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

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)**
- **The DFLS2100Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

Description and Applications

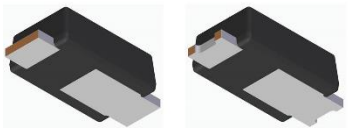
These devices are rectifiers packaged in PowerDI®123. Offering low V_F and excellent high-temperature stability, they are ideal for use in general rectification applications as:

- Boost diodes
- Reverse protection diodes
- Blocking diodes

Mechanical Data

- Package: PowerDI123
- Package 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



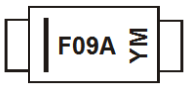
Bottom View

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
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. 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: M = 2025)
M = Month (ex: 9 = September)

Date Code Key

Year	2016	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	D	-	M	N	P	R	S	T	U	V	W	X

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
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 5)	$R_{\theta JS}$	—	7	°C/W
Thermal Resistance Junction to Ambient (Note 6) (T_A = +25°C)	$R_{\theta JA}$	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 7)	$V_{(BR)R}$	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 7)	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:
5. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
6. 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.
7. Short duration pulse test used to minimize self-heating effect.

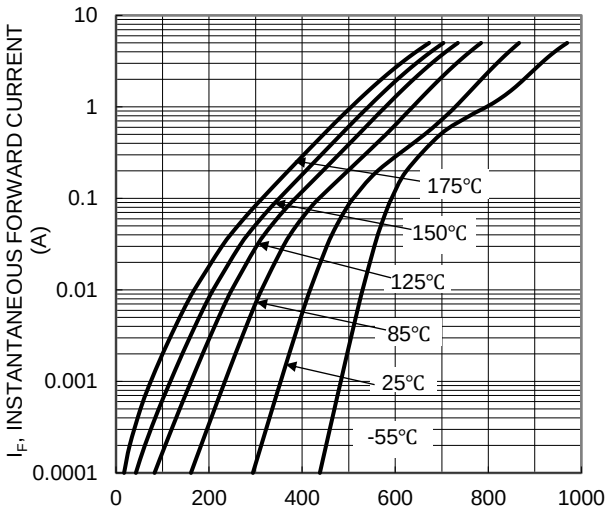


Fig. 1 Typical Forward Characteristics

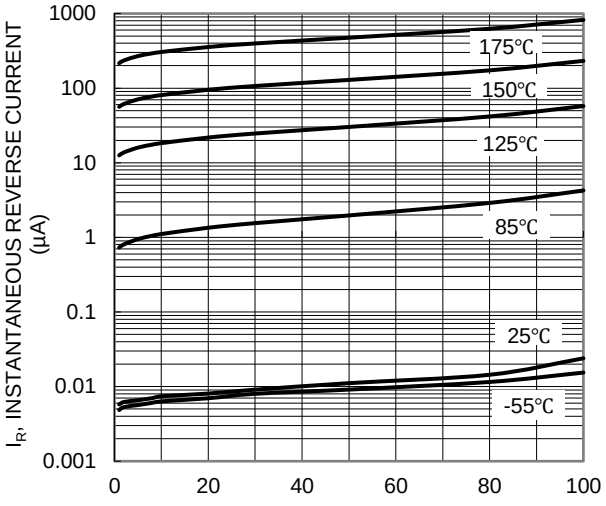


Fig. 2 Typical Reverse Characteristics

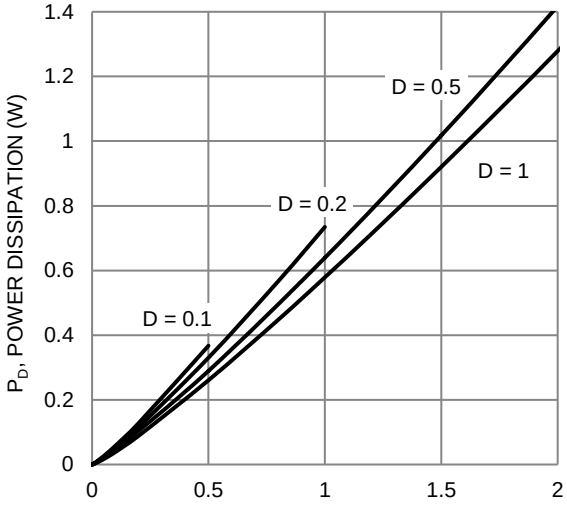


Fig. 3 Forward Power Dissipation (T_J=125ºC)

