

2.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V) @+25°C	$I_{R(MAX)}$ (μA) @+25°C
100	2.0	0.86	1

Description and Applications

The device is a single rectifier packaged in PowerDI[®] 123. Offering low V_F and excellent high temperature stability, this device is ideal for use in general rectification applications as a:

- Boost Diode
- Reverse Protection Diode
- Blocking Diode

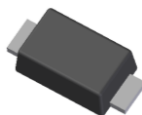
Features and Benefits

- Low Forward Voltage (V_F) Minimizes Conduction Losses and Improving Efficiency
- Reduced High Temperature Reverse Leakage; Increased Reliability against Thermal Runaway Failure in High Temperature Operation
- Patented Interlocking Clip Design for High Surge Current Capacity
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

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 **(E3)**
- Weight: 0.01 grams (Approximate)

PowerDI123



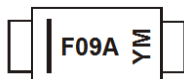
Top View

Ordering Information (Note 5)

Part Number	Case	Packaging
DFLS2100Q-7	PowerDI123	3000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



F09A = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: G = 2019)
M = Month (ex: 9 = September)

Date Code Key

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Code	D	E	F	G	H	I	J	K	L	M	N

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 capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	100	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	71	V
Average Rectified Output Current	I _O	2.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	50	A
Electrostatic Discharge	HBM	6000	V
Electrostatic Discharge	CDM	1000	V

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering (Note 6)	R _{θJS}	—	7	°C/W
Thermal Resistance Junction to Ambient (Note 7) (T _A = +25°C)	R _{θJA}	125	—	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +175		°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V _{(BR)R}	100	—	—	V	I _R = 1μA
Forward Voltage	V _F	—	—	0.77 0.86	V	I _F = 1.0A I _F = 2.0A
Leakage Current (Note 8)	I _R	—	—	1	μA	V _R = 100V
Total Capacitance	C _T	—	36	—	pF	V _R = 5VDC, f = 1MHz
Switching Speed	t _{RR}	—	9	—	ns	I _F = 0.5A, I _R = 1.0A, I _{RR} = 0.25A (RG1)

- Notes:
6. Theoretical R_{θJS} calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
 7. Part mounted on FR-4 board with 2 oz. minimum recommended copper pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 8. Short duration pulse test used to minimize self-heating effect.

