1.0A HIGH-VOLTAGE SCHOTTKY BARRIER RECTIFIER
PowerDI123

Product Summary

V_R (V)	I_F (A)	$V_{F\ MAX}$ (V) @ +25°C	$I_{R\ MAX}$ (µA) @ +25°C
200	1.0	0.85	2

Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- 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 DFLS1200Q 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 Schottky Barrier Rectifiers (SBR®) are designed to meet the stringent requirements of automotive applications. They are ideally suited to use as:

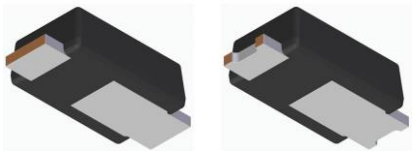
- Polarity protection diodes
- Re-circulating diodes
- Switching diodes

Mechanical Data

- Package: PowerDI®123
- 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

Top View



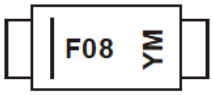
Bottom View

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DFLS1200Q-7	PowerDI123	3,000	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



F08 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: M = 2025)
M = Month (ex: 9 = September)

Date Code Key

Year	2014	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	B	-	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	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	141	V
Average Forward Current	$I_{F(AV)}$	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	40	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	132	—	°C/W
Thermal Resistance Junction to Soldering Point (Note 6)	$R_{\theta JS}$	—	7	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150		°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	200	—	—	V	I_R = 8μA
Forward Voltage	V_F	—	—	0.85	V	I_F = 1.0A
Leakage Current (Note 7)	I_R	—	—	2	μA	V_R = 200V, T_A = +25°C
Total Capacitance	C_T	—	23	—	pF	V_R = 5VDC, f = 1MHz

Notes:
5. Part mounted on FR-4 board with 2oz., minimum recommended copper pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html. T_A = +25°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 pulse test used to minimize self-heating effect.

