COMPLIANT HALOGEN

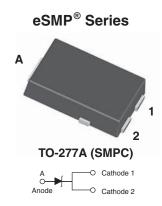
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Vishay General Semiconductor

Surface Mount PAR® Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions

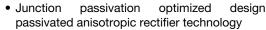


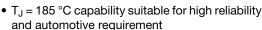
PRIMARY CHARACTERISTICS				
V _{WM}	5.50 V to 43.6 V			
V _{BR}	6.8 V to 51 V			
P _{PPM}	1500 W			
T _J max.	185 °C			
Polarity	Uni-directional			
Package	TO-277A (SMPC)			

TYPICAL APPLICATIONS

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

FEATURES







- Ideal for automated placement
- Uni-direction only
- Excellent clamping capability
- Low incremental surge resistance
- · Very fast response time
- Meets MSL level 1, per J-STD-020
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

MECHANICAL DATA

Case: TO-277A (SMPC)

Molding compound meets UL 94 V-0 flammability rating Base P/NHM3 - halogen-free, RoHS-compliant, and automotive grade

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS (T _A = 25 °C, unless otherwise noted)						
PARAMETER	SYMBOL	VALUE	UNIT			
Peak power dissipation with a 10/1000 µs waveform (fig. 3) (1)(2)	P _{PPM}	1500	W			
Peak power pulse current with a 10/1000 μs waveform (fig. 1) (1)	I _{PPM}	See next table	Α			
Peak forward surge current 8.3 ms single half sine-wave (2)	I _{FSM}	200	А			
Maximum instantaneous forward voltage at 100 A (3)	V _F	3.5	V			
Operating junction and storage temperature range	T _J , T _{STG}	-65 to +185	°C			

Notes

- $^{(1)}$ Non-repetitive current pulse, per fig. 3 and derated above T_A = 25 °C per fig. 2
- (2) Measured on 8.3 ms single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minute maximum
- (3) Pulse test: 300 µs pulse width, 1 % duty cycle



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DEVICE DESCRIPTION TEST STAND-OFF REVERSE RE	XIMUM	MAXIMUM	
TYPE MARKING CODE VOLTAGE VWM (V) LE (WA) TJ:	AKAGE T V _{WM} = 150 °C	PEAK PULSE SURGE CURRENT	MAXIMUM CLAMPING VOLTAGE AT I _{PPM} V _C (V)
MIN. MAX.	_D (μ A)	I _{PPM} ⁽²⁾ (A)	
	10 000	139	10.8
TPC6.8A DEP 6.45 7.14 10 5.80 1500 1	10 000	143	10.5
TPC7.5 DFP 6.75 8.25 10 6.05 500	5000	128	11.7
TPC7.5A DGP 7.13 7.88 10 6.40 500	5000	133	11.3
TPC8.2 DHP 7.38 9.02 10 6.63 200	2000	120	12.5
TPC8.2A DKP 7.79 8.61 10 7.02 200	2000	124	12.1
TPC9.1 DLP 8.19 10.0 1.0 7.37 50	500	109	13.8
TPC9.1A DMP 8.65 9.55 1.0 7.78 50	500	112	13.4
TPC10 DNP 9.0 11.0 1.0 8.10 20	200	100	15.0
TPC10A DPP 9.5 10.5 1.0 8.55 20	200	103	14.5
TPC11 DQP 9.9 12.1 1.0 8.92 5.0	50	92.6	16.2
TPC11A DRP 10.5 11.6 1.0 9.40 5.0	50	96.2	15.6
TPC12 DSP 10.8 13.2 1.0 9.72 2.0	10	86.7	17.3
TPC12A DTP 11.4 12.6 1.0 10.2 2.0	10	89.8	16.7
TPC13 DUP 11.7 14.3 1.0 10.5 2.0	10	78.9	19.0
TPC13A DVP 12.4 13.7 1.0 11.1 2.0	10	82.4	18.2
TPC15 DWP 13.5 16.5 1.0 12.1 1.0	10	68.2	22.0
TPC15A DXP 14.3 15.8 1.0 12.8 1.0	10	70.8	21.2
TPC16 DYP 14.4 17.6 1.0 12.9 1.0	10	63.8	23.5
TPC16A DZP 15.2 16.8 1.0 13.6 1.0	10	66.7	22.5
TPC18 EDP 16.2 19.8 1.0 14.5 1.0	10	56.6	26.5
TPC18A EEP 17.1 18.9 1.0 15.3 1.0	10	59.5	25.2
TPC20 EFP 18.0 22.0 1.0 16.2 1.0	10	51.5	29.1
TPC20A EGP 19.0 21.0 1.0 17.1 1.0	10	54.2	27.7
TPC22 EHP 19.8 24.2 1.0 17.8 1.0	10	47.0	31.9
TPC22A EKP 20.9 23.1 1.0 18.8 1.0	10	49.0	30.6
TPC24 ELP 21.6 26.4 1.0 19.4 1.0	10	43.2	34.7
TPC24A EMP 22.8 25.2 1.0 20.5 1.0	10	45.2	33.2
TPC27 ENP 24.3 29.7 1.0 21.8 1.0	10	38.4	39.1
TPC27A EPP 25.7 28.4 1.0 23.1 1.0	10	40.0	37.5
TPC30 EQP 27.0 33.0 1.0 24.3 1.0	10	34.5	43.5
TPC30A ERP 28.5 31.5 1.0 25.6 1.0	10	36.2	41.4
TPC33 ESP 29.7 36.3 1.0 26.8 1.0	10	31.4	47.7
TPC33A ETP 31.4 34.7 1.0 28.2 1.0	10	32.8	45.7
TPC36 EUP 32.4 39.6 1.0 29.1 1.0	15	28.8	52.0
TPC36A EVP 34.2 37.8 1.0 30.8 1.0	15	30.1	49.9
TPC39 EWP 35.1 42.9 1.0 31.6 1.0	15	26.6	56.4
TPC39A EXP 37.1 41.0 1.0 33.3 1.0	15	27.8	53.9
TPC43 EYP 38.7 47.3 1.0 34.8 1.0	20	24.2	61.9
TPC43A EZP 40.9 45.2 1.0 36.8 1.0	20	25.3	59.3
TPC47A FEP 44.7 49.4 1.0 40.2 1.0	20	23.1	64.8
TPC51A FGP 48.5 53.6 1.0 43.6 1.0	20	21.4	70.1

