

### Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Patented Interlocking Clip Design for High Surge Current Capacity
- Qualified to AEC-Q101 Standards for High Reliability
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

## **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-020
- Terminal Connections: Cathode Band
- Terminals: Finish Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202 Method 208
- Weight: 0.01 grams (Approximate)

PowerDI123



### Ordering Information (Note 4)

Part Number	Case	Packaging
DFLS160-7	PowerDI123	3,000/Tape & Reel

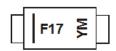
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.

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**



F17 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: E = 2017) M = Month (ex: 9 = September)

Notes:

Ballo Godo														
Year	2004	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Code	R	В	С	D	E	F	G	Н		J	K	L	М	Ν
Month	Jan	Feb	Ма	ar	Apr	Мау	Jun	Jul	Aug	Se	p (	Oct	Nov	Dec
Code	1	2	3	3	4	5	6	7	8	9		0	Ν	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 capacitance load derate current by 20%

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	60	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	42	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	IFSM	50	A

### **Thermal Characteristics**

Characteristic	Symbol	Тур	Max	Unit
Thermal Resistance Junction to Soldering Point (Note 8)	R <sub>ejs</sub>	_	6	°C/W
Thermal Resistance Junction to Ambient (Note 9)	R <sub>0JA</sub>	125	—	°C/W
Typical Thermal Resistance (Note 7)	R <sub>eJC</sub>	—	18	°C/W
Operating and Storage Temperature Range	TJ, TSTG	-65 to +	150	°C

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

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V <sub>(BR)R</sub>	60	_	_	V	$I_R = 0.2mA$
Forward Voltage	VF	_	_	0.50	V	I <sub>F</sub> = 1.0A
Leakage Current (Note 5)	IR	_	_	0.1	mA	V <sub>R</sub> = 60V, T <sub>A</sub> = +25°C
Total Capacitance	CT		67		pF	$V_R = 10V, f = 1.0MHz$

Notes: 5. Short duration pulse test to minimize self-heating effect

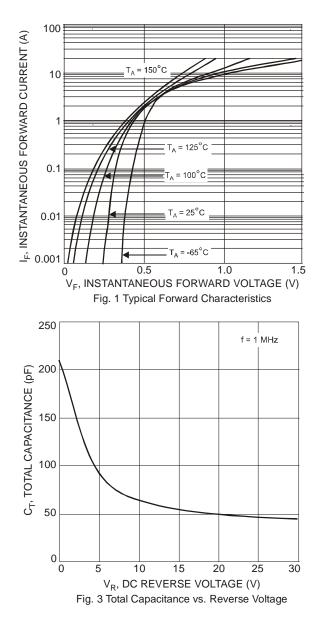
6. Part mounted on 50.8mm\*50.8mm GETEK board with 25.4mm\*25.4mm copper pad,25% anode,75% cathode. T<sub>A</sub> = +25°C.

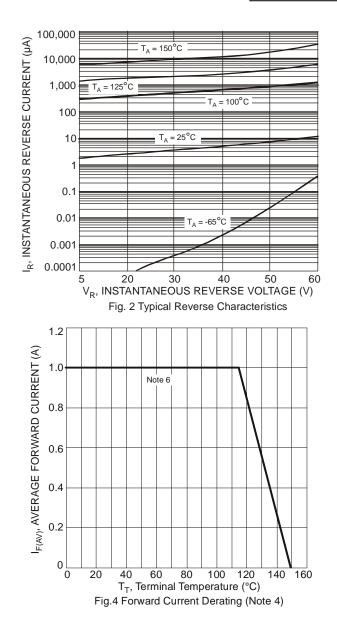
7. Part mounted on FR-4 board with 1.8mm X 2.5mm cathode and 1.8mm X 1.2mm anode, 1 oz. copper pads. T<sub>A</sub> = +25°C.

8. Theoretical  $R_{\theta JS}$  calculated from the top center of the die straight down to the PCB/cathode tab solder junction.

9. Device mounted on Polymide substrate, 1" x 1" 2oz copper double-sided PC board with minimum recommended pad layout, which can be found on our website at http://www.diodes.com.



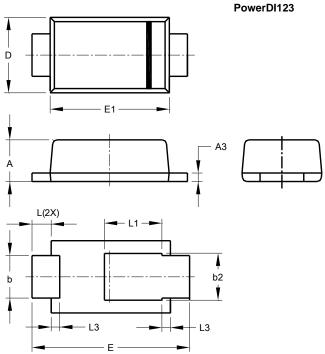






# **Package Outline Dimensions**

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

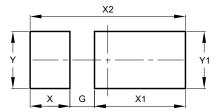


PowerDI123							
Dim	Min Max Typ						
Α	0.93	1.00	0.98				
A3	0.15	0.25	0.20				
b	0.85	1.25	1.00				
b2	1.025	1.125	1.10				
D	1.63	1.93	1.78				
Е	3.50	3.90	3.70				
E1	2.60	3.00	2.80				
L	0.40	0.50	0.45				
L1	1.25	1.40	1.35				
L3	0.125	0.275	0.20				
All Dimensions in mm							

# Suggested Pad Layout

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

PowerDI123



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

ackage-outlines.html for the latest v



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