

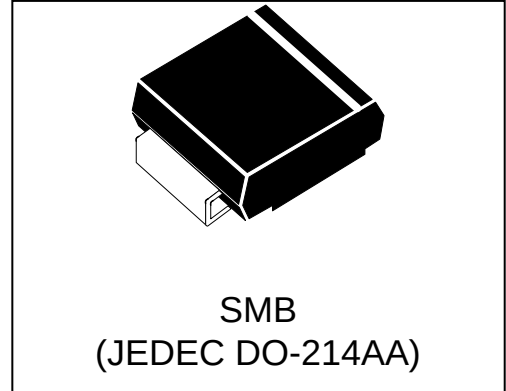


WSxxP10SMB(-B)-AT

Automotive Load Dump Protection TVS

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
- High temperature solder:260°C/10 seconds at terminal
- AEC-Q101 compliant



Mechanical Characteristics

- JEDEC DO-214AA package
- Molding compound flammability rating: UL 94V-0
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

- Auto power system
- Car audio and video
- Automotive instrument
- Car GPS
- Can-bus

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000μs) (see Note1&2)	P _{PPM}	1000	Watts
Peak pulse current (10/1000μs) (see Note2)	I _{PPM}	See Electrical Characteristics	A
Power Dissipation on infinite heat sink T _L = 50 °C (Fig4)	P _D	6.5	W
Operating Junction Temperature range	T _J	-65 to + 150	°C
Storage Temperature range	T _{STG}	-65 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.

Electrical Characteristics

Part Number		Marking		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage $V_{BR}@I_T$ (Volts)		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	UNI-POLAR	BI-POLAR		MIN	MAX				
WS15P10SMB-AT	WS15P10SMB-B-AT	IYLP	IZLP	15	16.70	18.50	1	24.4	40.98	1
WS16P10SMB-AT	WS16P10SMB-B-AT	IYLQ	IZLQ	16	17.80	19.70	1	26.0	38.46	1
WS18P10SMB-AT	WS18P10SMB-B-AT	IYLS	IZLS	18	20.00	22.10	1	29.2	34.25	1
WS20P10SMB-AT	WS20P10SMB-B-AT	IYMY	IZMZ	20	22.20	24.50	1	32.4	30.86	1
WS22P10SMB-AT	WS22P10SMB-B-AT	IYMM	IZMM	22	24.40	26.90	1	35.5	28.17	1
WS24P10SMB-AT	WS24P10SMB-B-AT	IYMO	IZMO	24	26.70	29.50	1	38.9	25.71	1
WS26P10SMB-AT	WS26P10SMB-B-AT	IYMQ	IZMQ	26	28.90	31.90	1	42.1	23.75	1
WS28P10SMB-AT	WS28P10SMB-B-AT	IYMS	IZMS	28	31.10	34.40	1	45.4	22.03	1
WS30P10SMB-AT	WS30P10SMB-B-AT	IYNY	IZNZ	30	33.30	36.80	1	48.4	20.66	1
WS33P10SMB-AT	WS33P10SMB-B-AT	IYNN	IZNN	33	36.70	40.60	1	53.3	18.76	1
WS36P10SMB-AT	WS36P10SMB-B-AT	IYNQ	IZNQ	36	40.00	44.20	1	58.1	17.21	1
WS40P10SMB-AT	WS40P10SMB-B-AT	IYOY	IZOZ	40	44.40	49.10	1	64.5	15.50	1
WS43P10SMB-AT	WS43P10SMB-B-AT	IYON	IZON	43	47.80	52.80	1	69.4	14.41	1

