

**1.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER
POWERDI**

Product Summary

V_{RRM} (V)	I_O (A)	V_F max (V)	I_R max (μ A)
100	1	0.77	0.35

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 DFLS1100Q-7 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/>

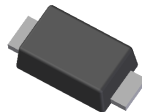
Description and Applications

This Schottky Barrier Rectifier is designed to meet the stringent requirements of automotive applications. It is ideally suited for use as:

- Polarity Protection Diode
- Re-circulating Diode
- Switching Diode

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 Lead-Frame. Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.01 grams (Approximate)



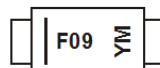
Top View

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
DFLS1100-7	Commercial	POWERDI [®] 123	3000/Tape & Reel
DFLS1100Q-7	Automotive	POWERDI [®] 123	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



F09 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: B = 2014)
M = Month (ex: 9 = September)

Date Code Key

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Code	A	B	C	D	E	F	G	H	I

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	71	V
Forward Current rms ($T_C = +160^\circ\text{C}$, $D = 0.5$)	$I_{F(RMS)}$	2	A
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}	50	A
Repetitive Peak Reverse Current $t_P = 2\mu\text{s}$, $f = 1\text{kHz}$ Square	I_{RRM}	1.0	A
Repetitive Peak Avalanche Power $t_P = 1\mu\text{s}$, $T_J = +25^\circ\text{C}$	P_{ARM}	1500	W
Non-repetitive Peak Reverse Current $t_P = 100\mu\text{s}$ Square	I_{RSM}	1.0	A
Critical Rate of Rise of Reverse Voltage (Rated V_R , $T_J = +25^\circ\text{C}$)	dV/dt	10000	V/ μs

