



DFLT5V0A - DFLT51A

225W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR
PowerDI™ 123

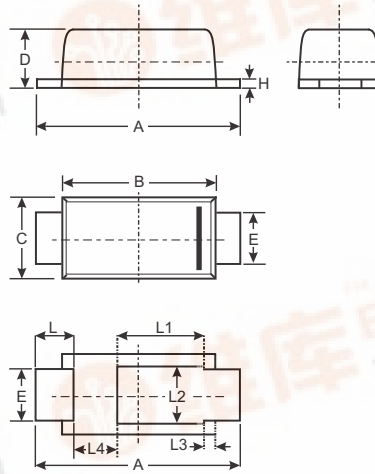
NEW PRODUCT

Features

- 225W Peak Pulse Power Dissipation (10µs x 1000µs waveform)
- 5.0V - 51V Standoff Voltages
- Excellent Clamping Capability
- **Lead Free Finish, RoHS Compliant (Note 6)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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-020C
- Terminal Connections: Cathode Band
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Marking & Type Code Information: See Last Page
- Ordering Information: See Last Page
- Weight: 0.01 grams (approximate)



PowerDI™123			
Dim	Min	Max	Typ
A	3.50	3.90	3.70
B	2.60	3.00	2.80
C	1.63	1.93	1.78
D	0.93	1.00	0.98
E	0.85	1.25	1.00
H	0.15	0.25	0.20
L	0.45	0.85	0.65
L1	—	—	1.35
L2	—	—	1.10
L3	—	—	0.20
L4	0.90	1.30	1.05

All Dimensions in mm

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Note 1) 10/1000µs (Note 2) 8/20µs	P _{PK}	225 1125	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave	I _{FSM}	50	A
Instantaneous Forward Voltage @ I _{PP} = 12A (Note 5)	V _F	3.5	V
Operating Temperature Range	T _j	-65 to +150	°C
Storage Temperature Range	T _{STG}	-65 to +150	°C

Thermal Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
DC Steady-State Power Dissipation (Note 3)	P _D	1.0	W
Thermal Resistance, Junction to Ambient (Note 3)	R _{θJA}	125	°C/W
Thermal Resistance, Junction to Soldering Point (Note 4)	R _{θJS}	6	°C/W

- Notes:
1. Non-Repetitive current pulse as shown in figure 3 and derated above T_A = 25°C as per figure 1.
 2. Non-Repetitive current pulse as shown in figure 5 and derated above T_A = 25°C as per figure 1.
 3. Device mounted on 1"x1", FR-4 PCB; 2 oz. Cu pad layout as shown on Diodes Inc. suggested pad layout document AP02001.pdf.
 4. Theoretical R_{θJS} calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
 5. 1/2 sine wave (or equivalent square wave), pulse width = 8.3ms, duty cycle = 4 pulses/minute maximum.
 6. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex Notes 5 and 7.



