

Product Summary (@+25°C)

V _{RRM} (V)	I _O (A)	V _F max (V)	I _R max (µA)
150	1.0	0.82	2

Applications

- SMPS
- DC-DC Convert
- Freewheeling Diodes
- Reverse Polarity Protection
- Blocking Diodes

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)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

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 Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.01 grams (Approximate)



Top View

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
DFLS1150Q-7	Automotive	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



F07 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: F = 2018)
 M = Month (ex: 9 = September)

Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Code	X	Y	Z	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

PowerDI is a registered trademark of Diodes Incorporated.

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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}		
Working Peak Reverse Voltage	V_{RWM}	150	V
DC Blocking Voltage	V_R		
RMS Reverse Voltage	$V_R(\text{RMS})$	106	V
Average Forward Current	$I_{F(\text{AV})}$	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	50	A

Thermal Characteristics

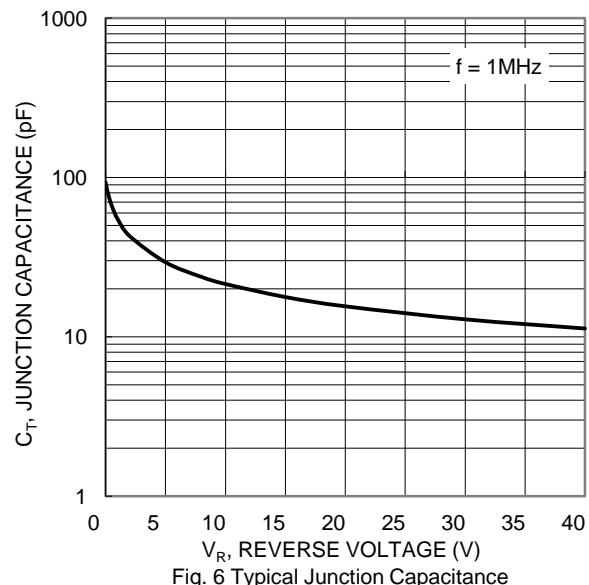
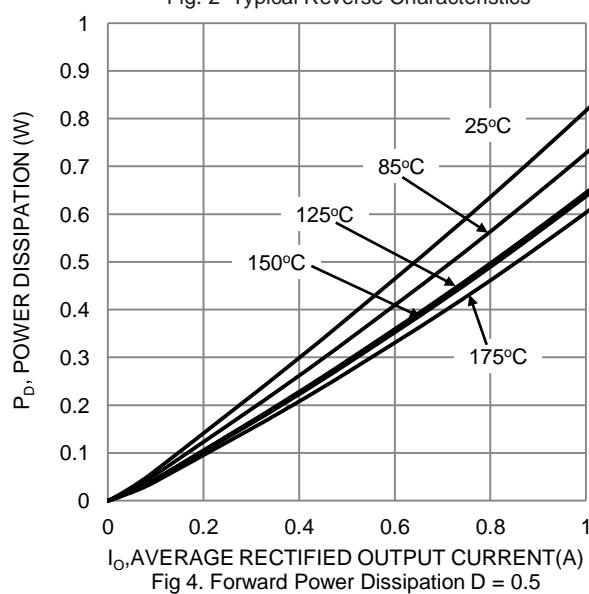
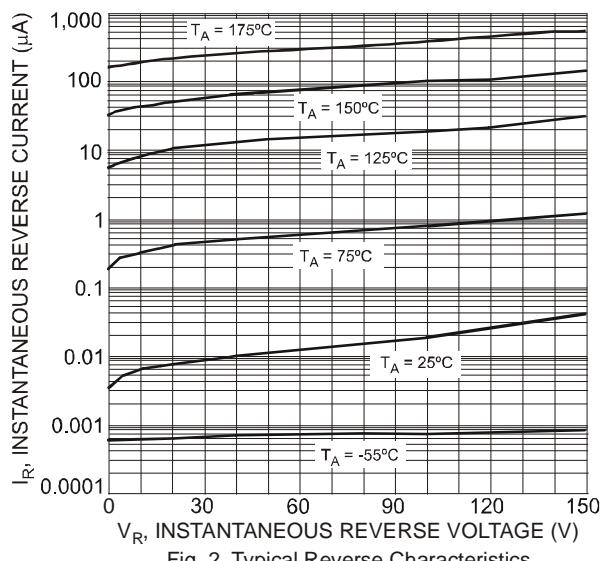
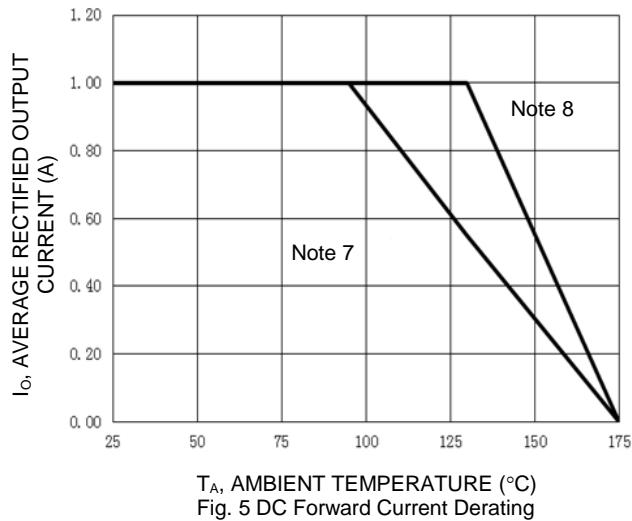
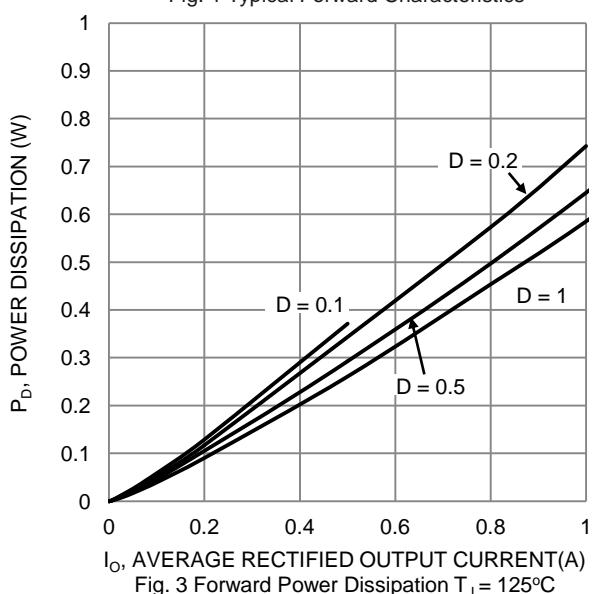
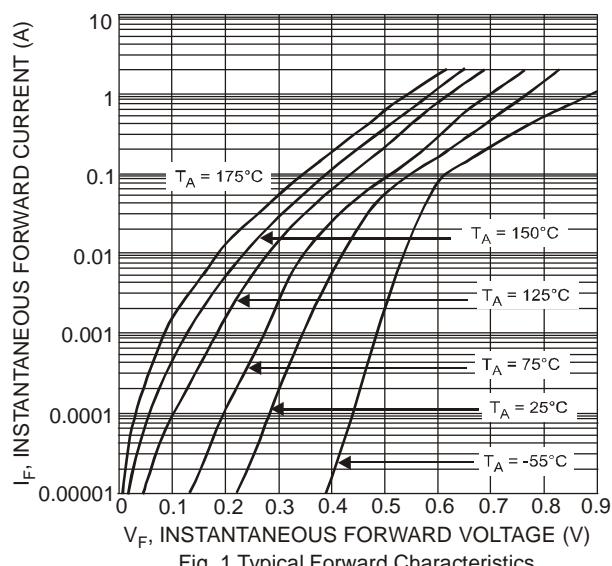
Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point (Note 6)	$R_{\theta JS}$	—	7	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient (Note 7) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	125	—	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient (Note 8) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	70	—	$^\circ\text{C}/\text{W}$
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 9)	$V_{(BR)R}$	150	—	—	V	$I_R = 2\mu\text{A}$
Forward Voltage	V_F	—	—	0.82	V	$I_F = 1.0\text{A}$
Leakage Current (Note 9)	I_R	—	—	2	μA	$V_R = 150\text{V}, T_A = +25^\circ\text{C}$
Total Capacitance	C_T	—	28	—	pF	$V_R = 5\text{V}_{\text{DC}}, f = 1\text{MHz}$
Switching Speed	t_{RR}	—	13	—	ns	$I_F = 0.5\text{A}, I_R = 1\text{A}, I_{RR} = 0.25\text{A}$ (RG1)

Notes:

6. Theoretical $R_{\theta JS}$ 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. Part mounted on 1inch sq. copper pad, 2oz.
9. Short duration pulse test used to minimize self-heating effect.



