

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

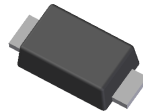
- AC/DC Adaptors/Chargers
- DC/DC Converters
- Power Supply

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 ⑥3
- Weight: 0.01 grams (approximate)

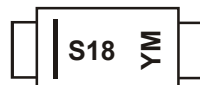


Top View

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 (@ $T_A = +25^\circ\text{C}$, 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)	$R_{\theta JA}$	134	—	$^\circ\text{C/W}$
Thermal Resistance, Junction to Soldering Point (Note 6)	$R_{\theta JS}$	—	6	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	—	-65 to +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	800	—	—	V	$I_R = 10\mu\text{A}$
Forward Voltage Drop	V_F	—	—	1.35	V	$I_F = 1.0\text{A}, T_J = +25^\circ\text{C}$
Reverse Leakage Current	I_R	—	—	10 20	μA	$V_R = 800\text{V}, T_J = +25^\circ\text{C}$ $V_R = 800\text{V}, T_J = +125^\circ\text{C}$
Total Capacitance	C_T	—	7	—	pF	$V_R = 4.0\text{V}_{DC}, f = 1\text{MHz}$
Reverse Recovery Time	t_{rr}	—	—	500	ns	$I_F = 0.5\text{A}, I_R = 1\text{A}, I_{RR} = 0.25\text{A}$

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. $T_A = 25^\circ\text{C}$
6. Theoretical $R_{\theta JS}$ 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.