Notes

 $^{^{(1)}}$ V_{BR} measured after I_T applied for 300 μs , I_T = square wave pulse or equivalent

⁽²⁾ Surge current waveform per fig. 3 and derated per fig. 2

⁽³⁾ All terms and symbols are consistent with ANSI/IEEE C62.35



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ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TPC10AHM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel		
TPC10AHM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel		

Note

(1) Automotive grade

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C, unless otherwise noted)

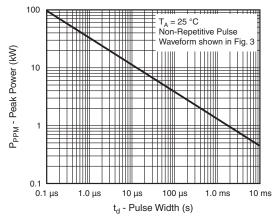


Fig. 1 - Peak Pulse Power Rating Curve

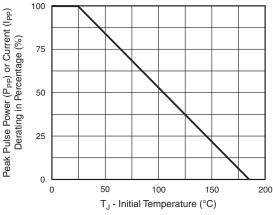


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

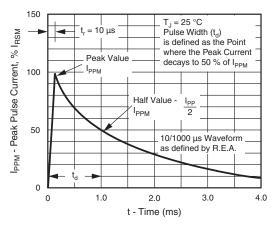


Fig. 3 - Pulse Waveform

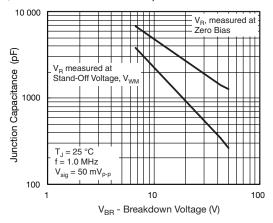


Fig. 4 - Typical Junction Capacitance

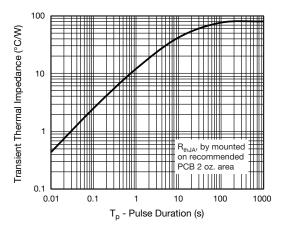
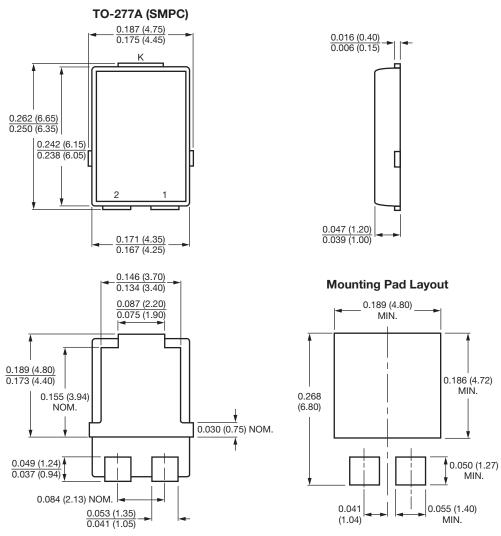


Fig. 5 - Typical Transient Thermal Impedance



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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