

TPSMB-EVR Series

Surface Mount – 600 W



Agency Approvals

Agency	Agency File Number
	E230531

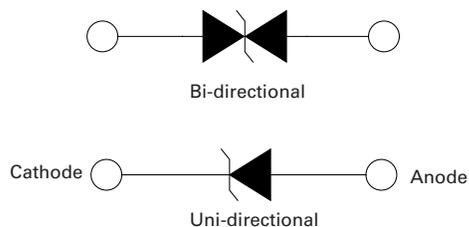
Maximum Ratings and Thermal Characteristics ($T_A=25\text{ }^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with 10/1000 μs exponential pulse	P_{PPM}	600	W
Peak Forward Surge Current 8.3 ms. (Jedec Method) (Note 1) (Note 2)	I_{FSM}	100	A
Max. Forward Voltage Drop at $I_F = 50\text{ A}$ (Note 1)	V_F	3.5	V
Operating Junction Temperature Range	$V_{BR} \leq 43\text{ V}$	-65 to 175	$^\circ\text{C}$
	$V_{BR} > 43\text{ V}$	-65 to 150	
Storage Temperature Range	T_{STG}	-65 to 175	$^\circ\text{C}$

Notes:

1. Only for Unidirectional
2. Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal

Functional Diagram



Description

Littelfuse TPSMB-EVR Series of Transient Voltage Suppression (TVS) Diodes can provide secondary transient voltage protection from transients induced by load dump and other transient voltage events for sensitive electronics. The TPSMB-EVR Series offers superior electrical performance in a small footprint DO-214AA package, allowing designers to upgrade their circuit protection without altering their existing design footprint or provide more robust protection in new circuit layouts.

Features

- AEC-Q101 qualified
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 $^\circ\text{C}$
- Meets ESD HBM: 8 kV and M4 machine model: 400 V
- Low profile package
- Ideal for automated placement
- 600 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Available in uni-directional and bi-directional
- Solder dip 260 $^\circ\text{C}$, 10s
- Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC

Applications

Used in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for industrial, automotive and telecommunication.

Physical Specifications

Weight	0.0082 grams
Case	DO-214AA (SMB). Epoxy meets UL 94V-0 flammability rating.
Polarity	For unidirectional types color band denotes cathode end. No marking on bidirectional types.
Terminal	Matte tin plated leads, solderable per MIL-STD-750 Method 2026, J-STD-002 and JESD22-B102. Consumer grade, meets JESD 201 class 1A whisker test.

