

1.0A SURFACE MOUNT FAST RECOVERY RECTIFIER
PowerDI®123
Features

- Ideally Suited for Automated Assembly
- Fast Recovery Time For High Efficiency
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Halogen and Antimony Free**
- **Qualified to AEC-Q101 Standards for High Reliability**

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

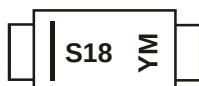


Top View

Ordering Information (Note 2)

Part Number	Marking Code	Case	Packaging
DFLF1800-7	S18	PowerDI®123	3000/Tape & Reel

Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes
 2. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information


S18 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: X = 2010)
 M = Month (ex: 9 = September)

Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016
Code	X	Y	Z	A	B	C	D

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 3)	$R_{\theta JA}$	134	—	$^\circ\text{C/W}$
Thermal Resistance, Junction to Soldering Point (Note 4)	$R_{\theta JS}$	—	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
Forward Voltage	V_{FM}	—	—	1.35	V	$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$
Peak Reverse Leakage Current	I_{RM}	—	—	10	μA	$V_R = 800\text{V}, T_J = 25^\circ\text{C}$
Typical Total Capacitance	C_T	—	7	—	pF	$V_R = 4.0\text{VDC}, f = 1\text{MHz}$
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: 3. 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. $T_A = 25^\circ\text{C}$
 4. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB/cathode tab solder junction.

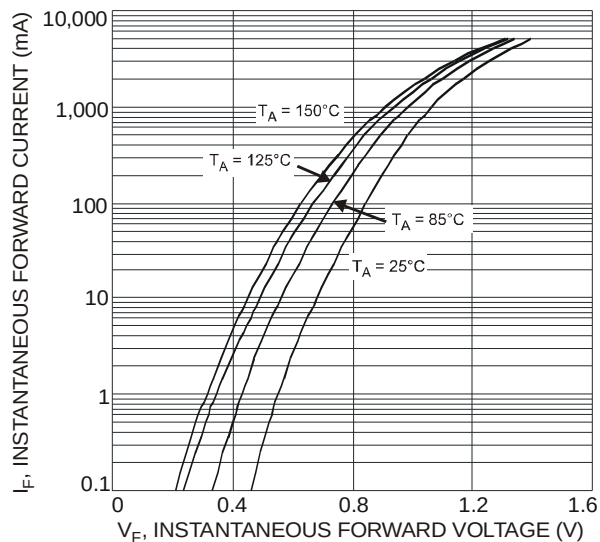


Fig. 1 Typical Forward Characteristics

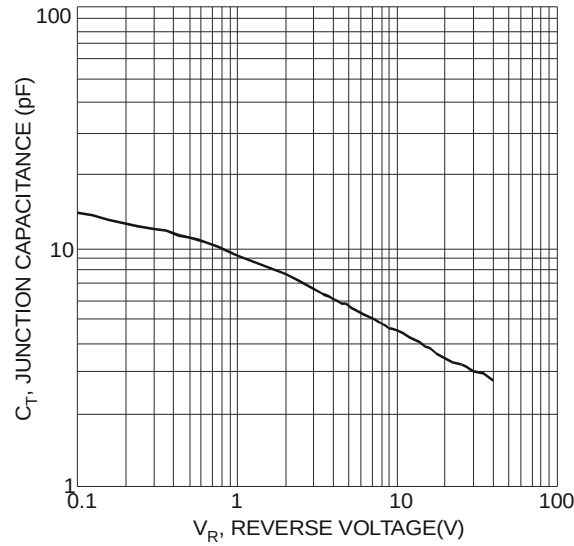


Fig. 3. Typical Junction Capacitance

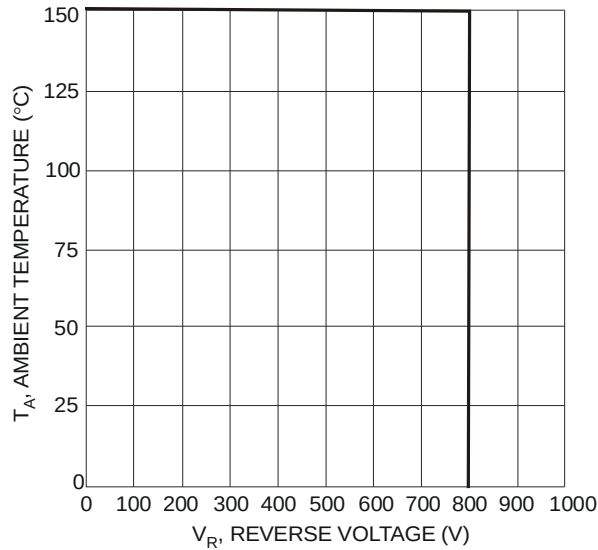
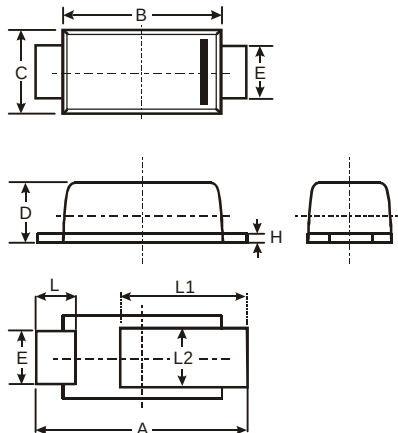


Fig. 5 V_R vs. T_A

Package Outline Dimensions



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	0.55	0.75	0.65
L1	1.80	2.20	2.00
L2	0.95	1.25	1.10
All Dimensions in mm			

PowerDI is a registered trademark of Diodes Incorporated.

DFLF1800

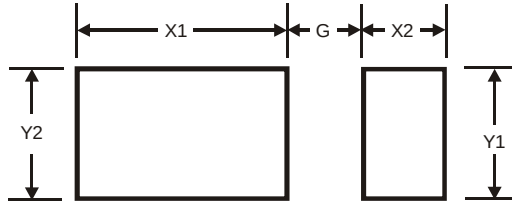
Document number: DS35083 Rev. 2 - 2

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December 2010
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Suggested Pad Layout



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

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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А