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

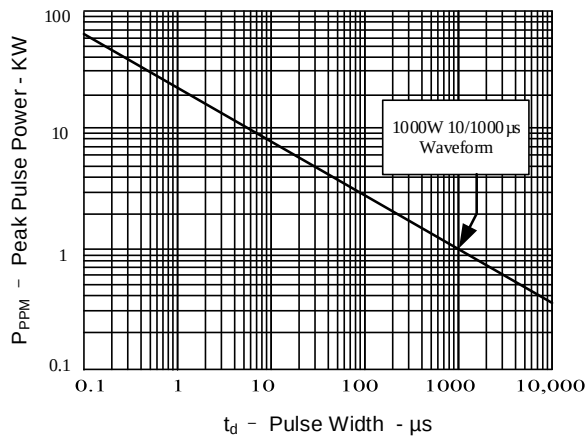


Figure 2: Pulse Derating Curve

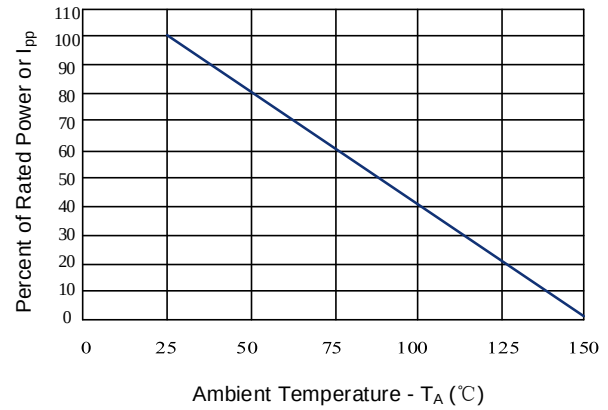


Figure 3: Pulse Waveform

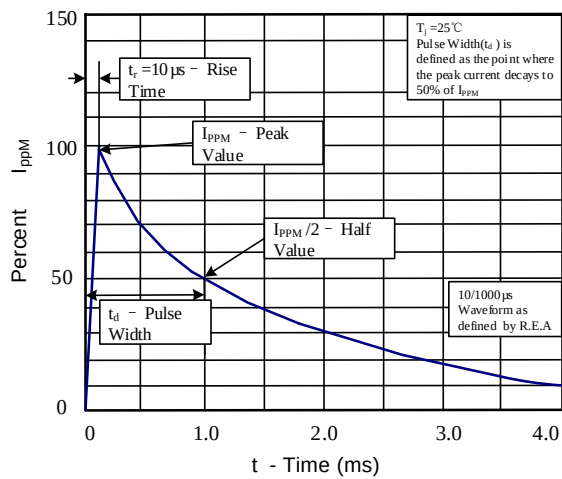
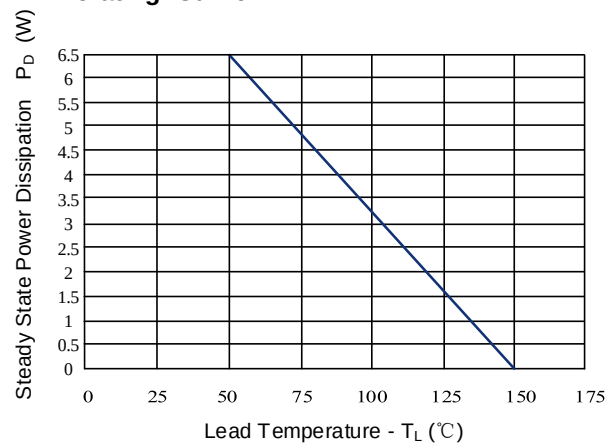
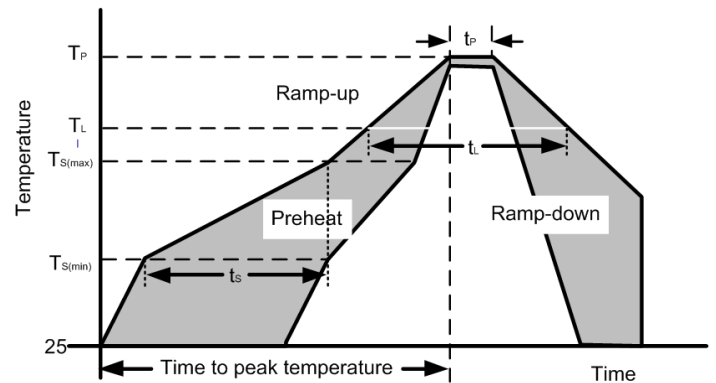


Figure 4: Steady State Power Dissipation Derating Curve



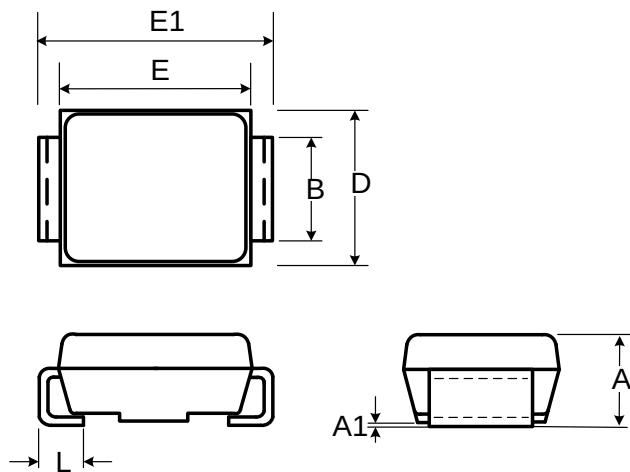
Soldering Parameters

Reflow Condition		
Pre Heat	Temperature min ($T_{S(min)}$)	150°C
	Temperature max ($T_{S(max)}$)	200°C
	Time (min to max) (t_s)	60-190 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

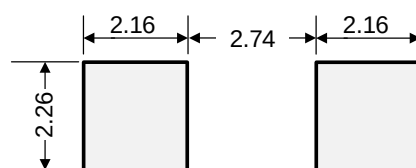


Outline Drawing – SMB(DO-214AA)

Ref. (mm)	Millimeters	
	Min.	Max.
A	2.130	2.600
A1	-	0.300
B	1.900	2.200
E	4.100	4.750
E1	5.210	5.590
D	3.300	3.940
L	0.760	1.520

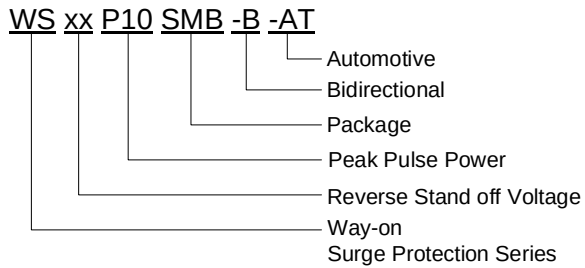


Recommended Solder Pad Layout

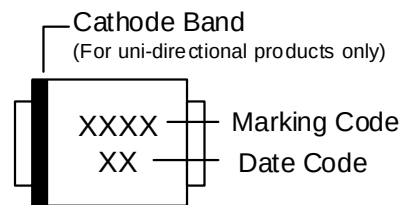


Dimensions in mm

Part Numbering System



Part Marking System



Package Information

Package Type	Description	Quantity (pcs)	Standard
SMB(DO-214AA)	Tape & Reel -12mm/13" tape	3000	EIA-481-D

Contact Information

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For additional information, please contact your local Sales Representative.

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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.