

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

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F(MAX)</sub> (V)	I <sub>R(MAX)</sub> (µA)
200, 400, 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)**
- Patented Interlocking Clip Design for High Surge Capacity, US Patent #7,095,113

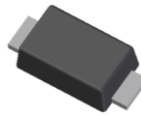
**Description and Applications**

This series is packaged in the compact, low profile PowerDI®123 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

**Mechanical Data**

- Case: PowerDI®123
- 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 (Lead-Free Plating). Solderable per MIL-STD-202, Method 208 (e3)
- Terminal Connections: Cathode Band
- Weight: 0.01 grams (Approximate)

**PowerDI123**


Top View

**Ordering Information** (Note 4)

Part Number	Qualification	Marking Code	Case	Packaging
DFLR1200-7	Commercial	F12	PowerDI123	3,000/Tape & Reel
DFLR1400-7	Commercial	F14	PowerDI123	3,000/Tape & Reel
DFLR1600-7	Commercial	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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

**Marking Information**


Fxx = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: C = 2015)  
 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	DFLR1200	DFLR1400	DFLR1600	Units
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	200	400	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>	140	280	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

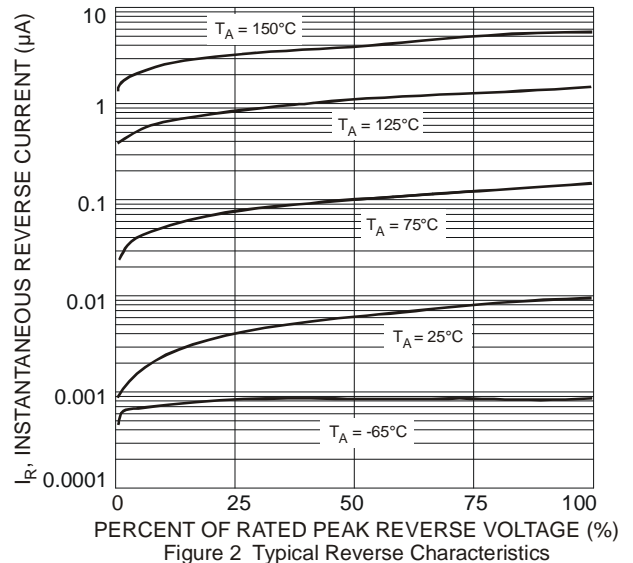
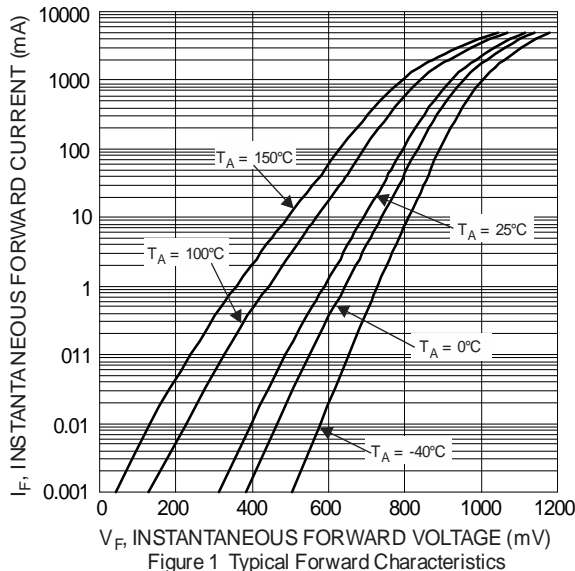
**Thermal Characteristics**

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	134	—	°C/W
Thermal Resistance, Junction to Soldering Point (Note 6)	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	DFLR1200	DFLR1400	DFLR1600	Unit
Minimum Reverse Breakdown Voltage (Note 7) @I <sub>R</sub> =10μA	V <sub>(BR)R</sub>	200	400	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 at Rated DC Blocking Voltage @ T <sub>A</sub> = +125°C	I <sub>R</sub>	3.0 100			μA
Typical Total Capacitance (f = 1MHz, V <sub>R</sub> = 4.0VDC)	C <sub>T</sub>	10			pF

- Notes: 5. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB/cathode tab solder junction.  
6. Device mounted on 1in x 1in, FR-4 PCB; 2 oz Cu pad layout as shown on Diodes Incorporated's suggested pad layout document AP02001.pdf.  
7. Short duration pulse test used to minimize self-heating effect.