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Electrical Characteristics ($T_A=25\text{ }^\circ\text{C}$ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Marking		Maximum Reverse Leakage Current I_{RM} at V_{RM}		Breakdown Voltage V_{BR} at I_R (V) ⁽¹⁾			Max. Clamping Voltage V_{CL} at I_{PP} max. 1ms. Expo.		Agency Approval 
		Uni	Bi	(μA)	(V)	Min.	Max.	(mA)	(V)	(A)	
TPSMB5.0A-EVR	TPSMB5.0CA-EVR	JF	OK	800	5.0	6.40	7.07	10	9.20	65.20	-
TPSMB6.0A-EVR	TPSMB6.0CA-EVR	JK	OL	800	6.0	6.67	7.37	10	10.30	58.30	-
TPSMB6.5A-EVR	TPSMB6.5CA-EVR	JL	OM	500	6.5	7.22	7.98	10	11.20	53.60	X
TPSMB7.0A-EVR	TPSMB7.0CA-EVR	C1	E1	200	7.0	7.78	8.60	10	12.00	50.00	X
TPSMB7.5A-EVR	TPSMB7.5CA-EVR	C2	E2	100	7.5	8.33	9.21	1	12.90	46.50	X
TPSMB8.0A-EVR	TPSMB8.0CA-EVR	C3	E3	50	8.0	8.89	9.83	1	13.60	44.10	X
TPSMB8.5A-EVR	TPSMB8.5CA-EVR	JM	ON	20	8.5	9.44	10.40	1	14.40	41.70	X
TPSMB9.0A-EVR	TPSMB9.0CA-EVR	C4	E4	5	9.0	10.00	11.10	1	15.40	39.00	X
TPSMB10A-EVR	TPSMB10CA-EVR	JN	OO	5	10	11.10	12.30	1	17.00	35.30	X
TPSMB11A-EVR	TPSMB11CA-EVR	C5	E5	5	11	12.20	13.50	1	18.20	33.00	X
TPSMB12A-EVR	TPSMB12CA-EVR	JO	OP	5	12	13.30	14.70	1	19.90	30.20	X
TPSMB13A-EVR	TPSMB13CA-EVR	JP	OR	1	13	14.40	15.90	1	21.50	27.90	X
TPSMB14A-EVR	TPSMB14CA-EVR	C6	E6	1	14	15.60	17.20	1	23.20	25.90	X
TPSMB15A-EVR	TPSMB15CA-EVR	JR	OS	1	15	16.70	18.50	1	24.40	24.60	X
TPSMB16A-EVR	TPSMB16CA-EVR	C7	E7	1	16	17.80	19.70	1	26.00	23.10	X
TPSMB17A-EVR	TPSMB17CA-EVR	C8	E8	1	17	18.90	20.90	1	27.60	21.70	X
TPSMB18A-EVR	TPSMB18CA-EVR	JS	OT	1	18	20.00	22.10	1	29.20	20.50	X
TPSMB20A-EVR	TPSMB20CA-EVR	JT	OU	1	20	22.20	24.50	1	32.40	18.50	X
TPSMB22A-EVR	TPSMB22CA-EVR	JU	OV	1	22	24.40	26.90	1	35.50	16.90	X
TPSMB24A-EVR	TPSMB24CA-EVR	JV	OW	1	24	26.70	29.50	1	38.90	15.40	X
TPSMB26A-EVR	TPSMB26CA-EVR	JW	OX	1	26	28.90	31.90	1	42.10	14.30	X
TPSMB28A-EVR	TPSMB28CA-EVR	JX	OY	1	28	31.10	34.40	1	45.40	13.20	X
TPSMB30A-EVR	TPSMB30CA-EVR	JY	OZ	1	30	33.30	36.80	1	48.40	12.40	X
TPSMB33A-EVR	TPSMB33CA-EVR	JZ	UL	1	33	36.70	40.60	1	53.30	11.30	X
TPSMB36A-EVR	TPSMB36CA-EVR	KA	UM	1	36	40.00	44.20	1	58.10	10.30	X
TPSMB40A-EVR	TPSMB40CA-EVR	KB	UN	1	40	44.40	49.10	1	64.50	9.30	X
TPSMB43A-EVR	TPSMB43CA-EVR	KC	UO	1	43	47.80	52.80	1	69.40	8.60	X
TPSMB48A-EVR	TPSMB48CA-EVR	OA	UP	1	48	53.30	58.90	1	77.40	7.80	X
TPSMB51A-EVR	TPSMB51CA-EVR	OB	UR	1	51	56.70	62.70	1	82.40	7.30	X
TPSMB54A-EVR	TPSMB54CA-EVR	C9	E9	1	54	60.00	66.30	1	87.10	6.90	X
TPSMB58A-EVR	TPSMB58CA-EVR	OC	US	1	58	64.40	71.20	1	93.60	6.40	X
TPSMB60A-EVR	TPSMB60CA-EVR	D1	F1	1	60	66.70	73.70	1	96.80	6.20	X
TPSMB64A-EVR	TPSMB64CA-EVR	D2	F2	1	64	71.10	78.60	1	103.00	5.80	X
TPSMB70A-EVR	TPSMB70CA-EVR	OD	UT	1	70	77.80	86.00	1	113.00	5.30	X
TPSMB75A-EVR	TPSMB75CA-EVR	D3	F3	1	75	83.30	92.10	1	121.00	5.00	X
TPSMB78A-EVR	TPSMB78CA-EVR	D4	F4	1	78	86.70	95.80	1	126.00	4.80	X
TPSMB85A-EVR	TPSMB85CA-EVR	OE	UU	1	85	94.40	104.00	1	137.00	4.40	X
TPSMB90A-EVR	TPSMB90CA-EVR	D5	F5	1	90	100.00	111.00	1	146.00	4.10	X
TPSMB100A-EVR	TPSMB100CA-EVR	OF	UV	1	100	111.00	123.00	1	162.00	3.70	X
TPSMB110A-EVR	TPSMB110CA-EVR	D6	F6	1	110	122.00	135.00	1	177.00	3.40	X
TPSMB120A-EVR	TPSMB120CA-EVR	D7	F7	1	120	133.00	147.00	1	193.00	3.10	X
TPSMB130A-EVR	TPSMB130CA-EVR	OG	UW	1	130	144.00	159.00	1	209.00	2.90	X
TPSMB150A-EVR	TPSMB150CA-EVR	D8	F8	1	150	167.00	185.00	1	243.00	2.50	X
TPSMB154A-EVR	TPSMB154CA-EVR	OH	UX	1	154	171.00	189.00	1	246.00	2.40	X
TPSMB160A-EVR	TPSMB160CA-EVR	D9	F9	1	160	178.00	197.00	1	259.00	2.30	X
TPSMB170A-EVR	TPSMB170CA-EVR	OI	UY	1	170	189.00	209.00	1	275.00	2.20	X
TPSMB188A-EVR	TPSMB188CA-EVR	OJ	UZ	1	188	209.00	231.00	1	328.00	2.00	X

