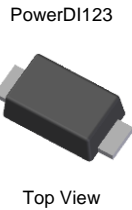


## Features

- Guard Ring Die Construction for Transient Protection
- High Current Capability
- Low Leakage Current
- Patented Interlocking Clip Design for High Surge Current Capacity
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability.**  
<https://www.diodes.com/quality/product-definitions/>
- **An Automotive-Compliant Part is Available Under Separate Datasheet (DFLS240Q)**

## Mechanical Data

- Package: PowerDI<sup>®</sup>123
- Package 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)
- Weight: 0.01 grams (Approximate)



## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DFLS240-7	PowerDI123	3000	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



F04A = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: J = 2022)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2006	....	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	T	....	J	K	L	M	N	O	P	R	S	T
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<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	40	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Forward Current	I <sub>F(AV)</sub>	2.0	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 Ambient Air (Note 5)	R <sub>θJA</sub>	73	—	°C/W
Thermal Resistance, Junction to Soldering Point (Note 6)	R <sub>θJS</sub>	—	13	°C/W
Operating Temperature Range	T <sub>J</sub>	-65 to +125		°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150		°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 20μA
Forward Voltage	V <sub>F</sub>	—	0.52 0.65	0.58 0.7	V	I <sub>F</sub> = 1.0A I <sub>F</sub> = 2.0A
Leakage Current (Note 7)	I <sub>R</sub>	—	—	20 6.0	μA mA	V <sub>R</sub> = 40V, T <sub>A</sub> = +25°C V <sub>R</sub> = 40V, T <sub>A</sub> = +100°C
Total Capacitance	C <sub>T</sub>	—	28	—	pF	V <sub>R</sub> = 10V, f = 1.0MHz

- Notes:
5. Part mounted on Polyimide board with 2oz copper, 74mm<sup>2</sup> pad layout. T<sub>A</sub> = +25°C.
  6. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
  7. Short duration pulse test used to minimize self-heating effect.

