



WSxxP10D(-B)

Order Code: WSxxP10D(-B)

Power Transient Voltage Suppressor

Features

- 1000 watts Peak Pulse Power (10/1000µs)
- Unidirectional and Bidirectional Protection
- Fast Response Time : Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package



DFN3333-2L

Mechanical Characteristics

- Small DFN3333-2L package
- Molding compound flammability rating: UL 94V-0
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

- I/O Interfaces
- Power lines
- Automotive and Telecommunication
- Computers & Consumer Electronics
- Industrial Electronics

Absolute Maximum Rating			
Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000µs) (see Note1,2& 3)	P _{PPM}	1000	Watts
Peak pulse current (10/1000µs) (see Note2&3)	I _{PPM}	See Electrical Characteristics	A
Power Dissipation on infinite heat sink T _L = 50 °C (Fig4)	P _D	5.0	W
Operating Junction Temperature range	T _J	-55 to + 150	°C
Storage Temperature range	T _{STG}	-55 to + 150	°C

Note1: Peak Pulse Power Rating as Pulse Width ,per Fig1.

Note2: Peak Pulse Power or Current Derated above T_A=25°C Per Fig. 2 and Non-Repetitive Current Pulse, Per Fig.3.

Note3: Mounted on 5.0x5.0mm² copper pad to each terminal.

Note4: 8.3ms Single Half Sine Wave or Equivalent Square Wave.

Electrical Characteristics

Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage $V_{BR}(\text{Volts})@I_T$		Test Current I_T (mA)	Maximum Clamping Voltage $V_c@I_{PP}$ (Volts)	Maximum Peak Pulse Current I_{pp} (Amps)	Maximum Reverse Leakage $I_R@V_{RWM}$ (μA)
UNI-POLAR	BI-POLAR		MIN	MAX				
WS6.5P10D	WS6.5P10D-B		6.5	7.22				
WS15P10D	WS15P10D-B	15	16.70	18.50	1	24.4	40.98	1
WS18P10D	WS18P10D-B	18	20.00	22.10	1	29.2	34.25	1
WS20P10D	WS20P10D-B	20	22.20	24.50	1	32.4	30.86	1
WS24P10D	WS24P10D-B	24	26.70	29.50	1	38.9	25.71	1
WS30P10D	WS30P10D-B	30	33.30	36.80	1	48.4	20.66	1
WS36P10D	WS36P10D-B	36	40.00	44.20	1	58.1	17.21	1
WS45P10D	WS45P10D-B	45	50.00	55.30	1	72.7	13.76	1
WS58P10D	WS58P10D-B	58	64.40	71.20	1	93.6	10.68	1