Notes:

1. Pulses test: $t_p \leq 50\text{ ms}$, $\delta < 2\%$
2. For bi-directional types having V_{WM} of 10 V and less, the I_b limit is doubled

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Ratings and Characteristic Curves ($T_A=25\text{ }^\circ\text{C}$ unless otherwise noted)

Figure 1 - Pulse Waveform

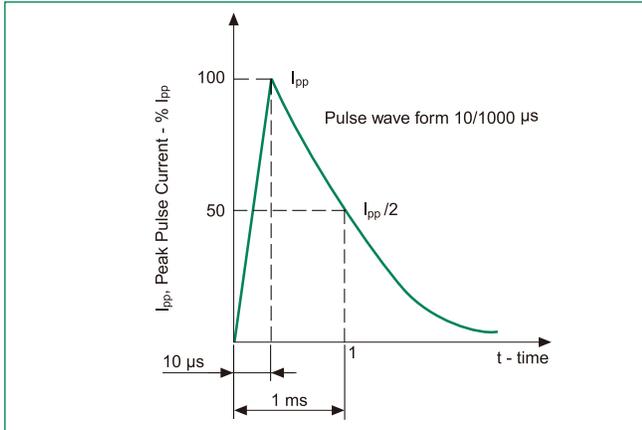


Figure 2 - Pulse Power or Current vs. Initial Junction Temperature

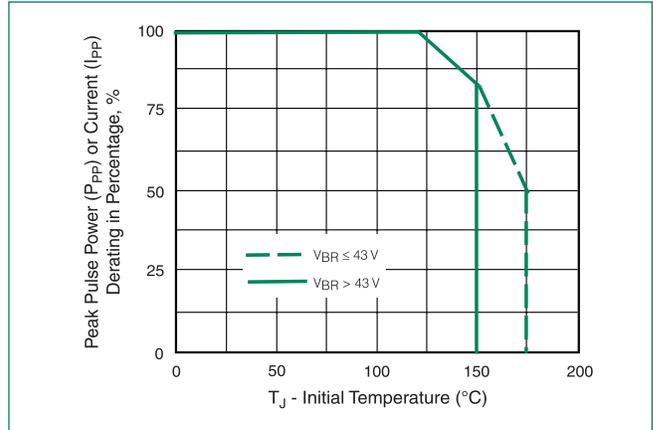
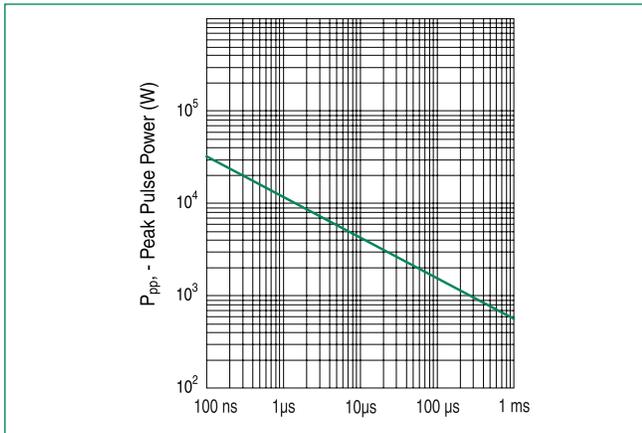
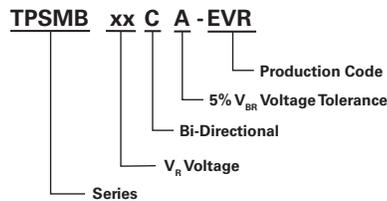


