

Features

- 225W Peak Pulse Power Dissipation (10 μ s x 1000 μ s Waveform)
- 5.0V to 220V Standoff Voltages
- Excellent Clamping Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**
- **An automotive-compliant part is available under separate datasheet ([DFLTXXXAQ](#)).**

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 
- Weight: 0.01 grams (Approximate)

PowerDI123



Top View

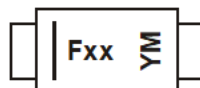
Ordering Information (Note 4)

Orderable Part Number	Marking	Reel Size(inches)	Tape Width(mm)	Packing	
				Quantity	Carrier
DFLTxxxA-7*	Fxx	7	8	3,000	Tape & Reel

* Add "-7" to the appropriate type number in Electrical Characteristics Table on page 2. Example: 10V reverse standoff device = DFLT10A-7.

- 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



Fxx = Product Type Marking Code
See Electrical Characteristics Table on Page 2
YM = Date Code Marking
Y = Year (ex: N = 2026)
M = Month (ex: 9 = September)

Date Code Key

Year	2004		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Code	R		N	P	R	S	T	U	V	W	X	Y

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.)

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Note 5) 10/1000µs (Note 6) 8/20µs	P _{PK}	225 1125	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 7)	I _{FSM}	50	A
Instantaneous Forward Voltage @ I _{PP} = 12A (Note 8)	V _F	3.5	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
DC Steady-State Power Dissipation (Note 9)	P _D	1.0	W
Thermal Resistance, Junction to Ambient (Note 9)	R _{θJA}	125	°C/W
Thermal Resistance, Junction to Soldering Point (Note 10)	R _{θJS}	6	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

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

Part Number	Reverse Standoff Voltage	Breakdown Voltage V _{BR} @ I _T (Note 11)		Test Current	Max. Reverse Leakage @ V _{RWM}	Max. Clamping Voltage @ I _{PP}	Max. Peak Pulse Current I _{PP}	Marking Code
	V _{RWM} (V)	Min (V)	Max (V)	I _T (mA)	I _R (µA)	V _C (V)	(A)	
DFLT5V0A	5.0	6.40	7.0	10	400	9.2	24.5	F AE
DFLT6V0A	6.0	6.67	7.37	10	400	10.3	21.8	F AG
DFLT6V5A	6.5	7.22	7.98	10	250	11.2	20.1	F AK
DFLT7V0A	7.0	7.78	8.60	10	100	12.0	18.8	F AM
DFLT7V5A	7.5	8.33	9.21	1.0	50	12.9	17.4	F AP
DFLT8V0A	8.0	8.89	9.83	1.0	25	13.6	16.5	F AR
DFLT8V5A	8.5	9.44	10.4	1.0	10	14.4	15.6	F AT
DFLT9V0A	9.0	10.0	11.1	1.0	5.0	15.4	14.6	F AV
DFLT10A	10	11.1	12.3	1.0	2.5	17.0	13.2	F AX
DFLT11A	11	12.2	13.5	1.0	2.5	18.2	12.4	F AZ
DFLT12A	12	13.3	14.7	1.0	2.5	19.9	11.3	F BE
DFLT13A	13	14.4	15.9	1.0	1.0	21.5	10.5	F BG
DFLT14A	14	15.6	17.2	1.0	1.0	23.2	9.7	F BK
DFLT15A	15	16.7	18.5	1.0	1.0	24.4	9.22	F BM
DFLT16A	16	17.8	19.7	1.0	1.0	26.0	8.65	F BP
DFLT17A	17	18.9	20.9	1.0	1.0	27.6	8.15	F BR
DFLT18A	18	20.0	22.1	1.0	1.0	29.2	7.71	F BT
DFLT20A	20	22.2	24.5	1.0	1.0	32.4	6.94	F BV
DFLT22A	22	24.4	26.9	1.0	1.0	35.5	6.34	F BX
DFLT24A	24	26.7	29.5	1.0	1.0	38.9	5.78	F BZ
DFLT26A	26	28.9	31.9	1.0	1.0	42.1	5.35	F CE
DFLT27A	27	30	33.15	1.0	1.0	43.7	5.15	F CF
DFLT28A	28	31.1	34.4	1.0	1.0	45.4	4.96	F CG
DFLT30A	30	33.3	36.8	1.0	1.0	48.4	4.65	F CK
DFLT33A	33	36.7	40.6	1.0	1.0	53.3	4.22	F CM
DFLT36A	36	40.0	44.2	1.0	1.0	58.1	3.87	F CP
DFLT40A	40	44.4	49.1	1.0	1.0	64.5	3.49	F CR
DFLT43A	43	47.8	52.8	1.0	1.0	69.4	3.24	F CT
DFLT45A	45	50.0	55.3	1.0	1.0	72.7	3.10	F CV
DFLT48A	48	53.3	58.9	1.0	1.0	77.4	2.91	F CX
DFLT51A	51	56.7	62.7	1.0	1.0	82.4	2.73	F CZ
DFLT170A	170	189	209	1.0	5.0	281	0.81	F DZ
DFLT220A	220	242	276	1.0	5.0	375	0.60	F EZ