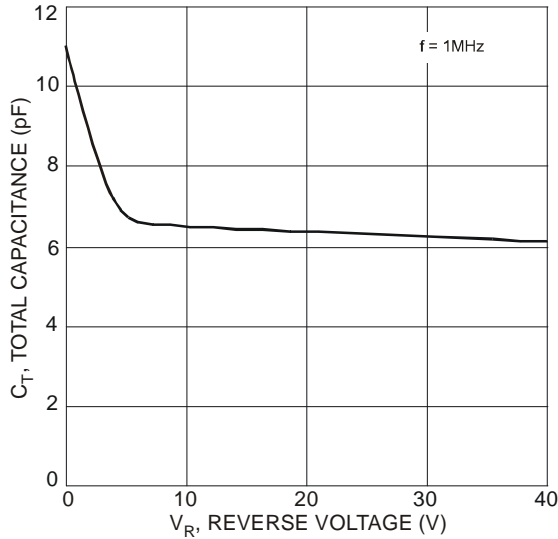


Figure 3 Typical Total Capacitance

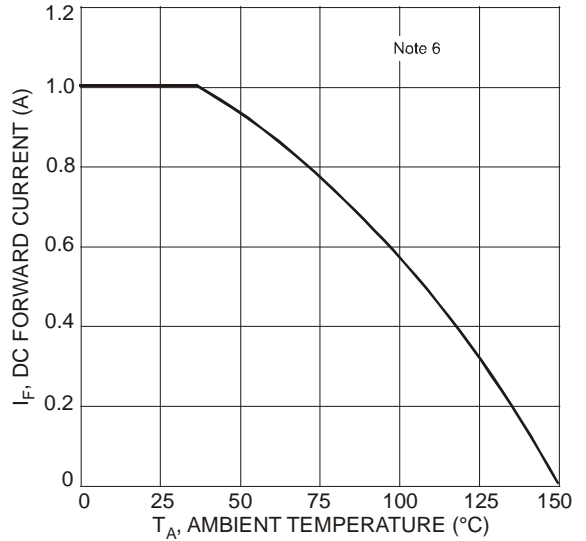
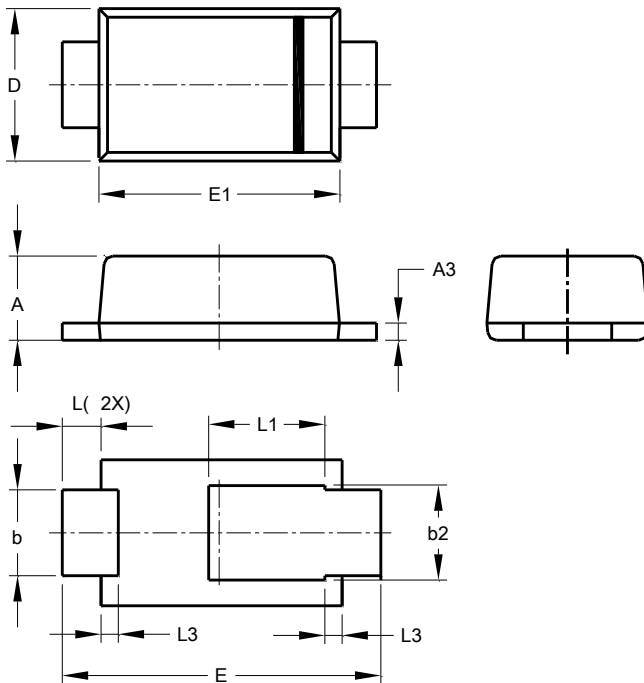


Figure 4 DC Forward Current Derating

## Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



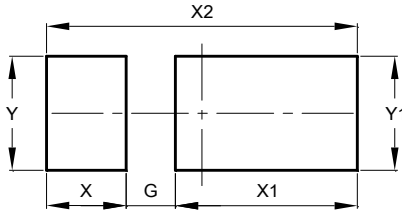
POWERDI <sup>®</sup> 123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20

All Dimensions in mm

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

### POWERDI<sup>®</sup>123



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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