

1.0A SURFACE MOUNT FAST RECOVERY RECTIFIER
PowerDI®123
Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _{FMAX} (V)	I _{RMAX} (μA)
800	1	1.35	10

Description and Applications

Packaged in the compact thermally efficient POWERDI123 package, the DFLF1800 provides fast recovery time for high efficiency. It is ideally suited to use in

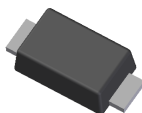
- AC/DC Adaptors/Chargers
- DC/DC Converters
- Power Supply

Features and Benefits

- Ideally Suited for Automated Assembly
- Fast Recovery Time For High Efficiency
- **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 ③
- Weight: 0.01 grams (approximate)

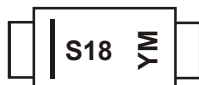


Top View

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
DFLF1800-7	Commercial	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 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


S18 = Product Type Marking Code
 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
Code	X	Y	Z	A	B	C	D	E

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_A = +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 _{RRM}	800	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
Average Rectified Output Current (see figure 4)	I _O	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	25	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction to Ambient Air (Note 5)	R _{ΘJA}	134	—	°C/W
Thermal Resistance, Junction to Soldering Point (Note 6)	R _{ΘJS}	—	6	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	—	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Breakdown Voltage (Note 7)	V _{(BR)R}	800	—	—	V	I _R = 10μA
Forward Voltage Drop	V _F	—	—	1.35	V	I _F = 1.0A, T _J = +25°C
Reverse Leakage Current	I _R	—	—	10 20	μA	V _R = 800V, T _J = +25°C V _R = 800V, T _J = +125°C
Total Capacitance	C _T	—	7	—	pF	V _R = 4.0V _{DC} , f = 1MHz
Reverse Recovery Time	t _{rr}	—	—	500	ns	I _F = 0.5A, I _R = 1A, I _{RR} = 0.25A

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_A = 25°C
 6. Theoretical R_{ΘJS} 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.

