



# THE DATASHEET OF DFLS240L-7

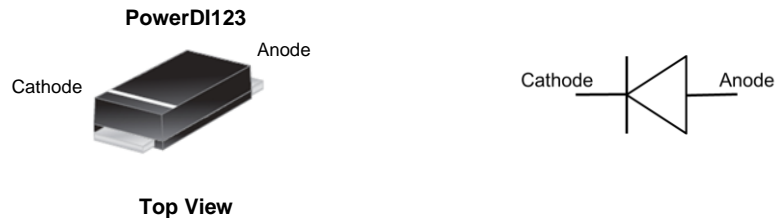


## Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- 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 ([DFLS240LQ](#))

## 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 <sup>(6)</sup>
- Weight: 0.01 grams (Approximate)



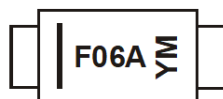
## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DFLS240L-7	PowerDI123	3000	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  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

PowerDI123



F06A = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: J = 2022)  
 M = Month (ex: 2 = February)

### Date Code Key

Year	2004	...	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	R	...	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

PowerDI is a registered trademark of Diodes Incorporated.

**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>	50	A

**Thermal Characteristics**

Characteristic	Symbol	Typ	Max	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	—	1.67	W
Power Dissipation (Note 6)	P <sub>D</sub>	—	556	mW
Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	60	—	°C/W
Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	180	—	°C/W
Thermal Resistance Junction to Soldering (Note 7)	R <sub>θJS</sub>	—	5	°C/W
Operating Temperature Range (See Figure 4)	T <sub>J</sub>	-55 to +125		°C
Storage Temperature Range	T <sub>STG</sub>	-55 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 8)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 500μA
Forward Voltage	V <sub>F</sub>	—	0.4	0.45	V	I <sub>F</sub> = 1.0A
		—	0.45	0.50		I <sub>F</sub> = 2.0A
		—	0.50	0.65		I <sub>F</sub> = 3.0A
Leakage Current (Note 8)	I <sub>R</sub>	—	—	0.1	mA	V <sub>R</sub> = 40V
		—	—	10		V <sub>R</sub> = 40V, T <sub>J</sub> = +85°C
		—	—	0.05		V <sub>R</sub> = 20V
		—	—	5		V <sub>R</sub> = 20V, T <sub>J</sub> = +85°C
Total Capacitance	C <sub>T</sub>	—	90	—	pF	V <sub>R</sub> = 10V, f = 1.0MHz

- Notes:
5. Part mounted on 50.8mm X 50.8mm GETEK board with 25.4mm X 25.4mm copper pad, 25% anode, 75% cathode.
  6. Part mounted on FR-4 board with 1.8mm X 2.5mm cathode and 1.8mm X 1.2mm anode, 1 oz. copper pads.
  7. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB cathode tab solder junction.
  8. Short duration pulse test used to minimize self-heating effect.