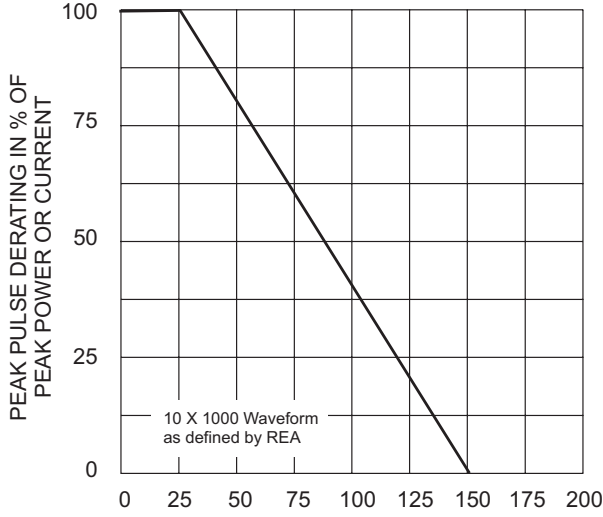
Table 1

NEW PRODUCT

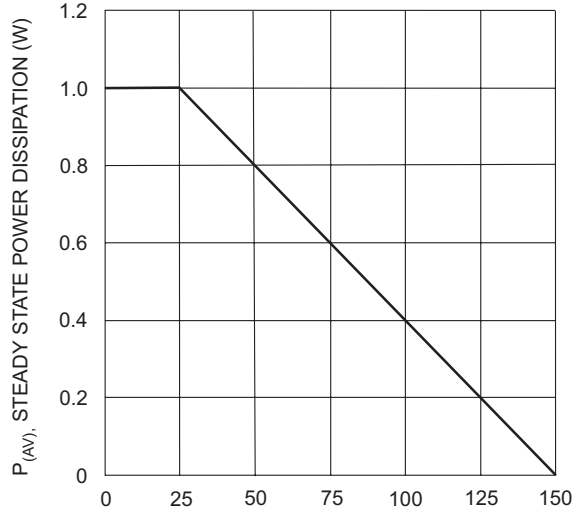
Part Number	Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T (Note 7)		Test Current	Max. Reverse Leakage @ V_{RWM}	Max. Clamping Voltage @ I_{pp}	Max. Peak Pulse Current I_{pp}	Marking Code
	V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (μ A)	V_C (V)	(A)	
DFLT5V0A	5.0	6.40	7.0	10	400	9.2	24.5	FAE
DFLT6V0A	6.0	6.67	7.37	10	400	10.3	21.8	FAG
DFLT6V5A	6.5	7.22	7.98	10	250	11.2	20.1	FAK
DFLT7V0A	7.0	7.78	8.60	10	100	12.0	18.8	FAM
DFLT7V5A	7.5	8.33	9.21	1.0	50	12.9	17.4	FAP
DFLT8V0A	8.0	8.89	9.83	1.0	25	13.6	16.5	FAR
DFLT8V5A	8.5	9.44	10.4	1.0	10	14.4	15.6	FAT
DFLT9V0A	9.0	10.0	11.1	1.0	5.0	15.4	14.6	FAV
DFLT10A	10	11.1	12.3	1.0	2.5	17.0	13.2	FAX
DFLT11A	11	12.2	13.5	1.0	2.5	18.2	12.4	FAZ
DFLT12A	12	13.3	14.7	1.0	2.5	19.9	11.3	FBE
DFLT13A	13	14.4	15.9	1.0	1.0	21.5	10.5	FBG
DFLT14A	14	15.6	17.2	1.0	1.0	23.2	9.7	FBK
DFLT15A	15	16.7	18.5	1.0	1.0	24.4	9.22	FBM
DFLT16A	16	17.8	19.7	1.0	1.0	26.0	8.65	FBP
DFLT17A	17	18.9	20.9	1.0	1.0	27.6	8.15	FBR
DFLT18A	18	20.0	22.1	1.0	1.0	29.2	7.71	FBT
DFLT20A	20	22.2	24.5	1.0	1.0	32.4	6.94	FBV
DFLT22A	22	24.4	26.9	1.0	1.0	35.5	6.34	FBX
DFLT24A	24	26.7	29.5	1.0	1.0	38.9	5.78	FBZ
DFLT26A	26	28.9	31.9	1.0	1.0	42.1	5.35	FCE
DFLT27A	27	30	33.15	1.0	1.0	43.7	5.15	FCF
DFLT28A	28	31.1	34.4	1.0	1.0	45.4	4.96	FCG
DFLT30A	30	33.3	36.8	1.0	1.0	48.4	4.65	FCK
DFLT33A	33	36.7	40.6	1.0	1.0	53.3	4.22	FCM
DFLT36A	36	40.0	44.2	1.0	1.0	58.1	3.87	FCP
DFLT40A	40	44.4	49.1	1.0	1.0	64.5	3.49	FCR
DFLT43A	43	47.8	52.8	1.0	1.0	69.4	3.24	FCT
DFLT45A	45	50.0	55.3	1.0	1.0	72.7	3.10	FCV
DFLT48A	48	53.3	58.9	1.0	1.0	77.4	2.91	FCX
DFLT51A	51	56.7	62.7	1.0	1.0	82.4	2.73	FCZ

Notes: 7. V_{BR} measured at pulse test current I_T with $t_p \leq 5.0$ ms at $T_A = 25^\circ\text{C}$.

