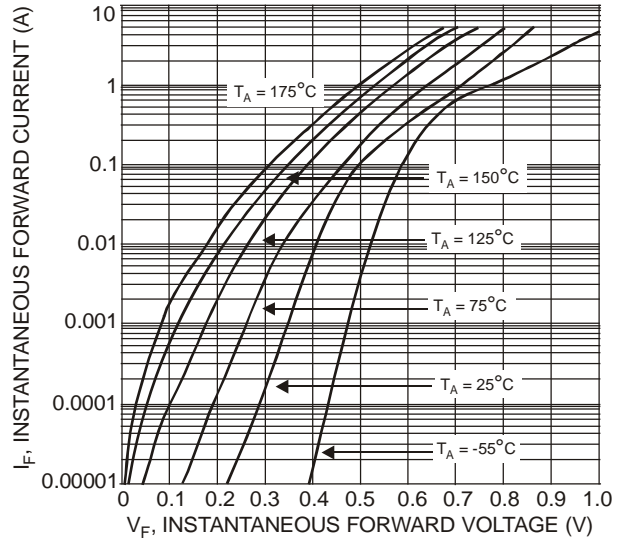


Fig. 2 Typical Forward Characteristics

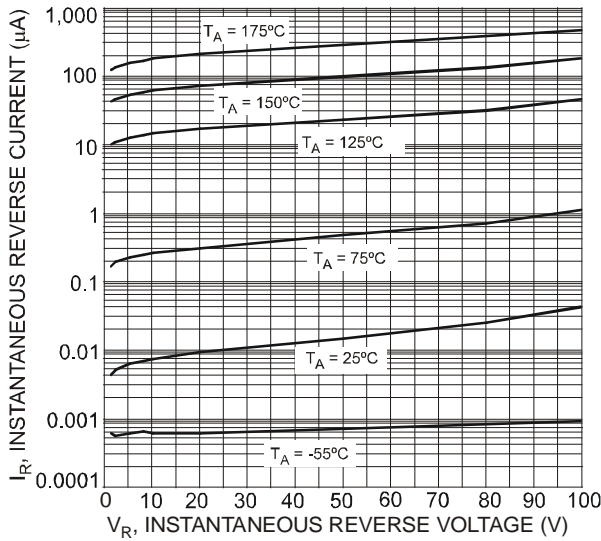


Fig. 3 Typical Reverse Characteristics

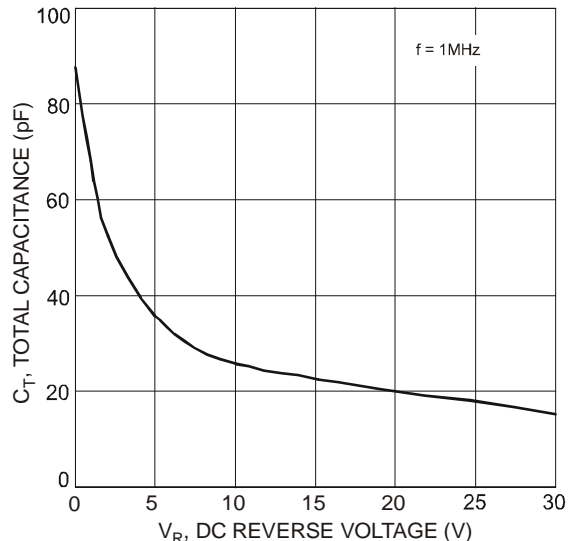


Fig. 4 Total Capacitance vs. Reverse Voltage

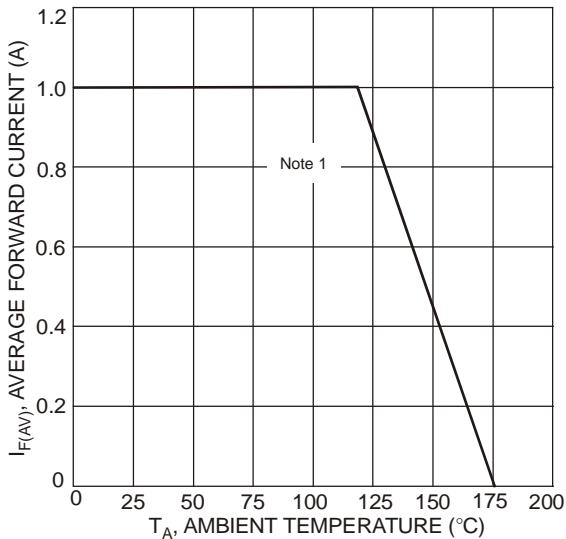


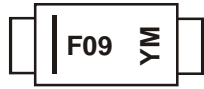
Fig. 5 Forward Current Derating Curve

### Ordering Information (Note 5)

<b>Part Number</b> DFLS1100-7	<b>Case</b> PowerDI <sup>®</sup> 123	<b>Packaging</b> 3000/Tape & Reel
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Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

### Marking Information



F09 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: T = 2006)  
 M = Month (ex: 9 = September)

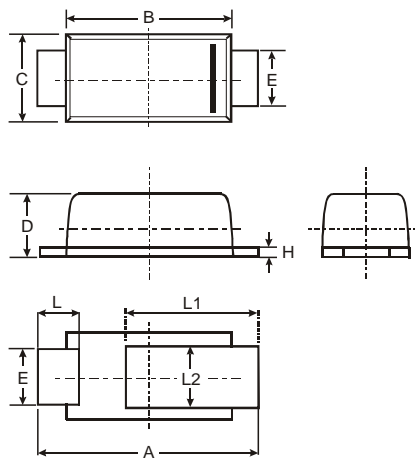
#### Date Code Key

<b>Year</b>	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Code</b>	R	S	T	U	V	W	X	Y	Z

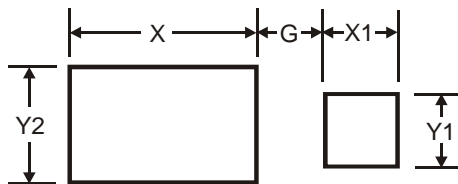
<b>Month</b>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Code</b>	1	2	3	4	5	6	7	8	9	O	N	D

### Package Outline Dimensions



PowerDI <sup>®</sup> 123			
Dim	Min	Max	Typ
<b>A</b>	3.50	3.90	3.70
<b>B</b>	2.60	3.00	2.80
<b>C</b>	1.63	1.93	1.78
<b>D</b>	0.93	1.00	0.98
<b>E</b>	0.85	1.25	1.00
<b>H</b>	0.15	0.25	0.20
<b>L</b>	0.55	0.75	0.65
<b>L1</b>	1.80	2.20	2.00
<b>L2</b>	0.95	1.25	1.10
<b>All Dimensions in mm</b>			

### Suggested Pad Layout



Dimensions	Value (in mm)
<b>G</b>	1.0
<b>X1</b>	2.2
<b>X2</b>	0.9
<b>Y1</b>	1.4
<b>Y2</b>	1.4

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