



**THE DATASHEET OF  
DFLS1100-7**



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

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ max (V)	$I_R$ max ( $\mu$ 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/>

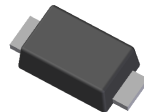
**Description and Applications**

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<sup>®</sup>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)

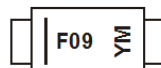


Top View

**Ordering Information** (Note 4)

Part Number	Compliance	Case	Packaging
DFLS1100-7	Commercial	POWERDI <sup>®</sup> 123	3000/Tape & Reel
DFLS1100Q-7	Automotive	POWERDI <sup>®</sup> 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	$V_{RRM}$	100	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
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/ $\mu\text{s}$

**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	$\mu\text{A}$	$V_R = 50\text{V}$ , $T_A = +25^\circ\text{C}$
		—	—	3	$\mu\text{A}$	$V_R = 50\text{V}$ , $T_A = +65^\circ\text{C}$
		—	—	15	$\mu\text{A}$	$V_R = 50\text{V}$ , $T_A = +85^\circ\text{C}$
		—	—	0.35	$\mu\text{A}$	$V_R = 100\text{V}$ , $T_A = +25^\circ\text{C}$
		—	—	0.35	$\text{mA}$	$V_R = 100\text{V}$ , $T_A = +125^\circ\text{C}$
Total Capacitance	$C_T$	—	36	—	$\text{pF}$	$V_R = 5\text{V}_{DC}$ , $f = 1\text{MHz}$

- Notes:
- Theoretical  $R_{\theta JS}$  calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
  - 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>.
  - Short duration pulse test used to minimize self-heating effect.
  - The heat generated must be less than thermal conductivity from junction-to-ambient:  $dPD/DTJ < 1/R_{thJA}$