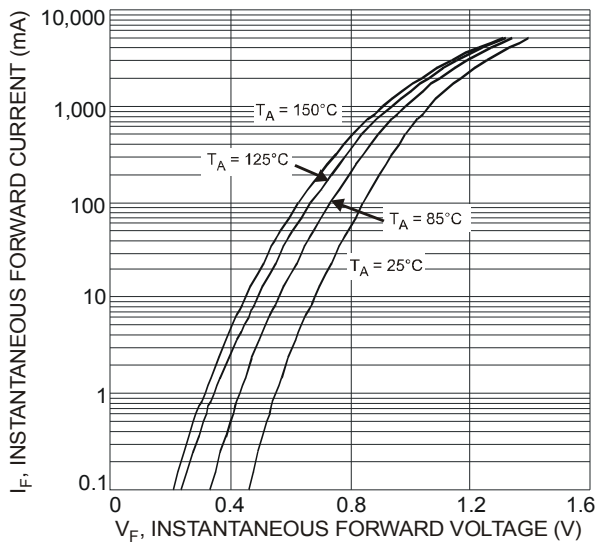


Figure 1 Typical Forward Characteristics

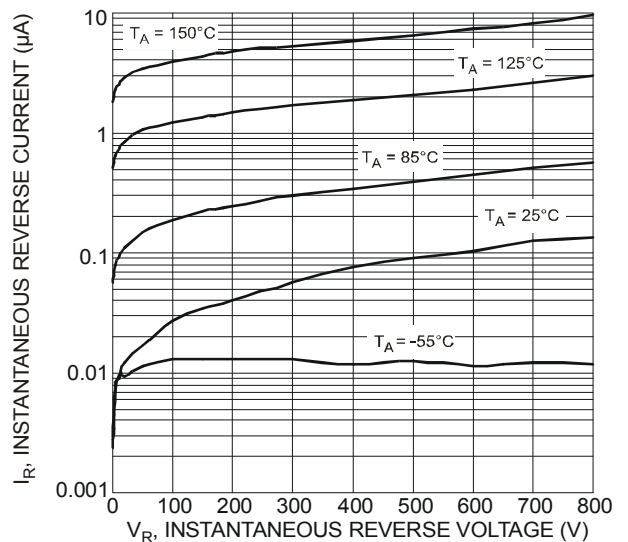


Figure 2 Typical Reverse Characteristics

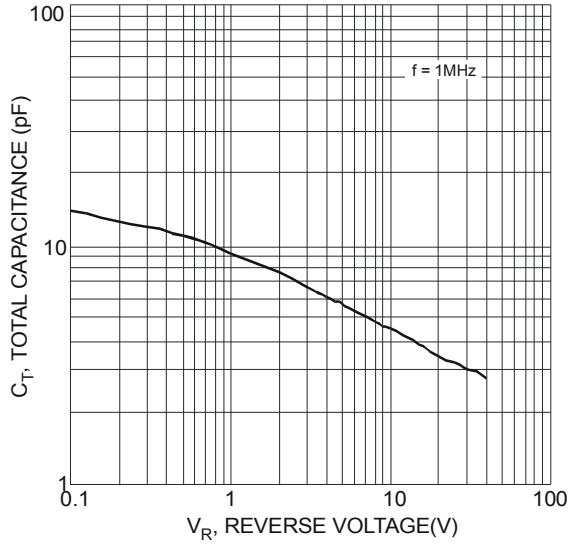


Figure 3 Typical Total Capacitance

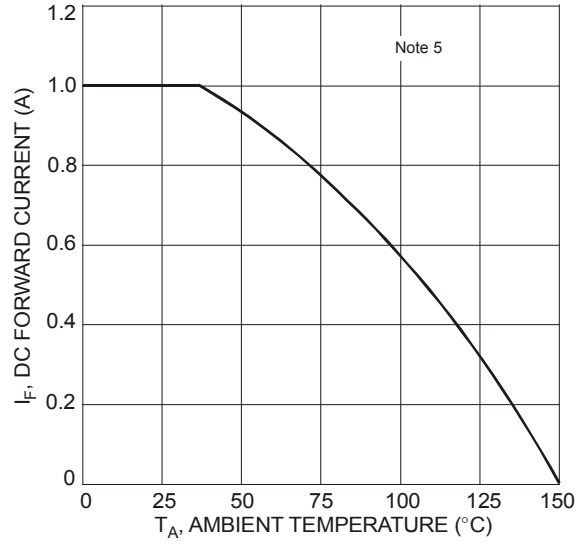


Figure 4 DC Forward Current Derating

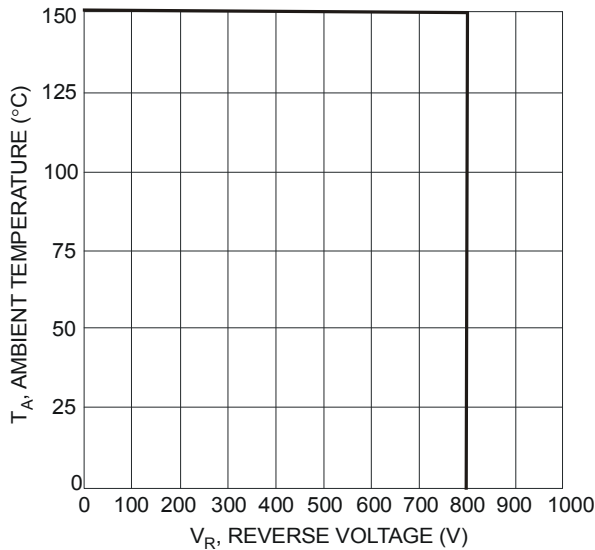


Figure 5 Operating Derating Temperature

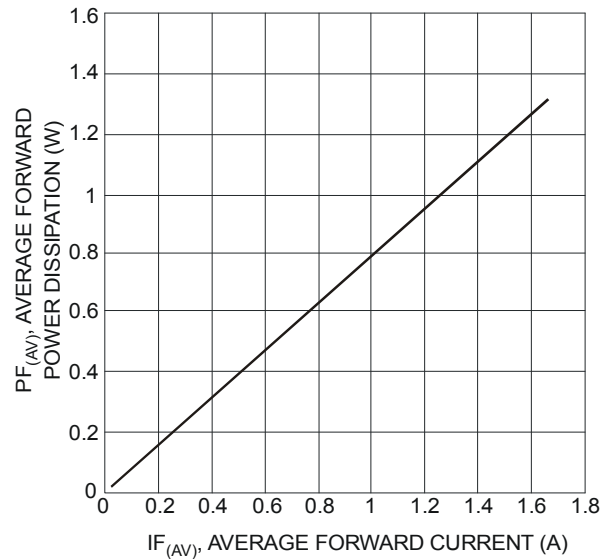
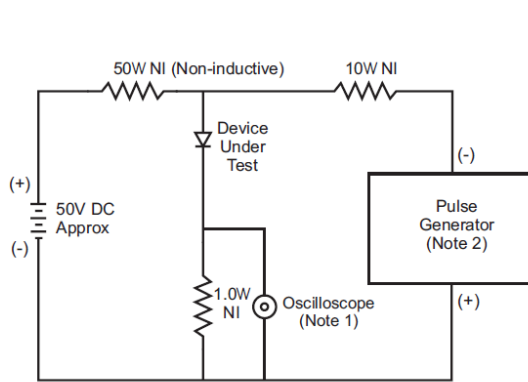
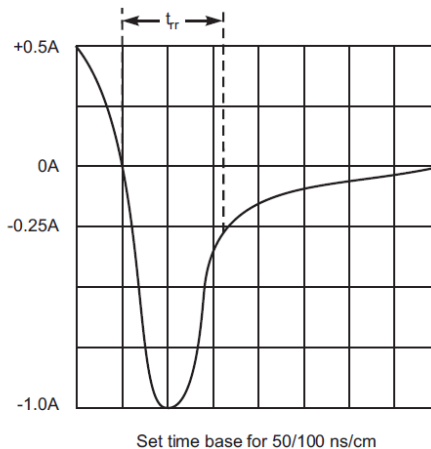


Figure 6 Forward Power Dissipation



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

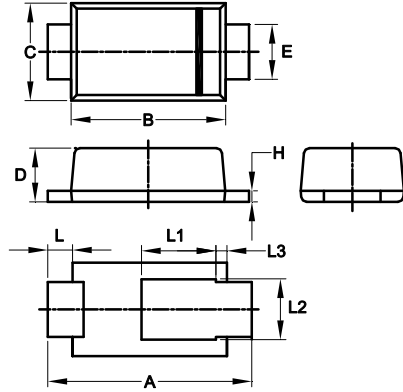


Set time base for 50/100 ns/cm

Figure 7 Reverse Recovery Time Characteristics and Test Circuit

Package Outline Dimensions

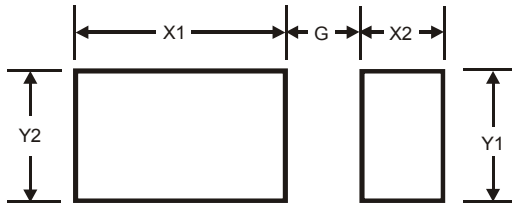
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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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