



### Product Summary (@T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (μA)
600	1	1.1	3

### Features and Benefits

- Glass Passivated Die Construction
- Ideally Suited for Automated Assembly
- Low Forward Voltage Drop
- Low Profile Design, Package Height Less than 1.1mm
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

### Description and Applications

This series is packaged in the compact, low profile PowerDI123 package. Providing low forward voltage drop, this device is ideal for use in general rectification applications such as:

- Power Supply Applications
- DC-DC Converters
- AC-DC Adaptors/Chargers
- Freewheeling Diodes
- Inverters
- Automotive

### Mechanical Data

- Case: PowerDI123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Terminal Connections: Cathode Band
- Weight: 0.018 grams (Approximate)

PowerDI123



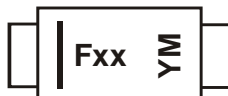
Top View

### Ordering Information (Note 5)

Part Number	Qualification	Marking Code	Case	Packaging
DFLR1600Q-7	Automotive	F18	PowerDI123	3,000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

### Marking Information



F18 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: D = 2016)  
 M = Month (ex: 9 = September)

#### Date Code Key

Year	2011	...	2015	2016	2017	2018	2019	2020	2021
Code	Y	...	C	D	E	F	G	H	I

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>	600	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	420	V
Average Rectified Output Current (See Figure 4)	I <sub>O</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	25	A

**Thermal Characteristics**

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction to Ambient Air (Note 6)	R <sub>θJA</sub>	134	—	°C/W
Thermal Resistance, Junction to Soldering Point (Note 7)	R <sub>θJS</sub>	—	6	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	—	-65 to +150	°C

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

Characteristic	Symbol	Value	Unit
Minimum Reverse Breakdown Voltage (Note 8) @ I <sub>R</sub> =10μA	V <sub>(BR)R</sub>	600	V
Maximum Forward Voltage Drop @ I <sub>F</sub> = 1.0A	V <sub>F</sub>	1.1	V
Peak Reverse Leakage Current @ T <sub>A</sub> = +25°C	I <sub>R</sub>	3.0	μA
at Rated DC Blocking Voltage @ T <sub>A</sub> = +125°C		100	
Typical Total Capacitance (f = 1MHz, V <sub>R</sub> = 4.0VDC)	C <sub>T</sub>	10	pF

- Notes:
6. Device mounted on 1in x 1in, FR-4 PCB; 2 oz Cu pad layout as shown on Diodes Incorporated's website <http://www.diodes.com/package-outlines.html>.
  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.