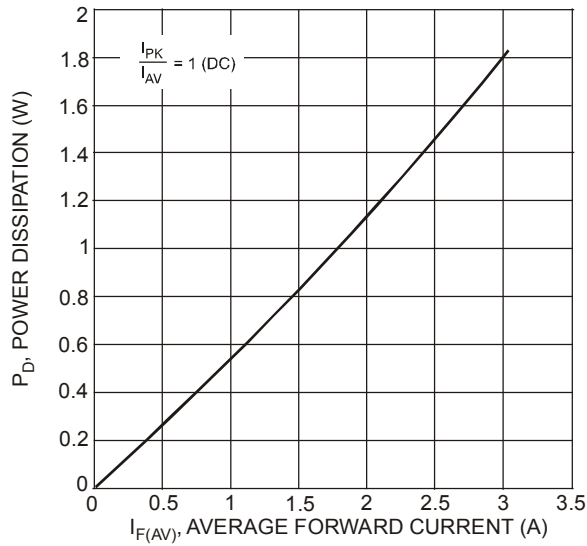


Fig. 1 Forward Power Dissipation

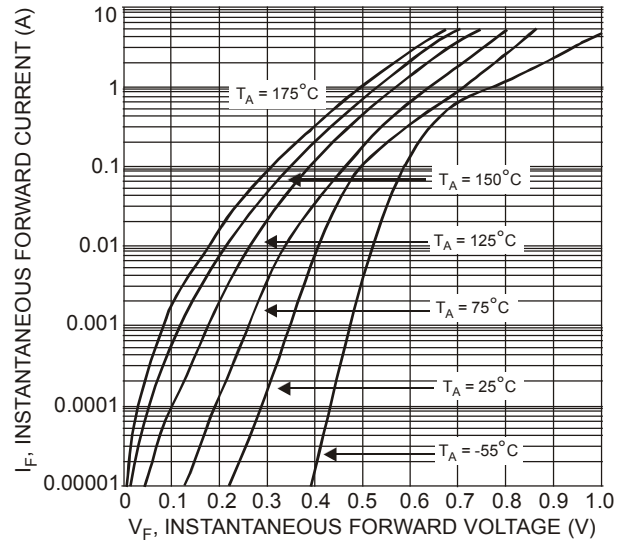


Fig. 2 Typical Forward Characteristics

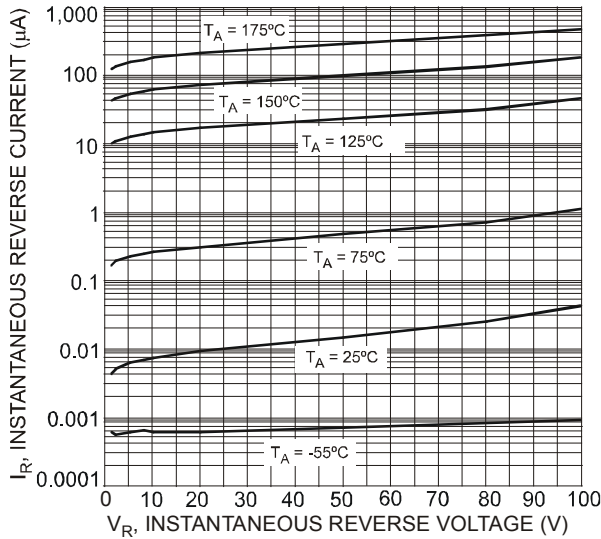


Fig. 3 Typical Reverse Characteristics

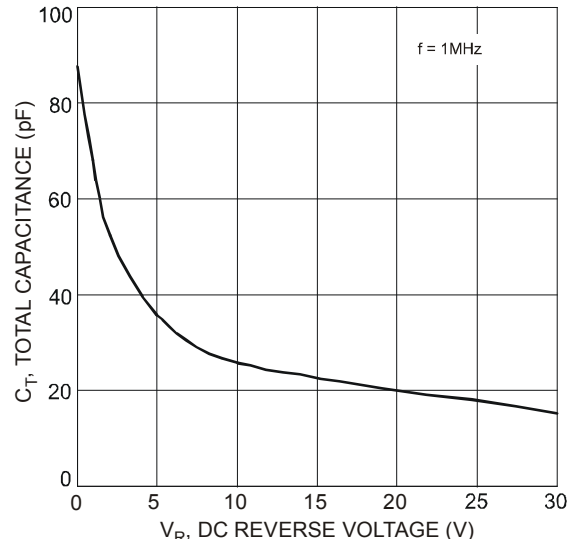


Fig. 4 Total Capacitance vs. Reverse Voltage

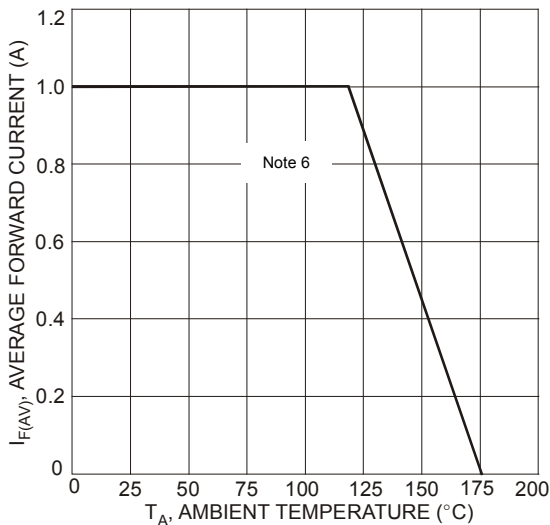


Fig. 5 Forward Current Derating Curve

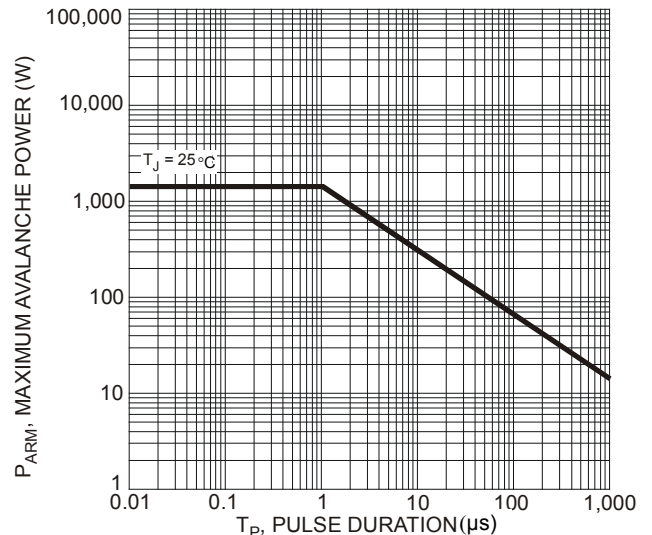
