

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

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>FMAX</sub> (V)	I <sub>RMAX</sub> (μA)
800	1	1.1	10

**Description and Applications**

Packaged in the compact thermally efficient POWERDI123 package, the DFLR1800 provides high surge capacity and high efficiency. It is ideally suited to use in

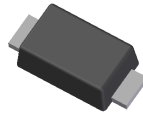
- AC/DC Adaptors/Chargers
- DC/DC Converters
- Power Supply

**Features and Benefits**

- Ideally Suited for Automated Assembly
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- Patented Interlocking Clip Design for High Surge Capacity, US Patent #7,095,113

**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
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 ⑥3
- Weight: 0.01 grams (approximate)

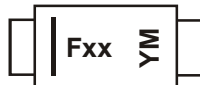


Top View

**Ordering Information (Note 4)**

Part Number	Marking Code	Case	Packaging
DFLR1800-7	F18 or F18	PowerDI®123	3000/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  
 F18 or F18 = DFLR1800  
 YM = Date Code Marking  
 Y = Year (ex: B = 2014)  
 M = Month (ex: 9 = September)

## Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Code	X	Y	Z	A	B	C	D	E	F	G

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 capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	800	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
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 Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	800	—	—	V	I <sub>R</sub> = 10μA
Forward Voltage Drop	V <sub>F</sub>	—	0.65	—	V	I <sub>F</sub> = 1.0mA, T <sub>J</sub> = 0°C
		—	0.60	—		I <sub>F</sub> = 1.0mA, T <sub>J</sub> = +25°C
		—	0.48	—		I <sub>F</sub> = 1.0mA, T <sub>J</sub> = +85°C
		—	0.94	1.1		I <sub>F</sub> = 1.0A, T <sub>J</sub> = +25°C
		—	0.83	1.0		I <sub>F</sub> = 1.0A, T <sub>J</sub> = +125°C
Reverse Leakage Current (Note 7)	I <sub>R</sub>	—	—	10 150	μA	V <sub>R</sub> = 800V, T <sub>J</sub> = +25°C V <sub>R</sub> = 800V, T <sub>J</sub> = +125°C
Total Capacitance	C <sub>T</sub>	—	10	—	pF	V <sub>R</sub> = 4.0V <sub>DC</sub> , f = 1MHz

- Notes: 5. Device mounted on 1" x 1", FR-4 PCB; 2 oz. Cu pad layout as shown on Diodes Inc. suggested pad layout document AP02001.pdf. 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 test pulse used to minimize self-heating effect.  
8. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