- Notes:
5. Non-Repetitive current pulse as shown in figure 2 and derated above T_A = +25°C as per figure 1.
 6. Non-Repetitive current pulse as shown in figure 3 and derated above T_A = +25°C as per figure 1.
 7. I_{FSM} = 40A for DFLT170A and DFLT220A; I_{FSM} = 50A for all other voltages.
 8. 1/2 sine wave (or equivalent square wave), pulse width = 8.3ms, duty cycle = 4 pulses/minute maximum.
 9. Device mounted on FR-4 substrate printed circuit board with 1 inch square 2oz copper pad area.
 10. Theoretical R_{θJS} calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
 11. V_{BR} measured at pulse test current I_T with tp ≤ 5.0ms at T_A = +25°C.

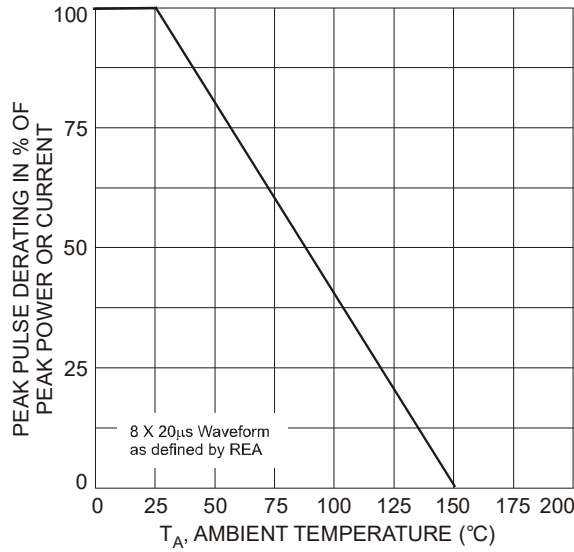


Fig. 1 Pulse Derating Curve

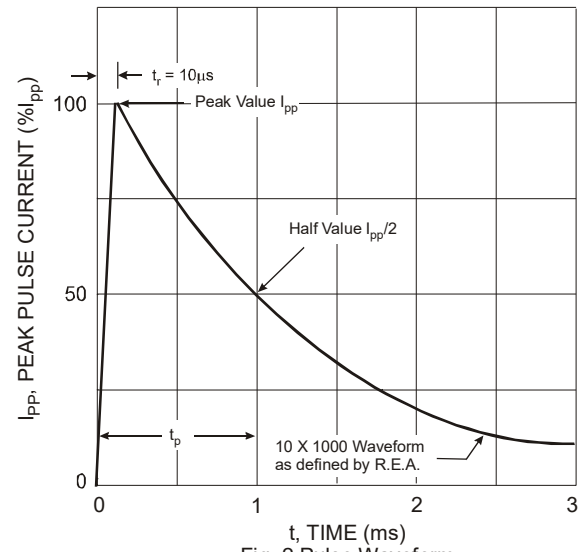


Fig. 2 Pulse Waveform

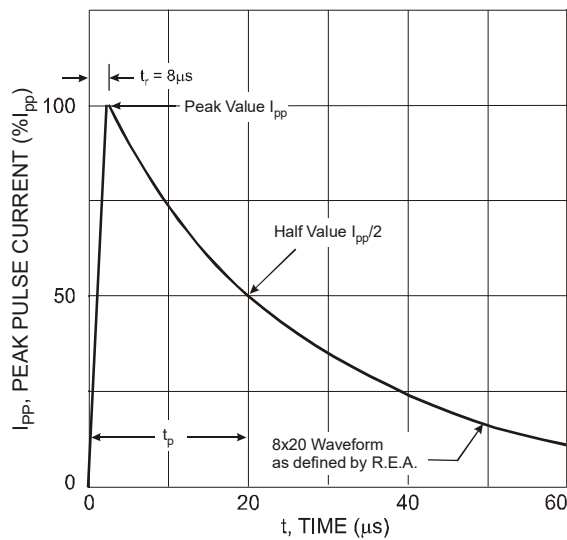


Fig. 3 Pulse Waveform

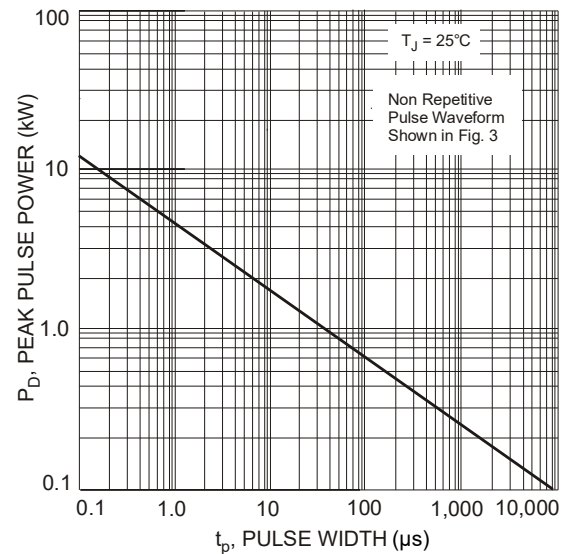


Fig. 4 Pulse Rating Curve

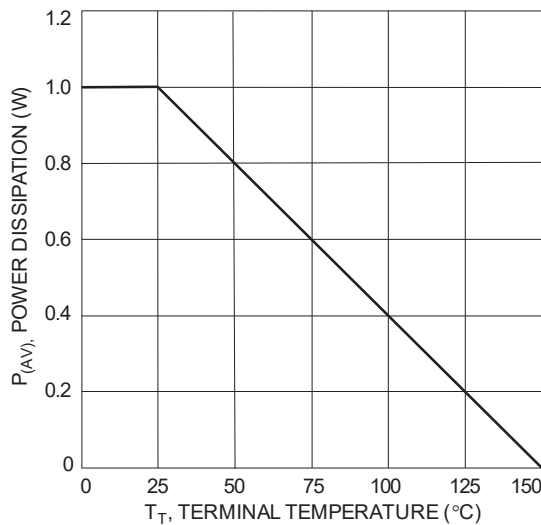


Fig. 5 Power Derating Curve

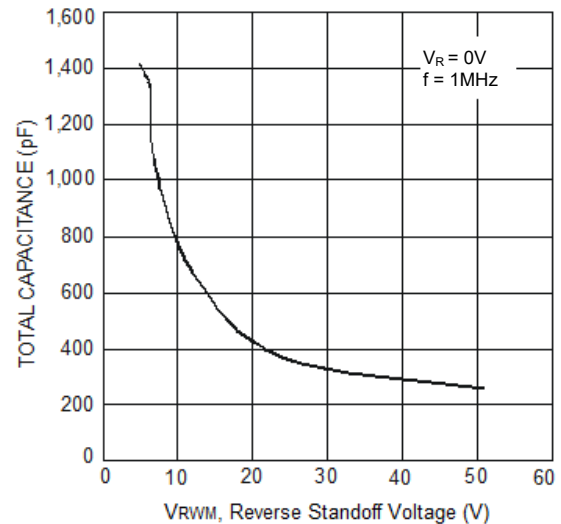