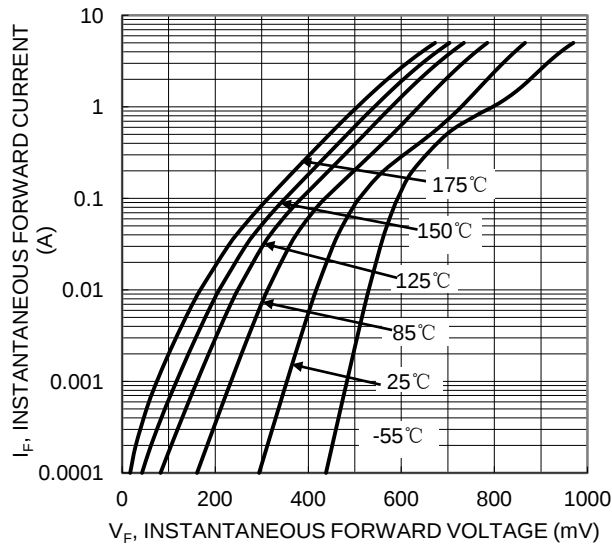


Fig. 1 Typical Forward Characteristics

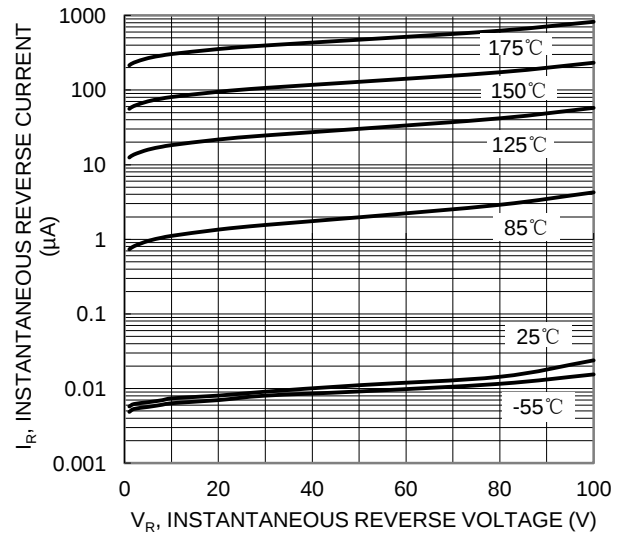


Fig. 2 Typical Reverse Characteristics

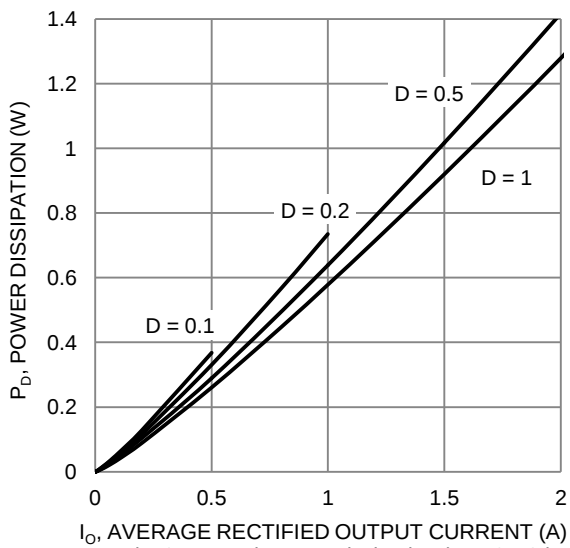


Fig. 3 Forward Power Dissipation ($T_J=125^\circ\text{C}$)