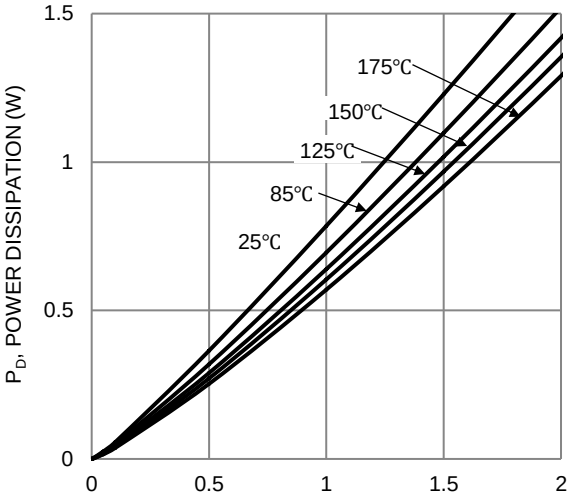


Fig. 4 Forward Power Dissipation D=0.5

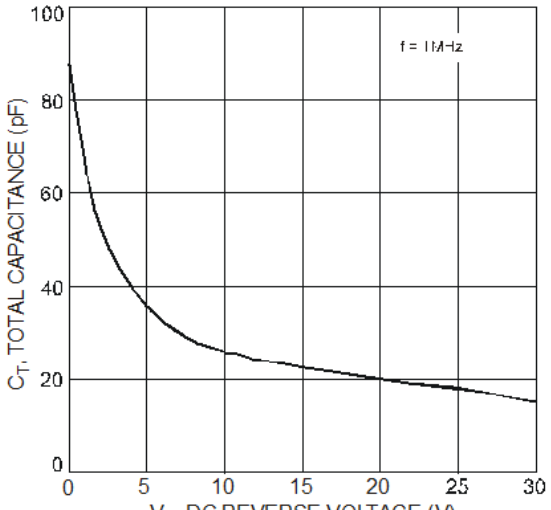


Fig. 5 Total Capacitance vs. Reverse Voltage

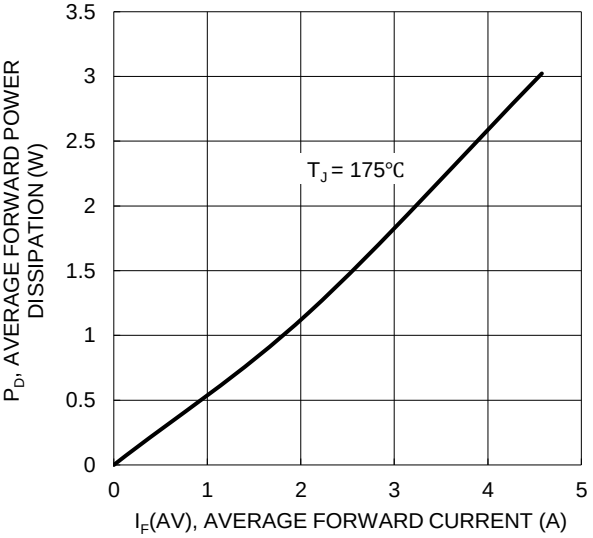


Fig. 6 Forward Power Dissipation

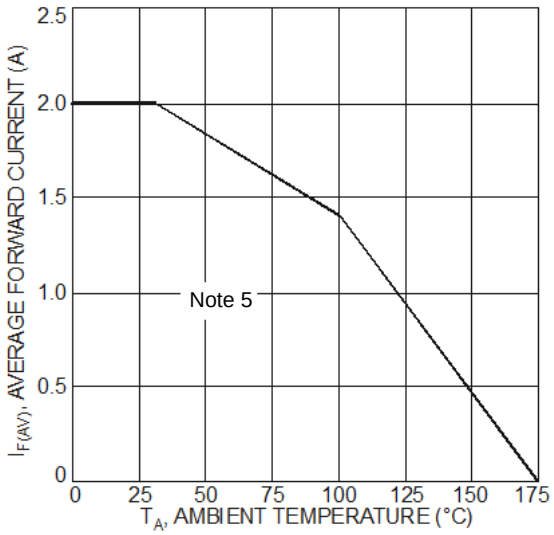


Fig. 7 Forward Current Derating Curve

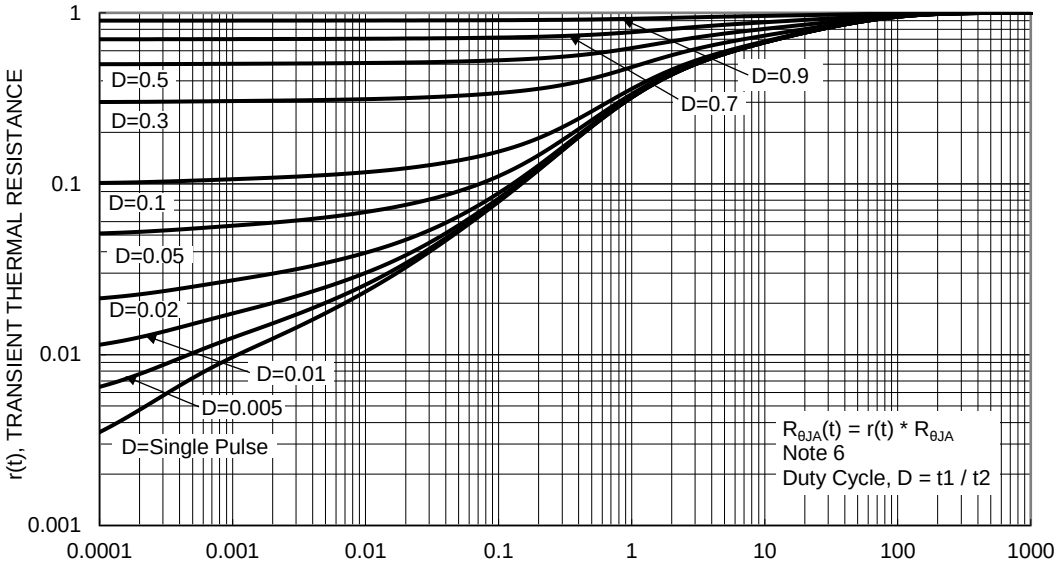
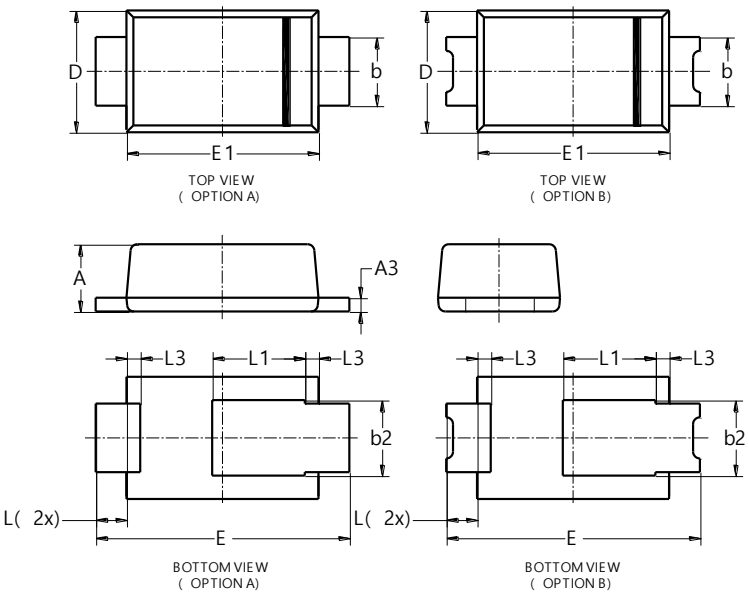


Fig. 8 Transient Thermal Resistance

Package Outline Dimensions

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

PowerDI123

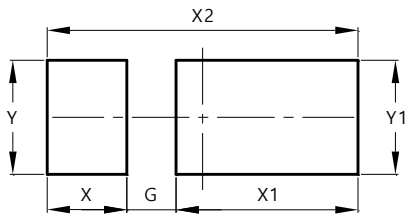


PowerDI123			
Dim	**Min**	**Max**	**Typ**
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

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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