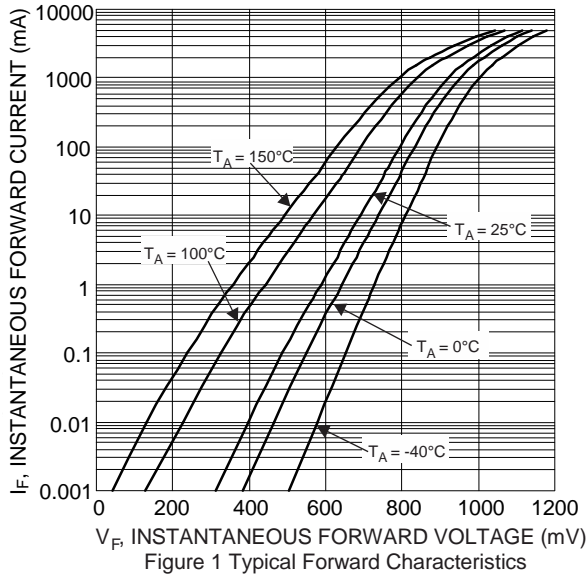


Figure 1 Typical Forward Characteristics

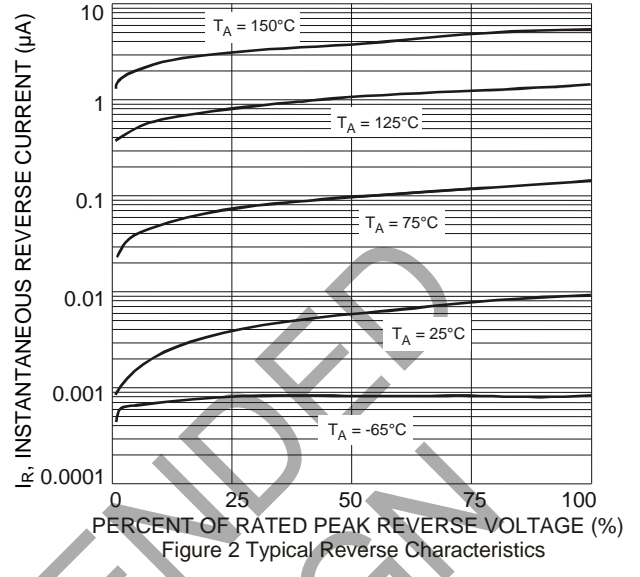


Figure 2 Typical Reverse Characteristics

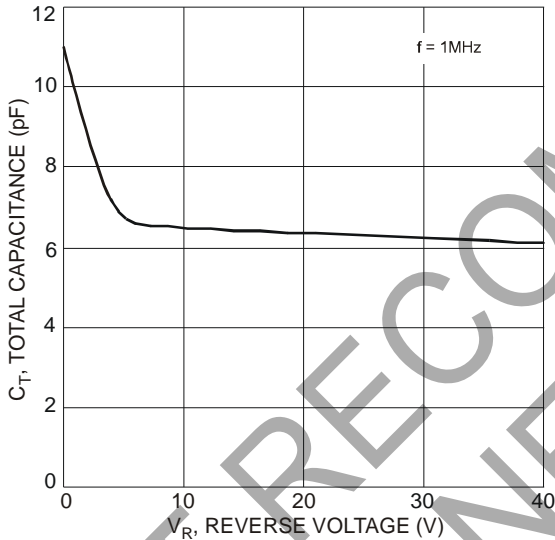


Figure 3 Typical Total Capacitance

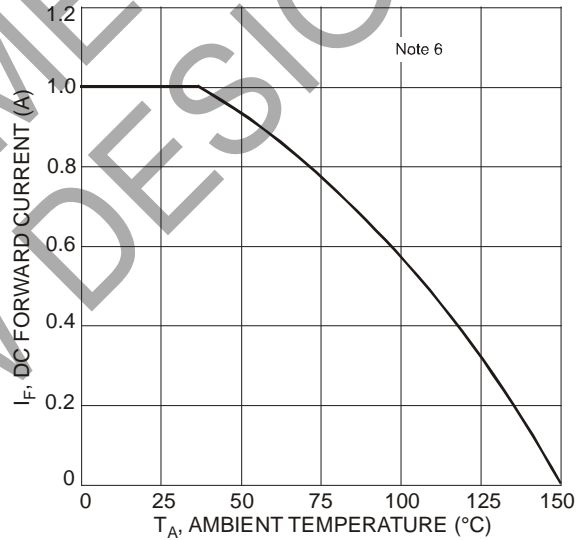
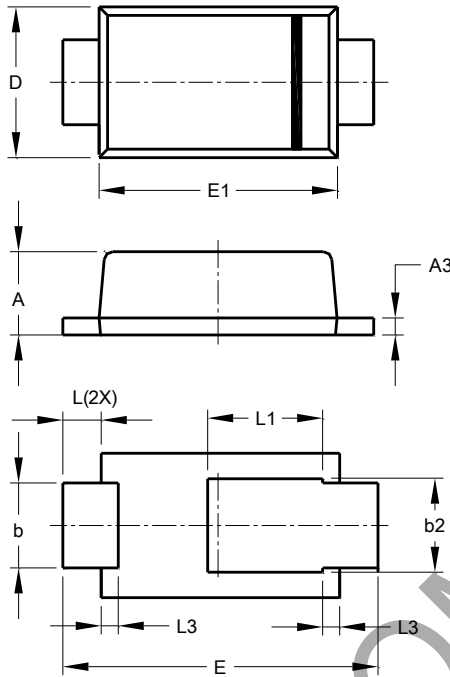


Figure 4 DC Forward Current Derating

## Package Outline Dimensions

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

### PowerDI123



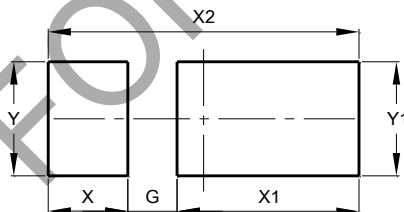
PowerDI123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20

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

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