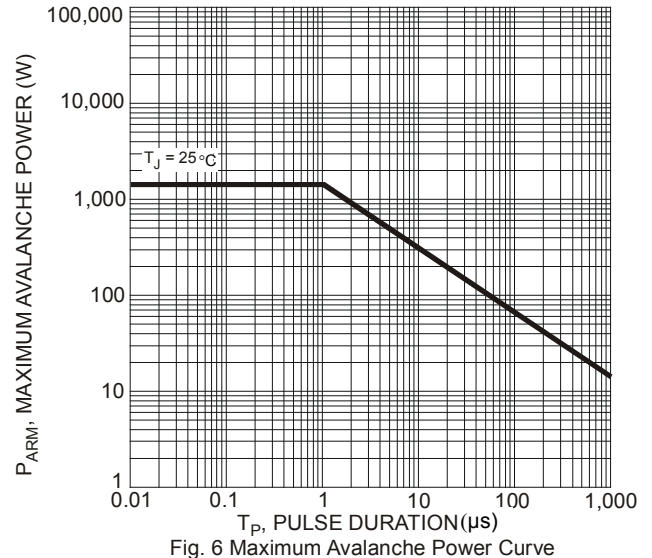
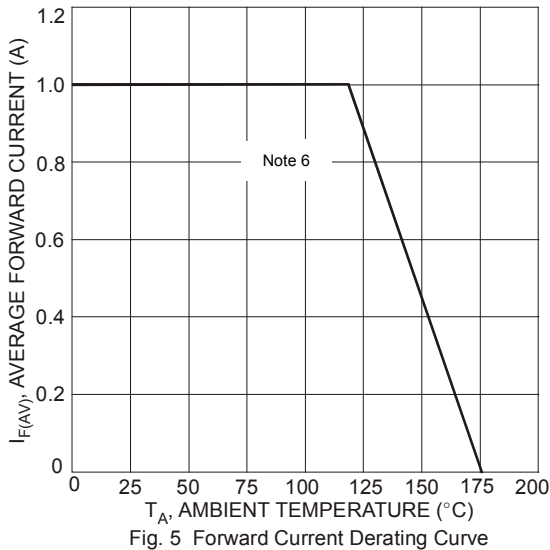
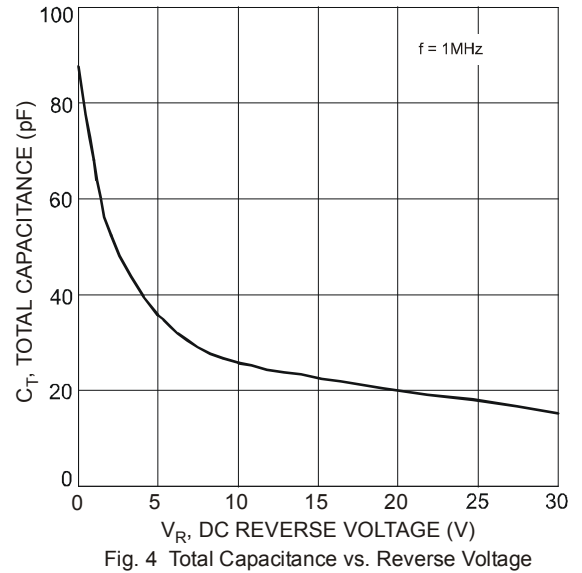
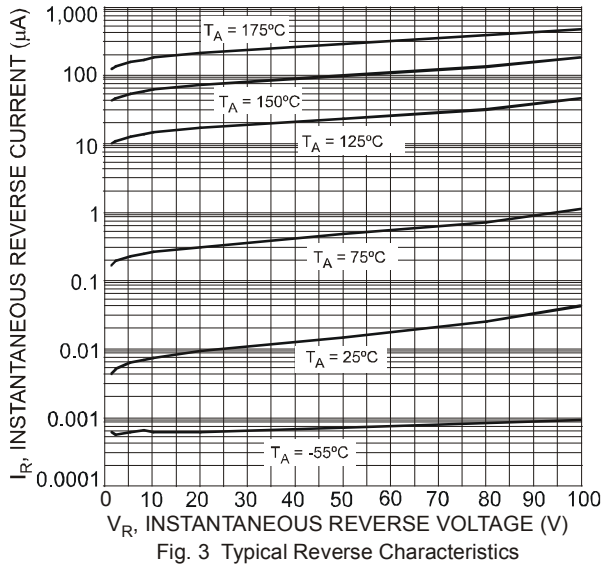
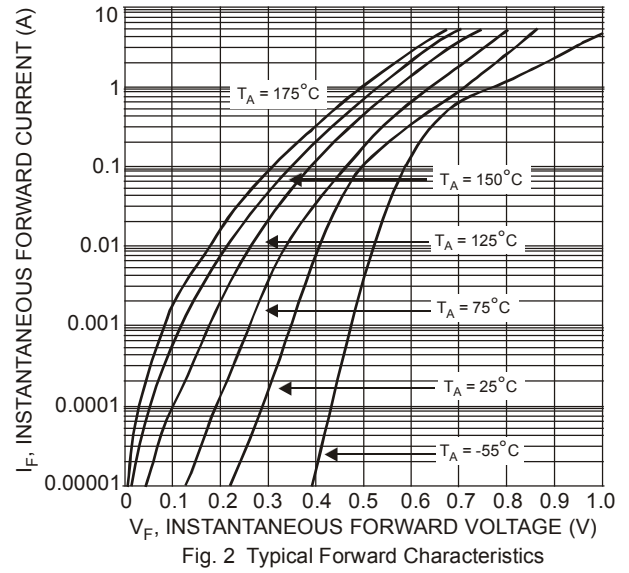
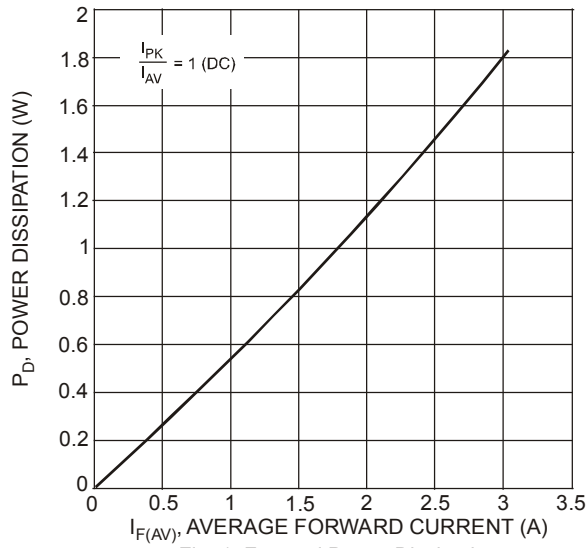
Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering (Note 5)	$R_{\theta JS}$	—	7	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 6) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	125	—	
Thermal Resistance Junction to Case (Note 6) $T_A = +25^\circ\text{C}$	$R_{\theta JC}$	21	—	
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175		$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	100	—	—	V	$I_R = 1\text{mA}$
Forward Voltage	V_F	—	—	0.77	V	$I_F = 1.0\text{A}$, $T_A = +25^\circ\text{C}$
		—	0.58	0.62		$I_F = 1.0\text{A}$, $T_A = +125^\circ\text{C}$
		—	—	0.86		$I_F = 2.0\text{A}$, $T_A = +25^\circ\text{C}$
		—	0.65	0.7		$I_F = 2.0\text{A}$, $T_A = +125^\circ\text{C}$
Leakage Current (Note 7)	I_R	—	—	0.10	μA	$V_R = 50\text{V}$, $T_A = +25^\circ\text{C}$
		—	—	3	μA	$V_R = 50\text{V}$, $T_A = +65^\circ\text{C}$
		—	—	15	μA	$V_R = 50\text{V}$, $T_A = +85^\circ\text{C}$
		—	—	0.35	μA	$V_R = 100\text{V}$, $T_A = +25^\circ\text{C}$
		—	—	0.35	mA	$V_R = 100\text{V}$, $T_A = +125^\circ\text{C}$
Total Capacitance	C_T	—	36	—	pF	$V_R = 5\text{V}_{DC}$, $f = 1\text{MHz}$

- 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 2oz., minimum recommended copper pad layout, which can be found on our website at <http://www.diodes.com>.
 7. Short duration pulse test used to minimize self-heating effect.
 8. The heat generated must be less than thermal conductivity from junction-to-ambient: $dPD/DTJ < 1/R_{\theta JA}$