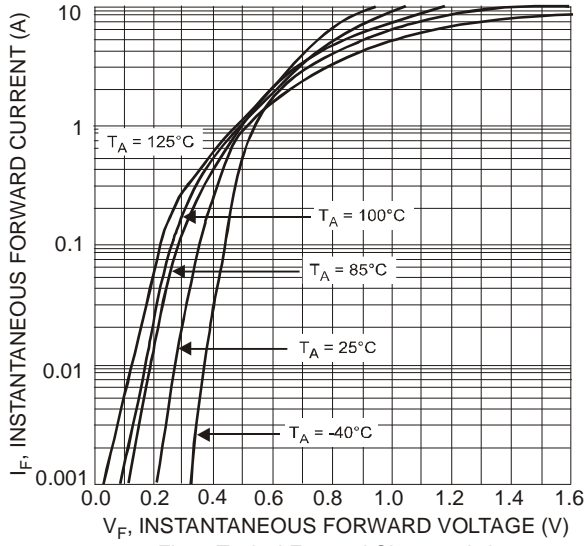


Fig. 1 Typical Forward Characteristics

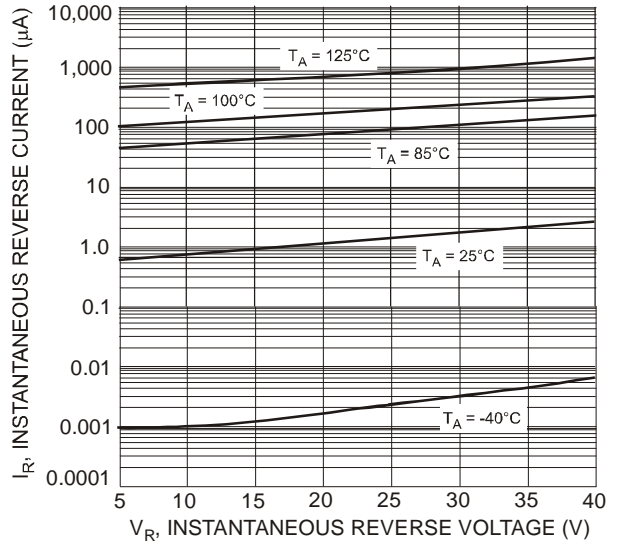


Fig. 2 Typical Reverse Characteristics

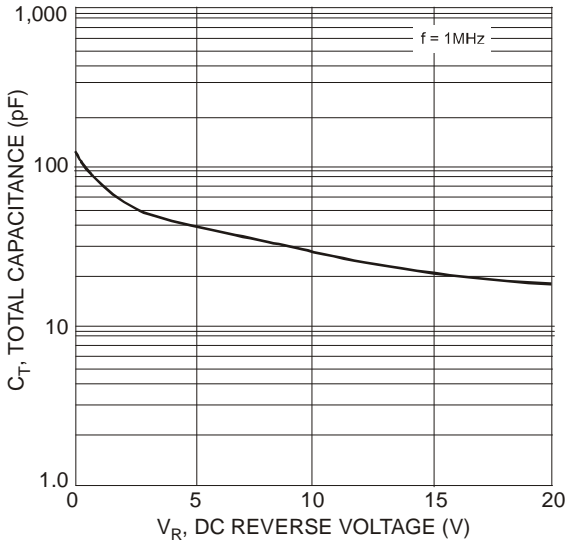


Fig. 3 Total Capacitance vs. Reverse Voltage

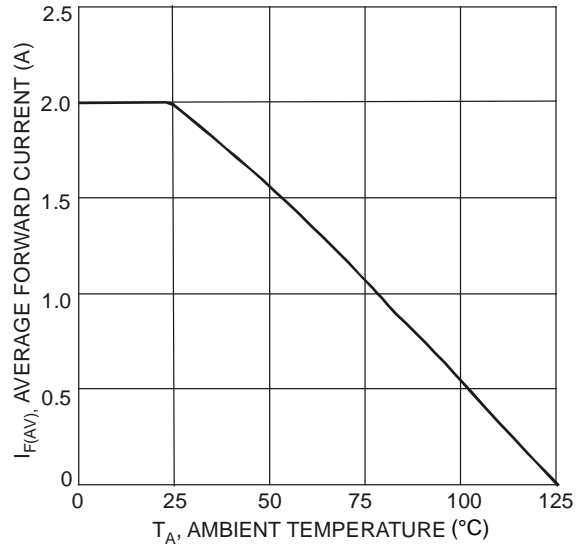
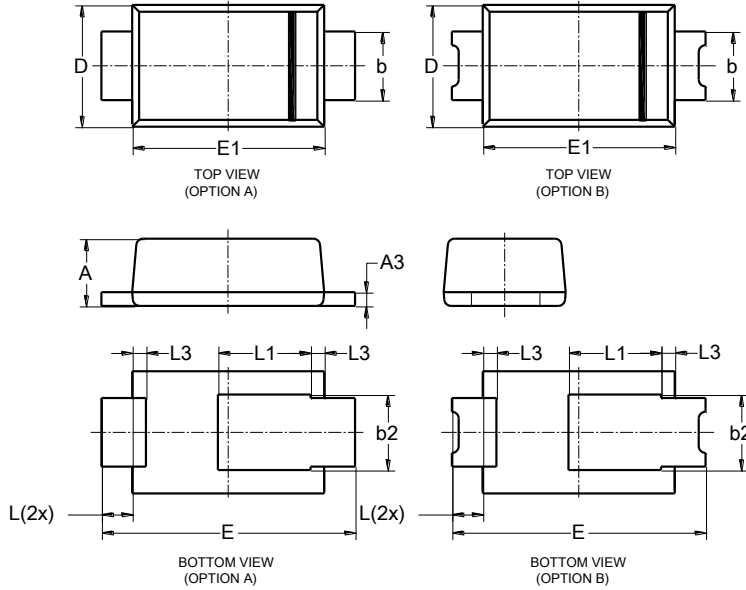


Fig. 4 Forward Current Derating Curve

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### PowerDI123

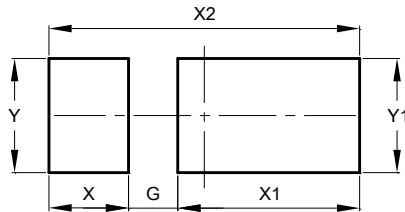


PowerDI123			
Dim	Min	Max	Typ
<b>A</b>	0.93	1.00	0.98
<b>A3</b>	0.15	0.25	0.20
<b>b</b>	0.85	1.25	1.00
<b>b2</b>	1.025	1.125	1.10
<b>D</b>	1.63	1.93	1.78
<b>E</b>	3.50	3.90	3.70
<b>E1</b>	2.60	3.00	2.80
<b>L</b>	0.40	0.50	0.45
<b>L1</b>	1.25	1.40	1.35
<b>L3</b>	0.125	0.275	0.20
<b>All Dimensions in mm</b>			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### PowerDI123



Dimensions	Value (in mm)
<b>G</b>	0.65
<b>X</b>	1.05
<b>X1</b>	2.40
<b>X2</b>	4.10
<b>Y</b>	1.50
<b>Y1</b>	1.50

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