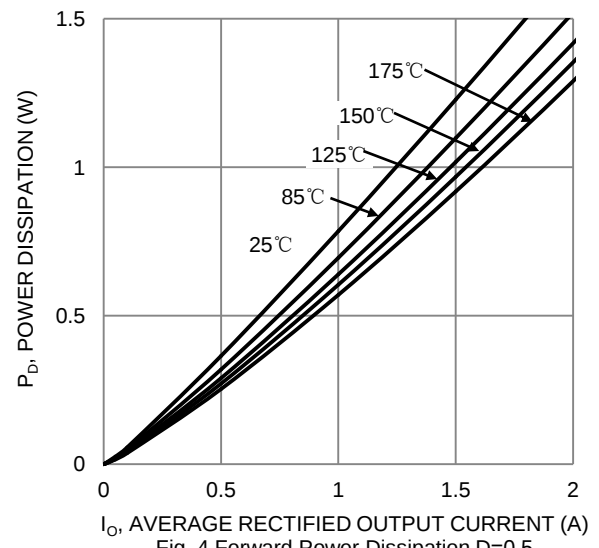


Fig. 4 Forward Power Dissipation $D=0.5$

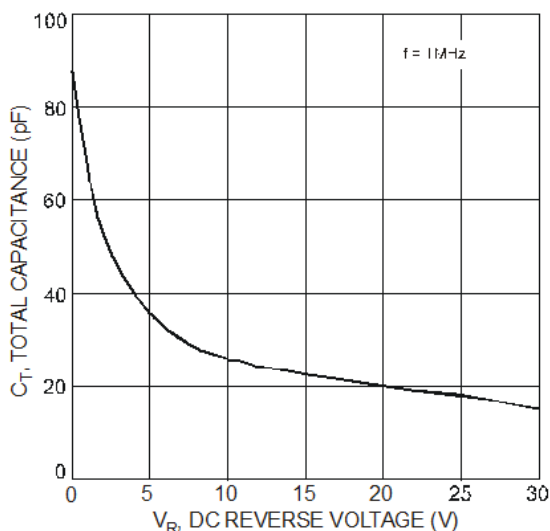


Fig. 5 Total Capacitance vs. Reverse Voltage

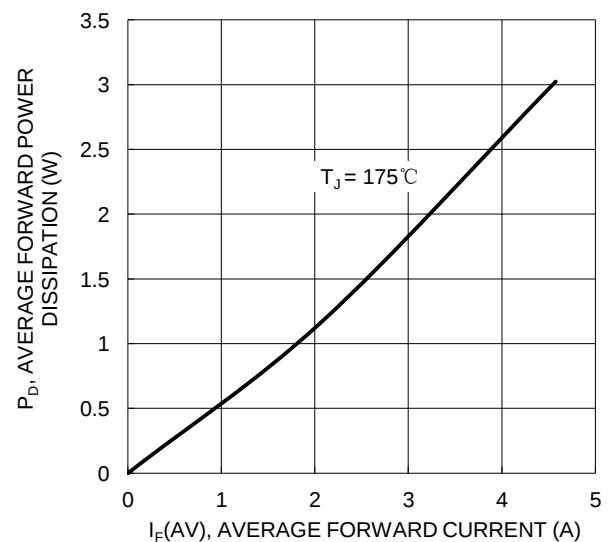
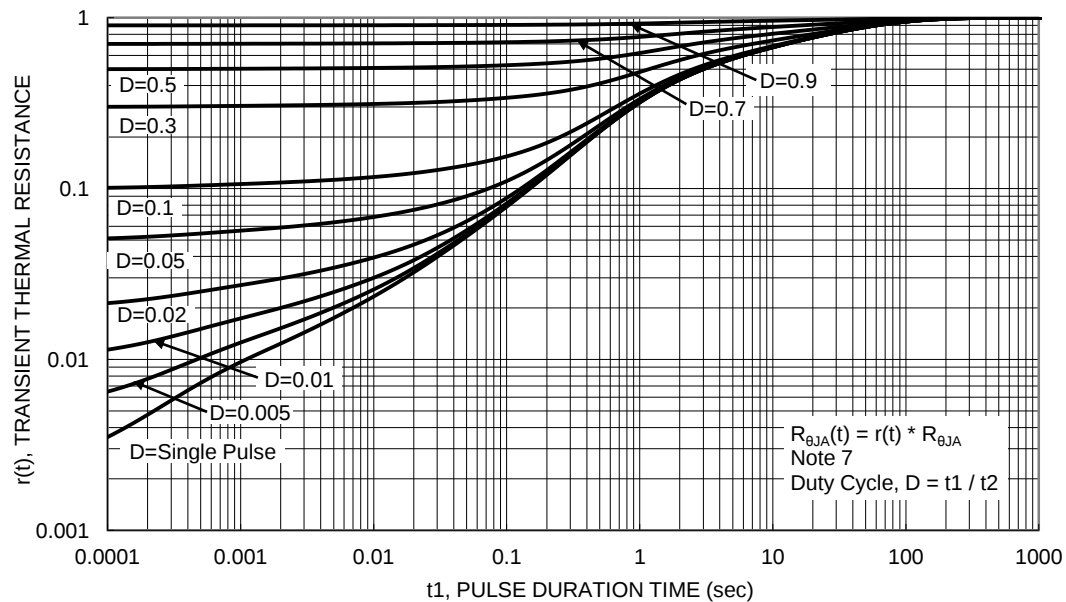
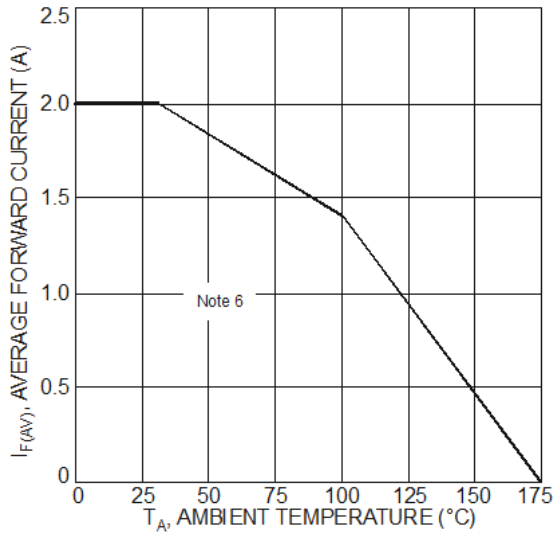


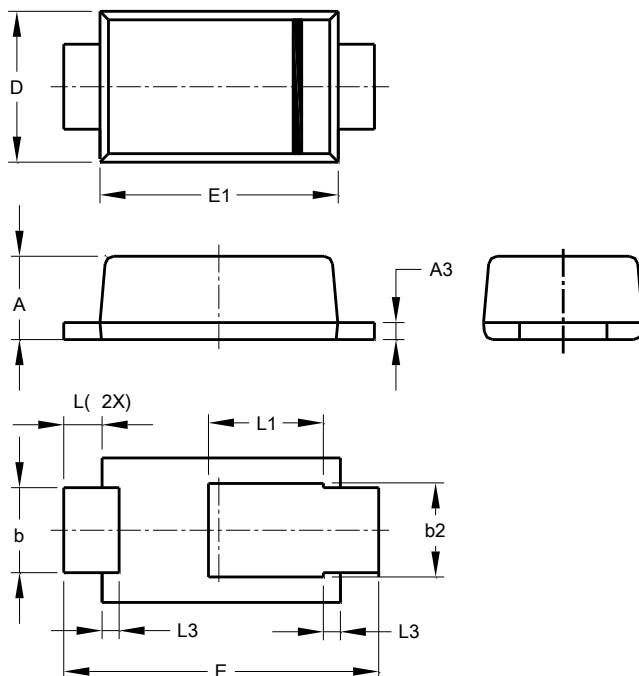
Fig. 6 Forward Power Dissipation



Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

PowerDI123

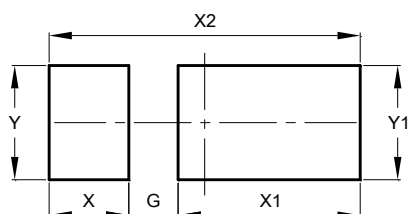


PowerDI123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

PowerDI123



Dimensions	Value (in mm)
G	0.65
X	1.05
X1	2.40
X2	4.10
Y	1.50
Y1	1.50

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