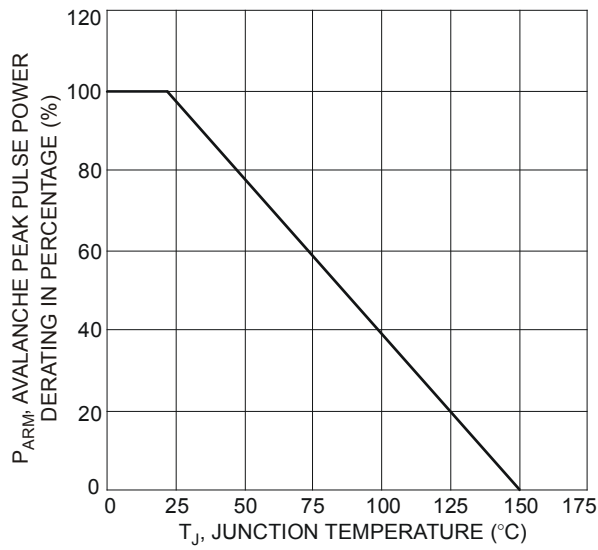


Fig. 7 Pulse Derating Curve

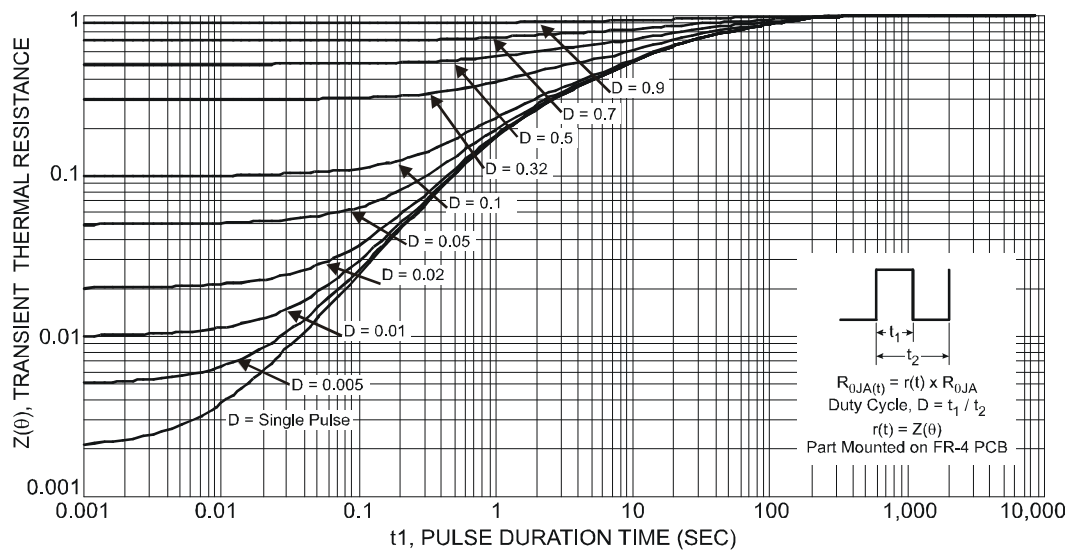
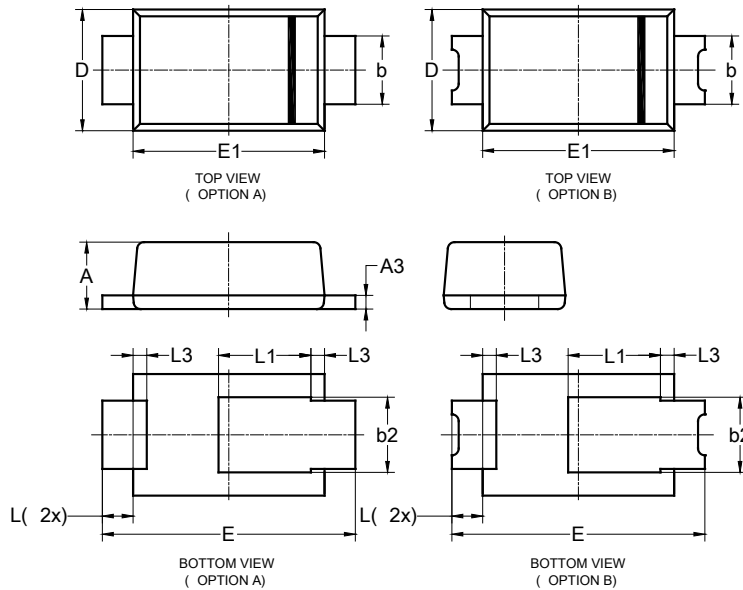


Fig. 8 Transient Thermal Resistance

Package Outline Dimensions

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

PowerDI123

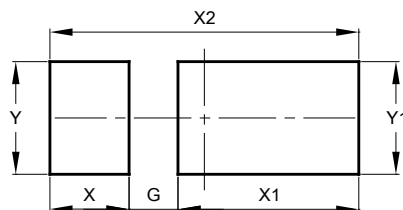


PowerDI123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

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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