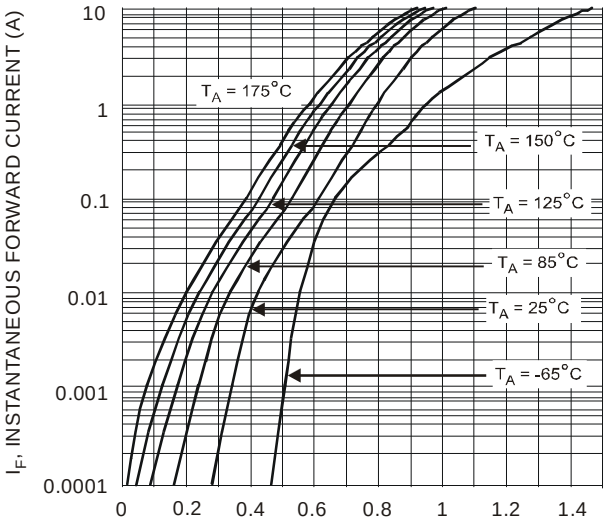


Fig. 1, Typical Forward Characteristics

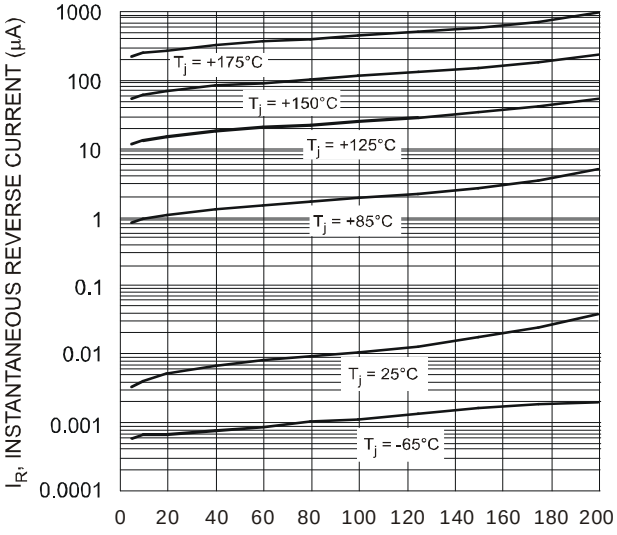


Fig. 2, Typical Reverse Characteristics

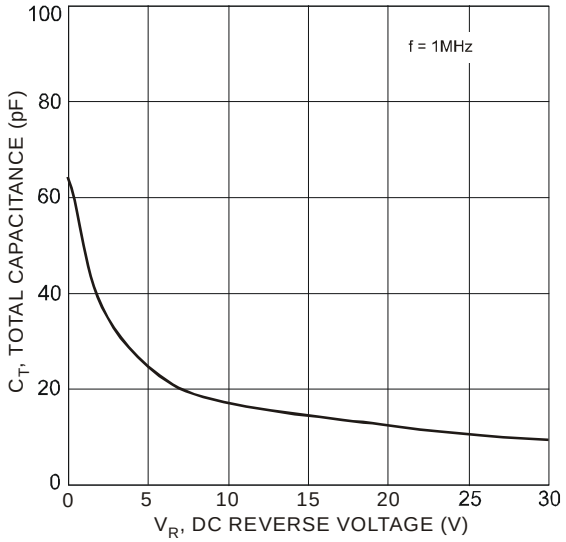


Fig. 3, Typical Total Capacitance vs. Reverse Voltage

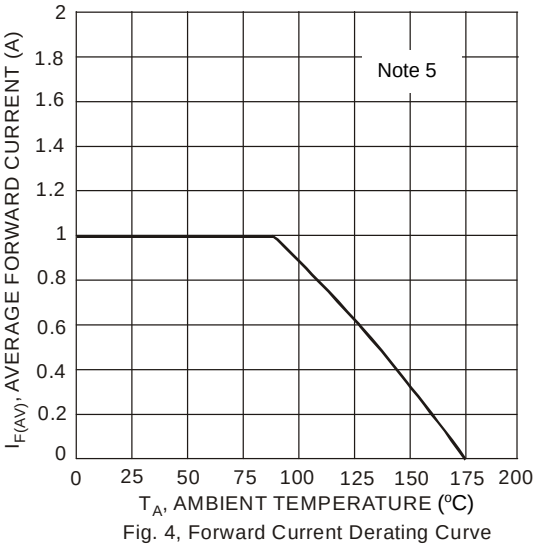
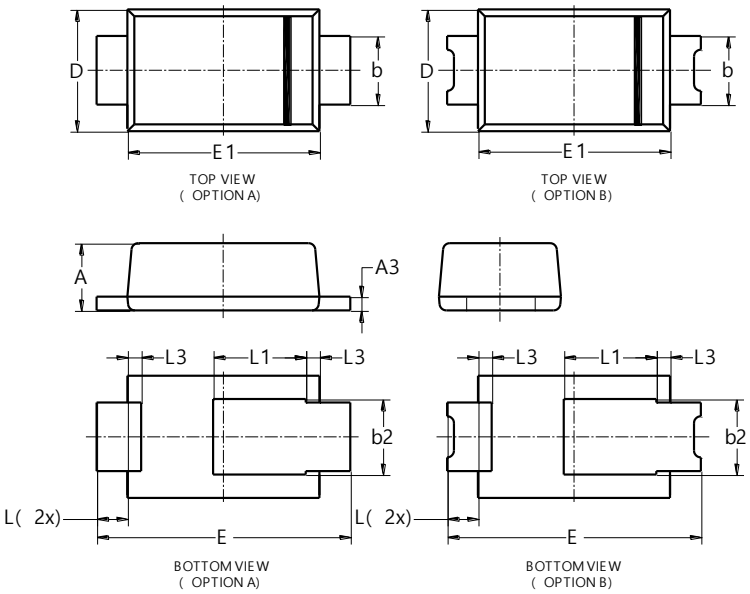


Fig. 4, Forward Current Derating Curve

Package Outline Dimensions

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

PowerDI123

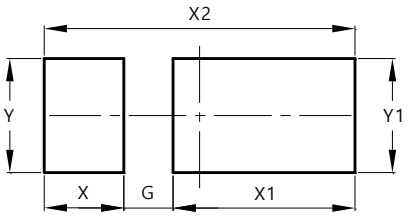


PowerDI123			
Dim	**Min**	**Max**	**Typ**
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

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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