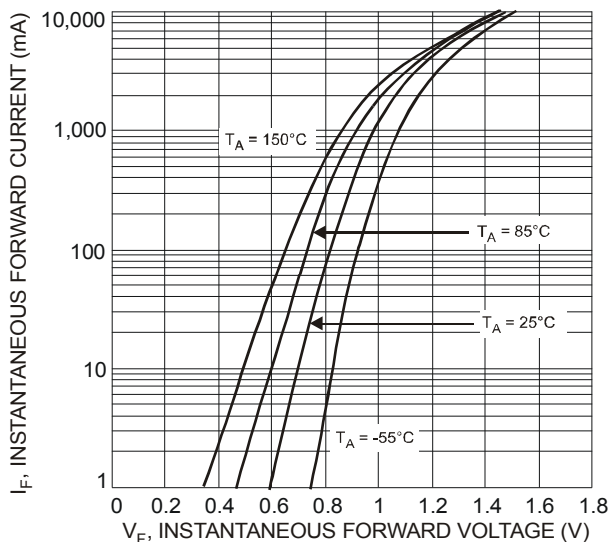


Figure 1 Typical Forward Characteristics

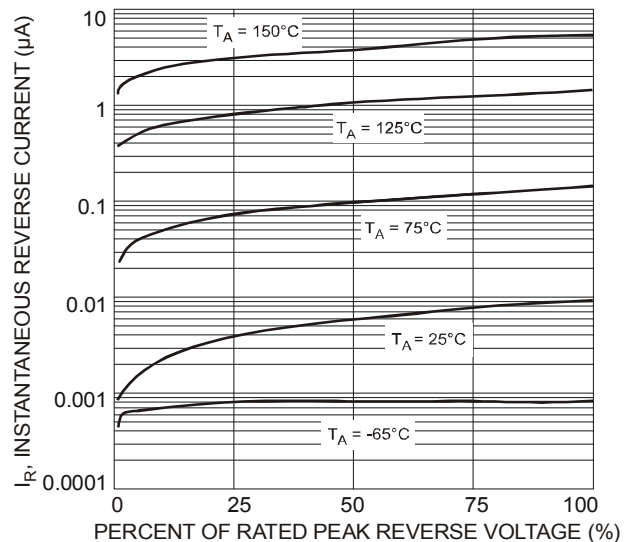


Figure 2 Typical Reverse Characteristics

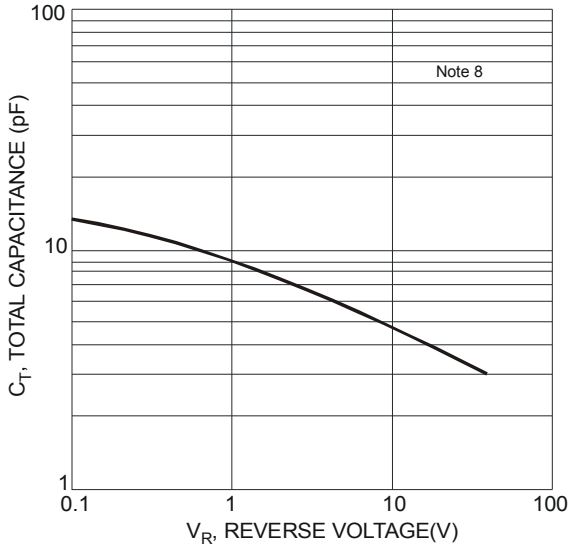


Figure 3 Typical Junction Capacitance

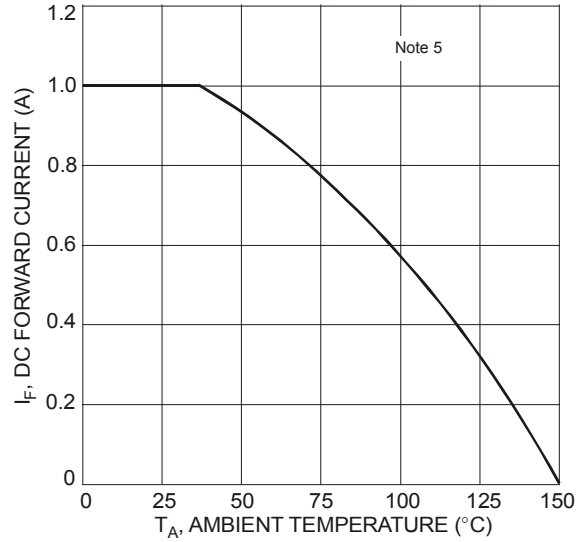


Figure 4 DC Forward Current Derating

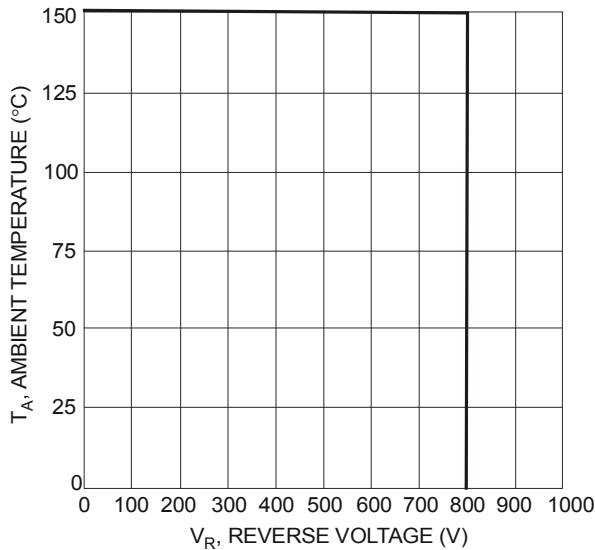


Figure 5 Reverse Voltage Derating

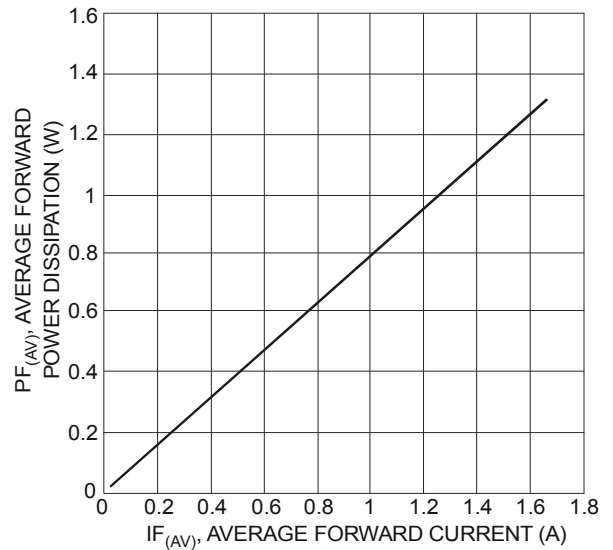
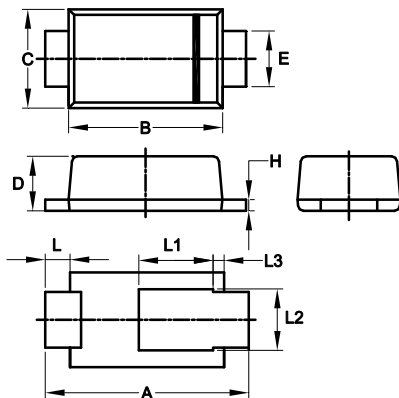


Figure 6 Forward Power Dissipation

## Package Outline Dimensions

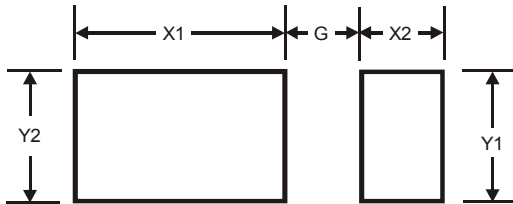
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



POWERDI <sup>®</sup> 123			
Dim	Min	Max	Typ
A	3.50	3.90	3.70
B	2.60	3.00	2.80
C	1.63	1.93	1.78
D	0.93	1.00	0.98
E	0.85	1.25	1.00
H	0.15	0.25	0.20
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L2	1.025	1.125	1.10
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.



Dimensions	Value (in mm)
<b>G</b>	1.0
<b>X1</b>	2.2
<b>X2</b>	0.9
<b>Y1</b>	1.4
<b>Y2</b>	1.4

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