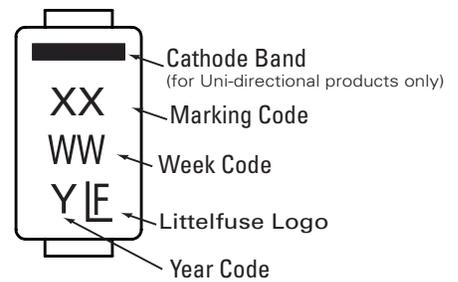
Figure 3 - Peak Pulse Power Rating Curve



Part Numbering System



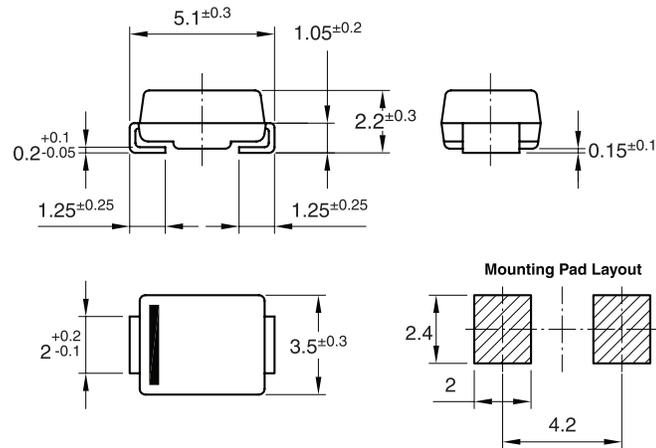
Part Marking System



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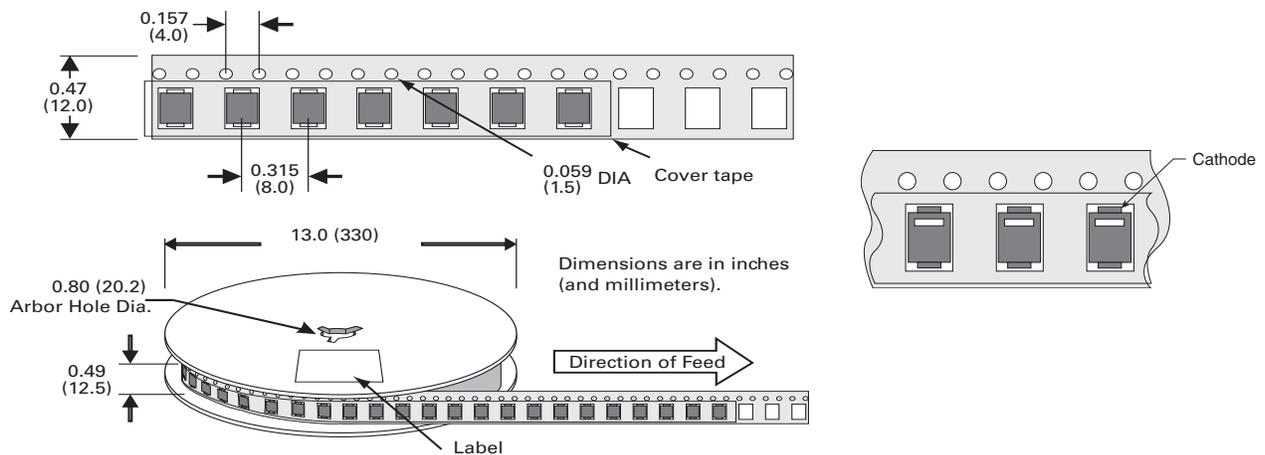
Dimensions - DO-214AA Package



Packaging Options

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
TPSMBxxXX-EVR	DO-214AA	3200	13" diameter tape and reel	EIA RS-481

Tape and Reel Specification



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