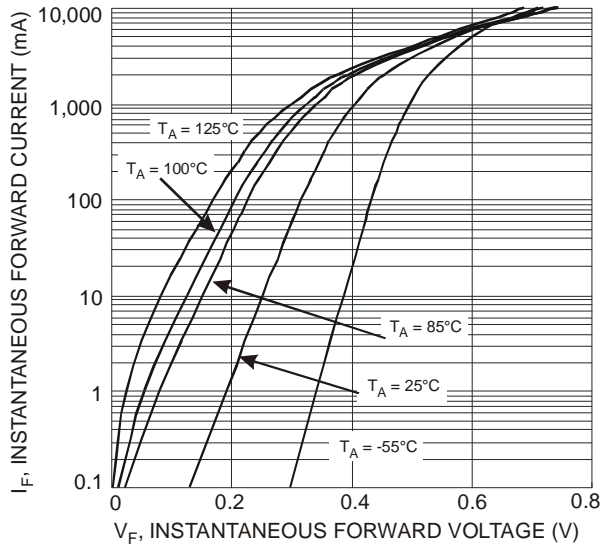


Fig. 1 Typical Forward Characteristics

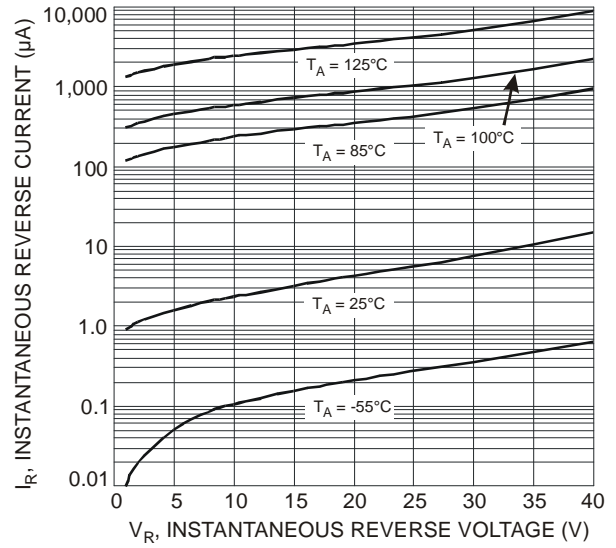


Fig. 2 Typical Reverse Characteristics

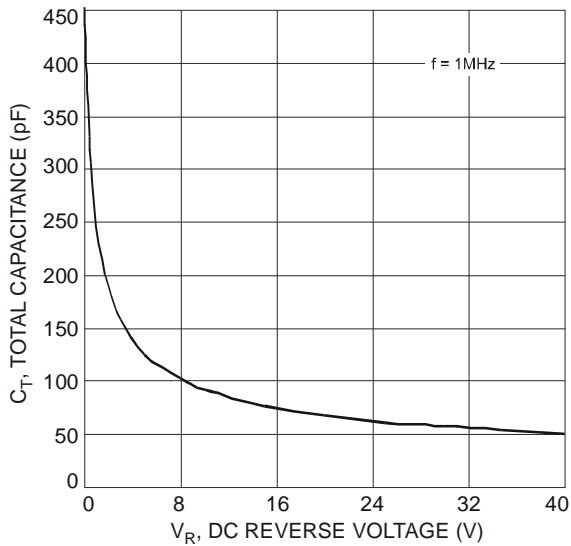


Fig. 3 Total Capacitance vs. Reverse Voltage

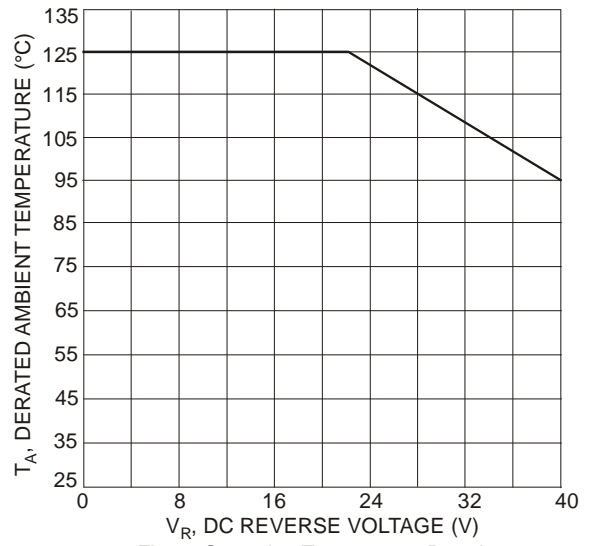
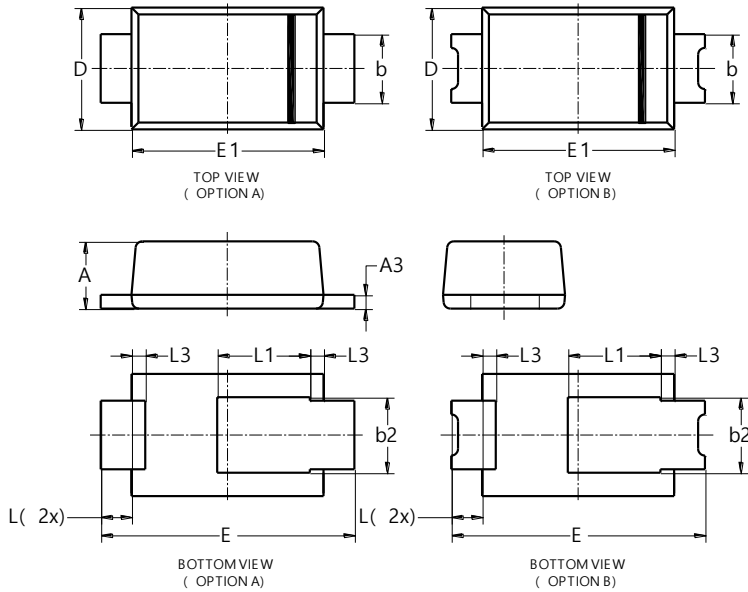


Fig. 4 Operating Temperature Derating

**Package Outline Dimensions**

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

**PowerDI123**

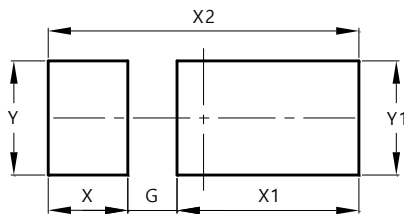


PowerDI123			
Dim	Min	Max	Typ
<b>A</b>	0.93	1.00	0.98
<b>A3</b>	0.15	0.25	0.20
<b>b</b>	0.85	1.25	1.00
<b>b2</b>	1.025	1.125	1.10
<b>D</b>	1.63	1.93	1.78
<b>E</b>	3.50	3.90	3.70
<b>E1</b>	2.60	3.00	2.80
<b>L</b>	0.40	0.50	0.45
<b>L1</b>	1.25	1.40	1.35
<b>L3</b>	0.125	0.275	0.20
<b>All Dimensions in mm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