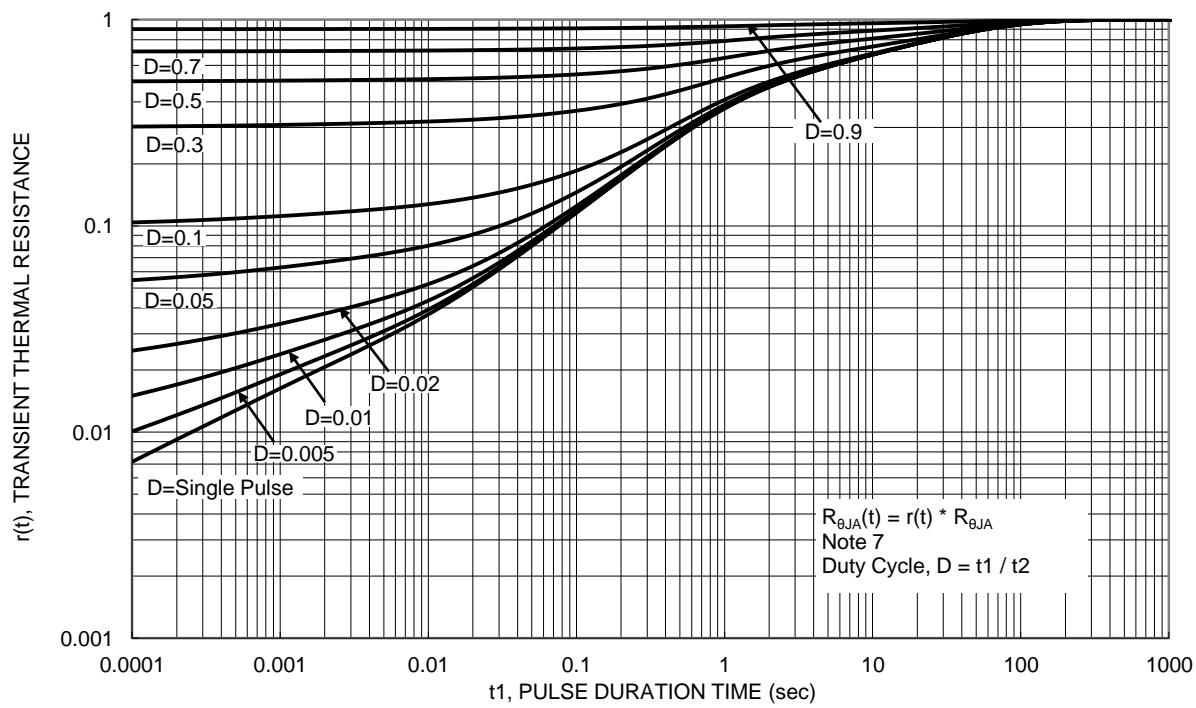
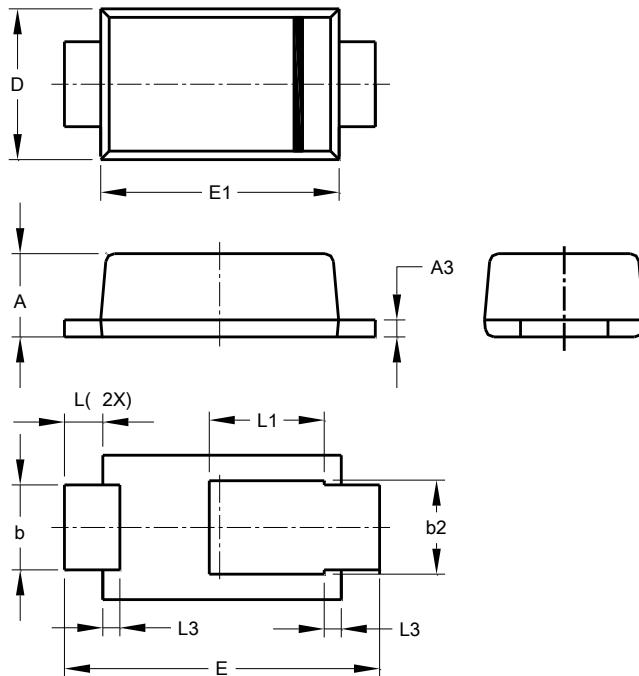


Fig. 7 Transient Thermal Resistance

Package Outline Dimensions

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

PowerDI123



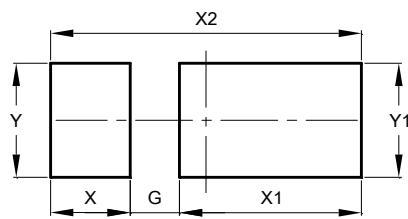
PowerDI123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20

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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