Fig. 6 Total Capacitance vs Reverse Standoff Voltage

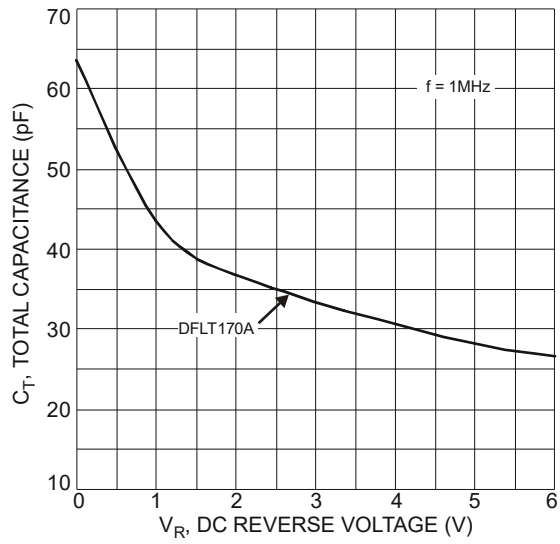


Fig. 7 Total Capacitance vs. Reverse Voltage

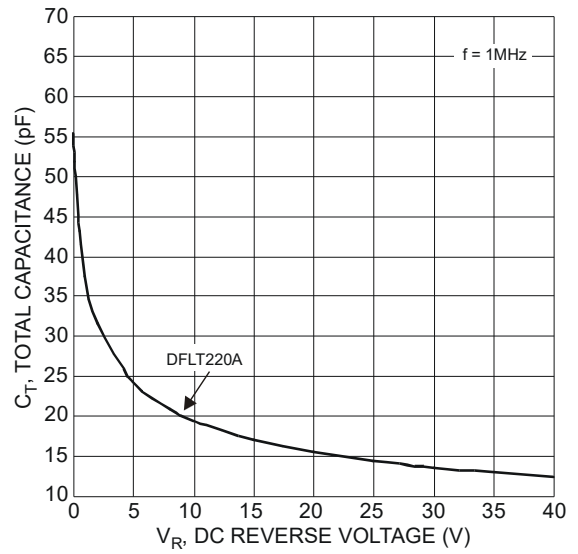
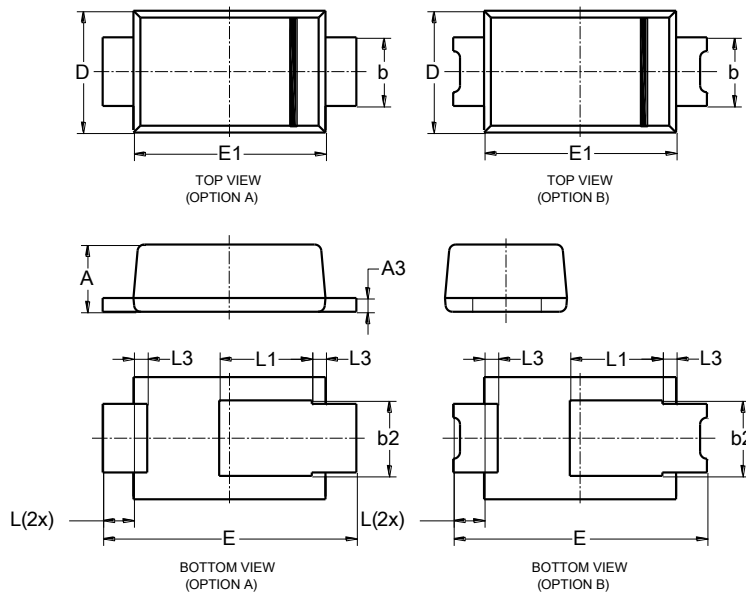


Fig. 8 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

PowerDI123

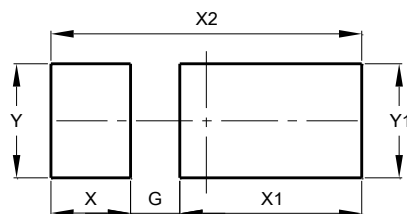


PowerDI123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

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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