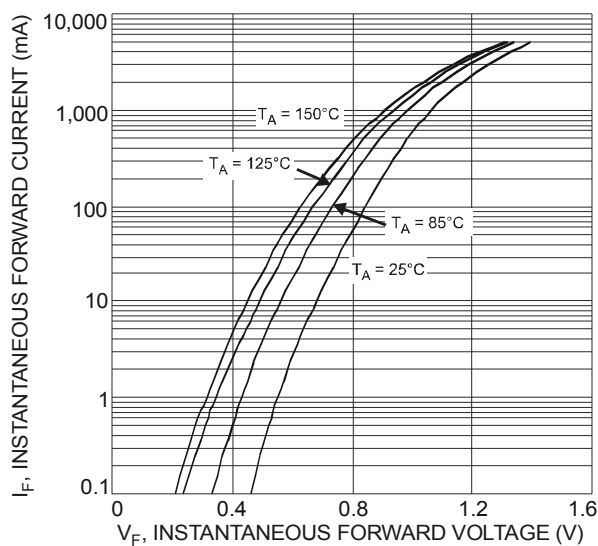


Figure 1 Typical Forward Characteristics

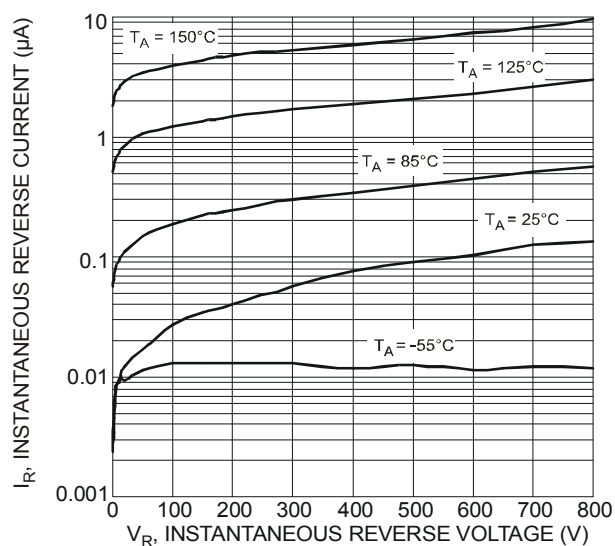


Figure 2 Typical Reverse Characteristics

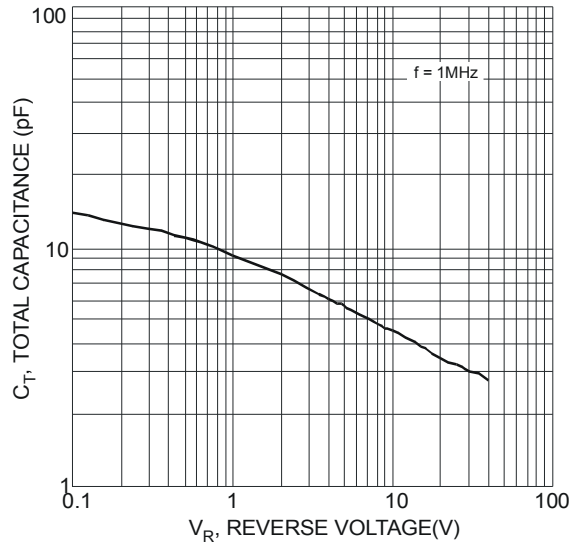


Figure 3 Typical Total Capacitance

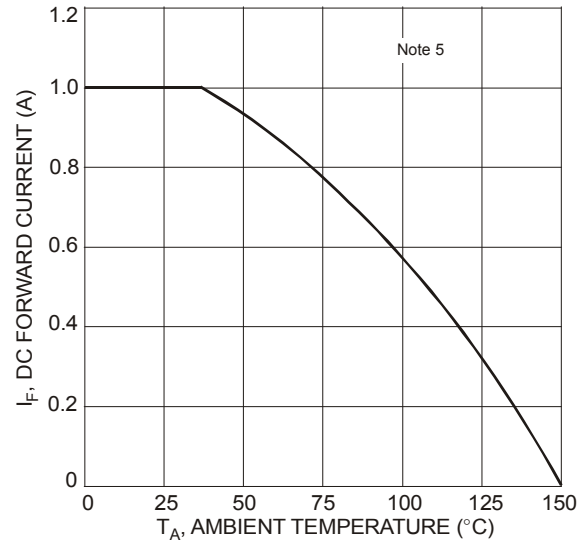


Figure 4 DC Forward Current Derating

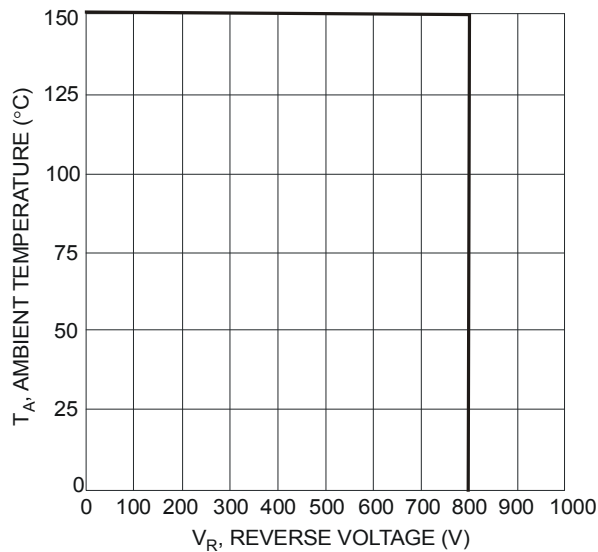


Figure 5 Operating Derating Temperature

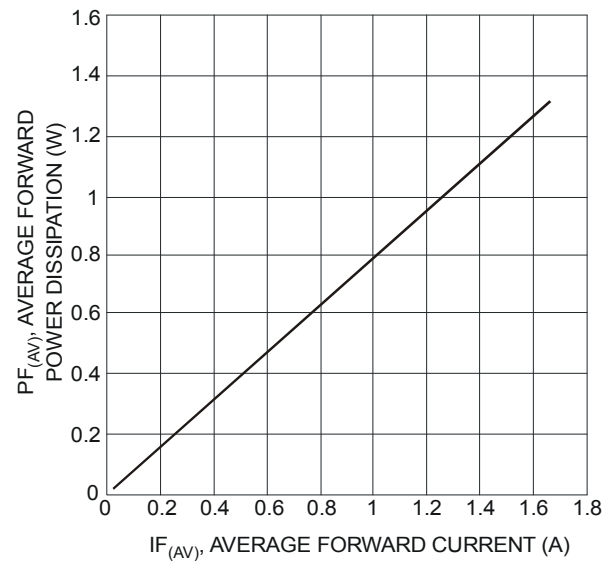
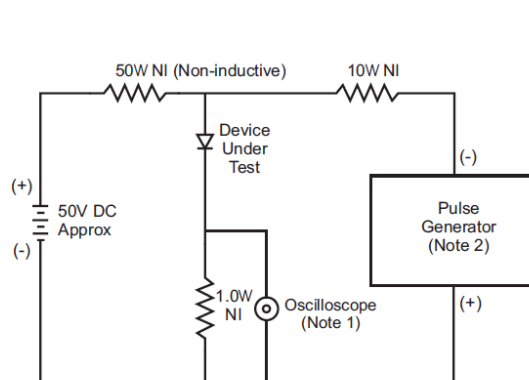


Figure 6 Forward Power Dissipation



- Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
2. Rise Time = 10ns max. Input Impedance = 50Ω.

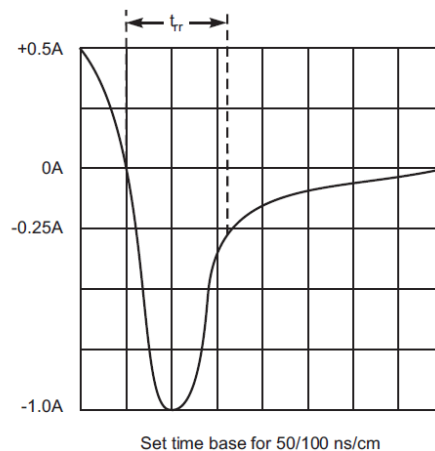
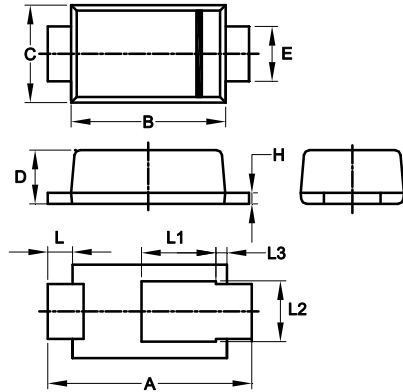


Figure 7 Reverse Recovery Time Characteristics and Test Circuit

Package Outline Dimensions

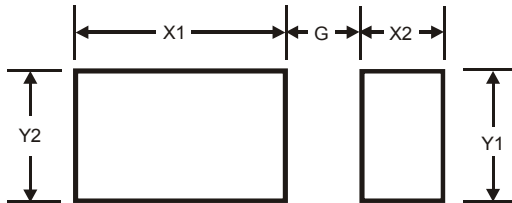
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



POWERDI [®] 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 latest version.



Dimensions	Value (in mm)
G	1.0
X1	2.2
X2	0.9
Y1	1.4
Y2	1.4

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