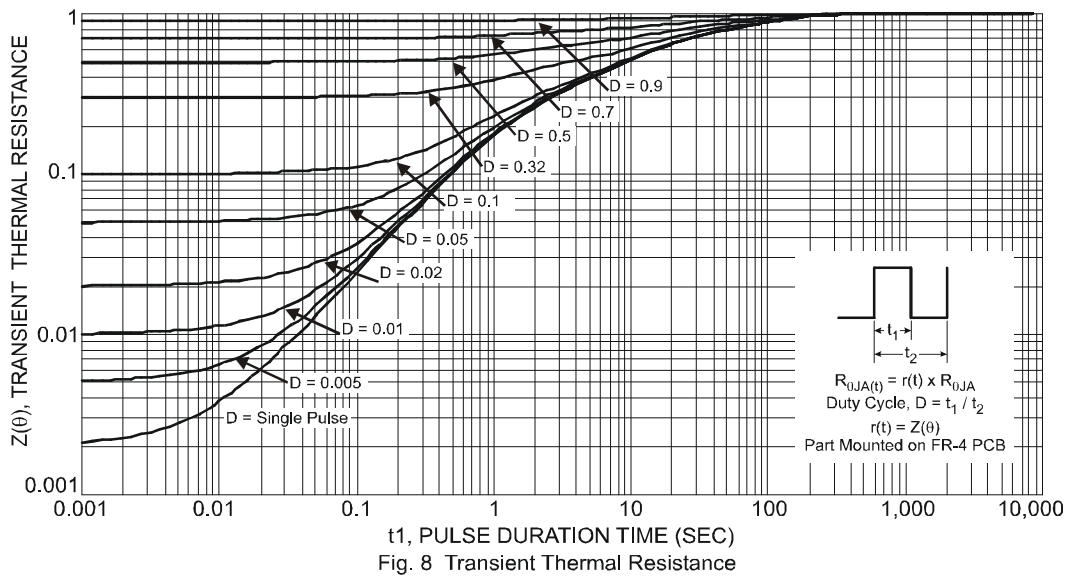
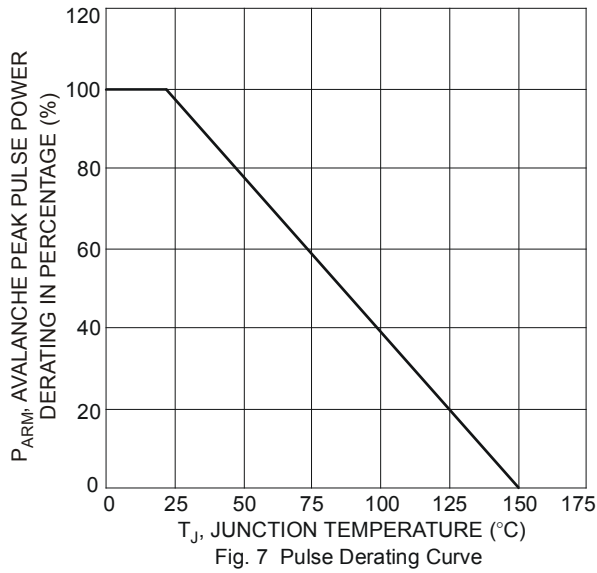


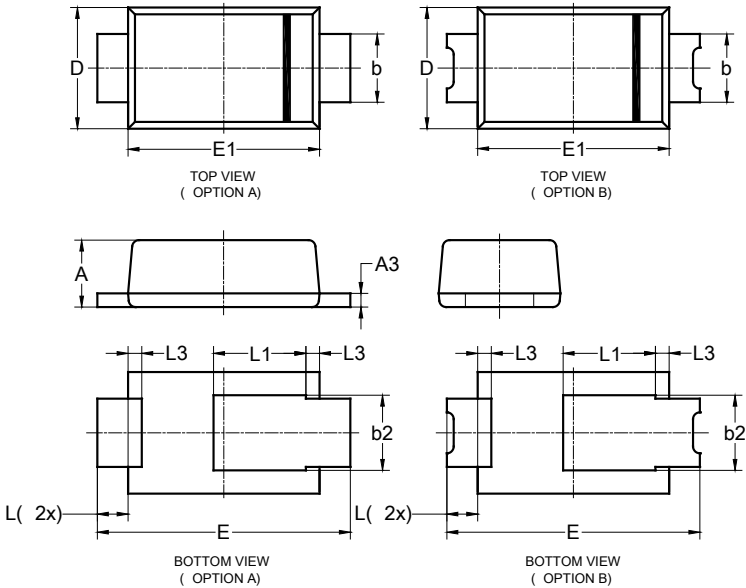
Fig. 6 Maximum Avalanche Power Curve



**Package Outline Dimensions**

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

**PowerDI123**

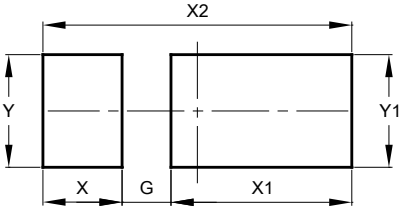


PowerDI123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

**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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