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

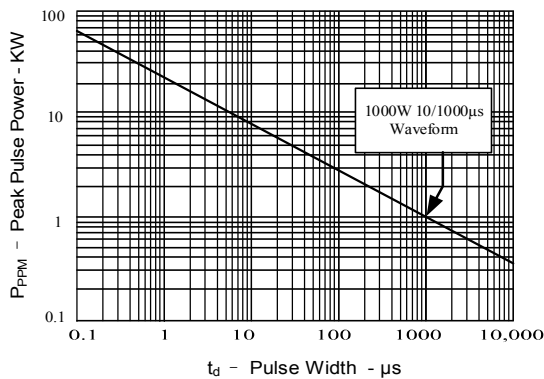


Figure 2: Pulse Derating Curve

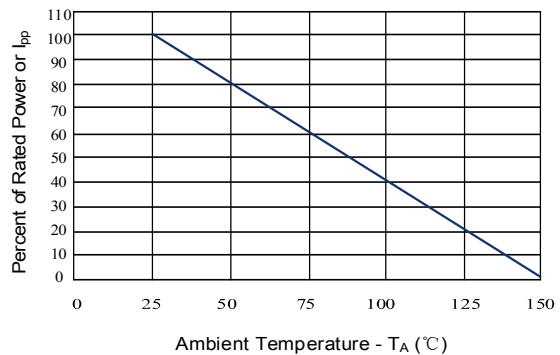


Figure 3: Pulse Waveform

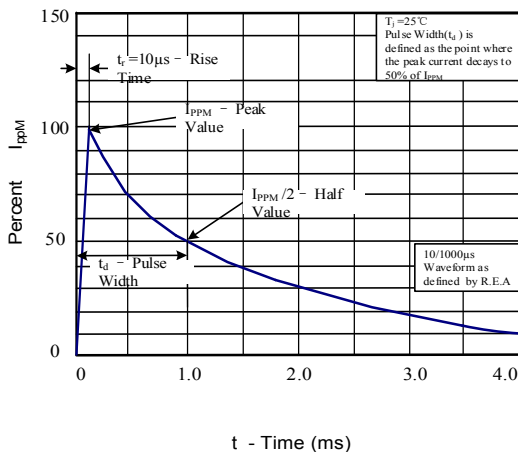
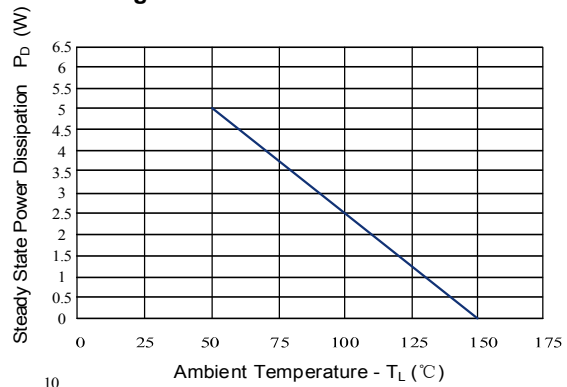
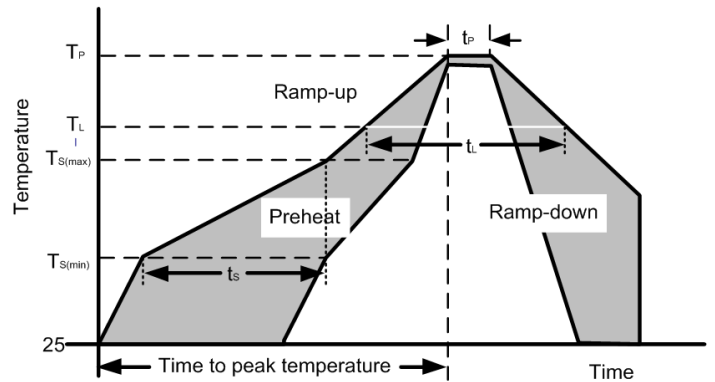


Figure 4: Steady State Power Dissipation Derating Curve



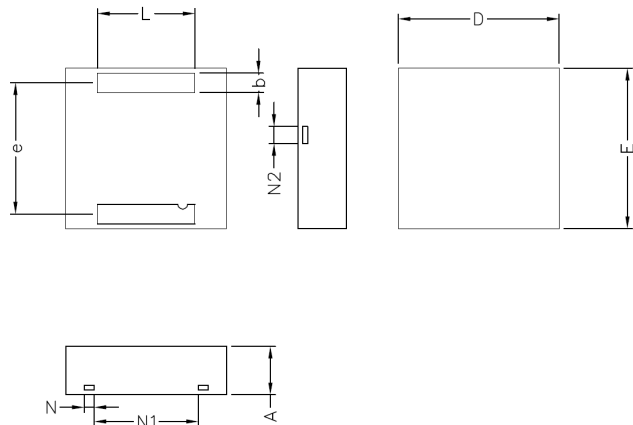
Recommended Soldering Parameters

Reflow Condition		
Pre Heat	Temp. Min ($T_{s(min)}$)	150°C
	Temp. Max ($T_{s(max)}$)	200°C
	Time (Min to Max) (t_s)	60-90 s
Average ramp up rate (Liquidus Temp.) (T_L) to peak		3°C/s max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/s max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60-150 s
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20-40 s
Ramp-down Rate		5°C/s max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C



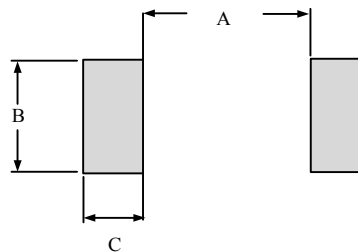
Product Dimensions

Ref. (mm)	Min.	Typ.	Max.
A	0.95	1.00	1.05
b	0.35	0.40	0.45
D	3.25	3.30	3.35
e	2.70BSC		
E	3.25	3.30	3.35
L	1.95	2.00	2.05
N	0.15	0.20	0.25
N1	2.09	2.14	2.19
N2	0.30	0.35	0.40

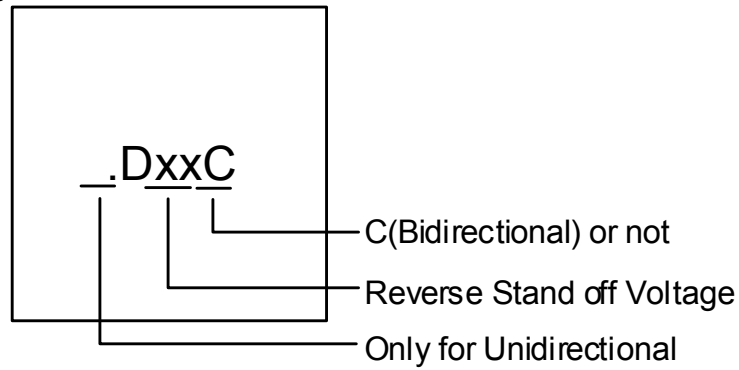


Recommended Solder Pad Layout

Ref.(mm)	MILLIMETERS
A	2.70
B	2.20
C	0.49



Part Marking System



Package Information

5K Pcs/Reel

Contact Information

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*Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.*