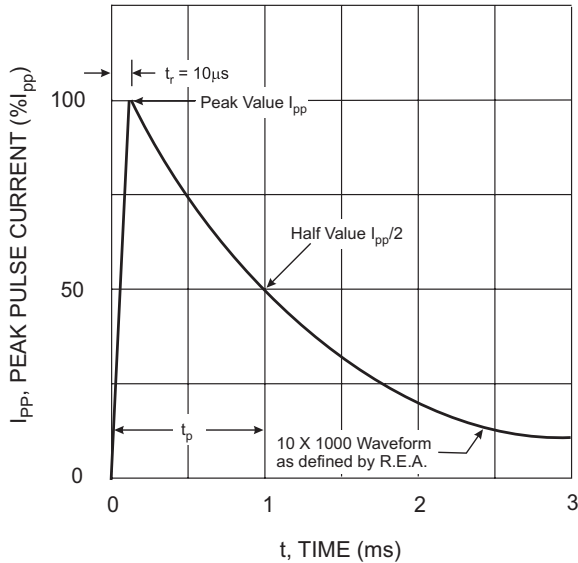




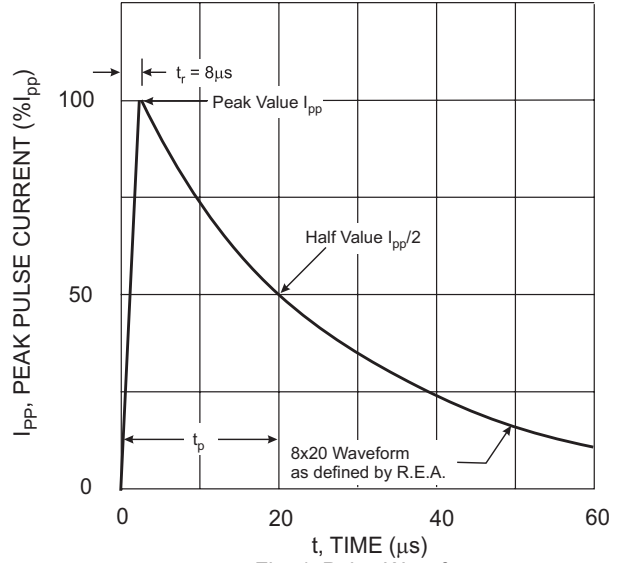
T_A , AMBIENT TEMPERATURE ($^{\circ}C$)
Fig. 1 Pulse Derating Curve



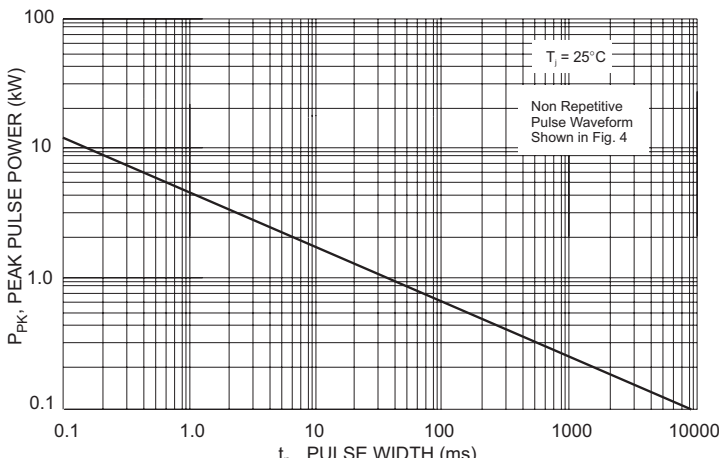
T_T , TERMINAL TEMPERATURE ($^{\circ}C$)
Fig. 2 Steady State Power Derating Curve



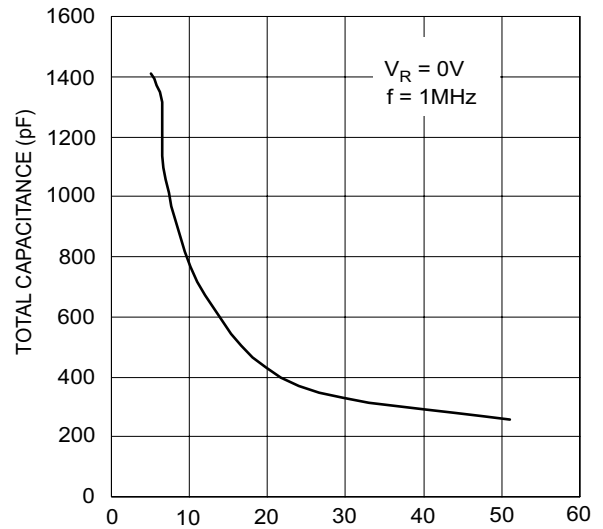
t, TIME (ms)
Fig. 3 Pulse Waveform



t, TIME (μs)
Fig. 4 Pulse Waveform



t_p , PULSE WIDTH (ms)
Fig. 5 Pulse Rating Curve



TOTAL CAPACITANCE
Fig. 6 V_{RWM} (V)



Ordering Information (Note 8)

Device	Packaging	Shipping
DFLTxxxA-7*	PowerDI™123	3000/Tape & Reel

Notes: 8. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

* Add "-7" to the appropriate type number in Table 1 on page 2. Example: 10V reverse standoff device = DFLT10A-7.

Marking Information


FXX = Product Type Marking Code (See Marking Codes on Page 2)
 YM = Date Code Marking
 Y = Year (ex: R = 2004)
 M = Month (ex: 9 = September)

Date Code Key

Year		2004	2005	2006	2007	2008	2009
Code		R	S	T	U	V	W

Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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