

Surface Mount TRANSZORB® Transient Voltage Suppressors

eSMP™ Series



DO-220AA (SMP)

PRIMARY CHARACTERISTICS	
V_{WM}	11 V to 36 V
P_{PPM}	400 W
I_{FSM}	40 A
T_J max.	150 °C

FEATURES

- Very low profile - typical height of 1.0 mm
- Ideal for automated placement
- Available in uni-directional
- 400 W peak pulse power capability with a 10/1000 μ s waveform
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020C
- Solder dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



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.

MECHANICAL DATA

Case: DO-220AA (SMP)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: Color band denotes cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 μ s waveform ⁽¹⁾⁽²⁾ (Fig. 1)	P_{PPM}	400	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PPM}	See table next page	A
Peak forward surge current 10 ms single half sine-wave ⁽²⁾	I_{FSM}	40	A
Maximum instantaneous forward voltage at 25 A ⁽³⁾	V_F	2.5	V
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150	°C

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25$ °C per Fig. 2

(2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

(3) Pulse test: 300 μ s pulse width, 1 % duty cycle



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
DEVICE TYPE	DEVICE MARKING CODE	BREAKDOWN VOLTAGE V_{BR} AT I_T ⁽¹⁾ (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μA) ⁽³⁾	MAXIMUM PEAK PULSE SURGE CURRENT I_{PPM} (A) ⁽²⁾	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)
		MIN	MAX					
SMP11	AY	12.2	14.9	1.0	11	1.0	19.9	20.1
SMP11A	AZ	12.2	13.5	1.0	11	1.0	22.0	18.2
SMP12	BD	13.3	16.3	1.0	12	1.0	18.2	22.0
SMP12A	BE	13.3	14.7	1.0	12	1.0	20.1	19.9
SMP13	BF	14.4	17.6	1.0	13	1.0	16.8	23.8
SMP13A	BG	14.4	15.9	1.0	13	1.0	18.6	21.5
SMP14	BH	15.6	19.1	1.0	14	1.0	15.5	25.8
SMP14A	BK	15.6	17.2	1.0	14	1.0	17.2	23.2
SMP15	BL	16.7	20.4	1.0	15	1.0	14.9	26.9
SMP15A	BM	16.7	18.5	1.0	15	1.0	16.4	24.4
SMP16	BN	17.8	21.8	1.0	16	1.0	13.9	28.8
SMP16A	BP	17.8	19.7	1.0	16	1.0	15.4	26.0
SMP17	BQ	18.9	23.1	1.0	17	1.0	13.1	30.5
SMP17A	BR	18.9	20.9	1.0	17	1.0	14.5	27.6
SMP18	BS	20.0	24.4	1.0	18	1.0	12.4	32.2
SMP18A	BT	20.0	22.1	1.0	18	1.0	13.7	29.2
SMP20	BU	22.2	27.1	1.0	20	1.0	11.2	35.8
SMP20A	BV	22.2	24.5	1.0	20	1.0	12.3	32.4
SMP22	BW	24.4	29.8	1.0	22	1.0	10.2	39.4
SMP22A	BX	24.4	26.9	1.0	22	1.0	11.3	35.5
SMP24	BY	26.7	32.6	1.0	24	1.0	9.3	43.0
SMP24A	BZ	26.7	29.5	1.0	24	1.0	10.3	38.9
SMP26	CD	28.9	35.3	1.0	26	1.0	8.6	46.6
SMP26A	CE	28.9	31.9	1.0	26	1.0	9.5	42.1
SMP28	CF	31.1	38.0	1.0	28	1.0	8.0	50.0
SMP28A	CG	31.1	34.4	1.0	28	1.0	8.8	45.4
SMP30	CH	33.3	40.7	1.0	30	1.0	7.5	53.5
SMP30A	CK	33.3	36.8	1.0	30	1.0	8.3	48.4
SMP33	CL	36.7	44.9	1.0	33	1.0	6.8	59.0
SMP33A	CM	36.7	40.6	1.0	33	1.0	7.5	53.3
SMP36	CN	40.0	48.9	1.0	36	1.0	6.2	64.3
SMP36A	CP	40.0	44.2	1.0	36	1.0	6.9	58.1

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 derate per Fig. 2
(3) All terms and symbols are consistent with ANSI/IEEE C62.35

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SMP11A-E3/84A	0.024	84A	3000	7" diameter plastic tape and reel
SMP11A-E3/85A	0.024	85A	10000	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

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

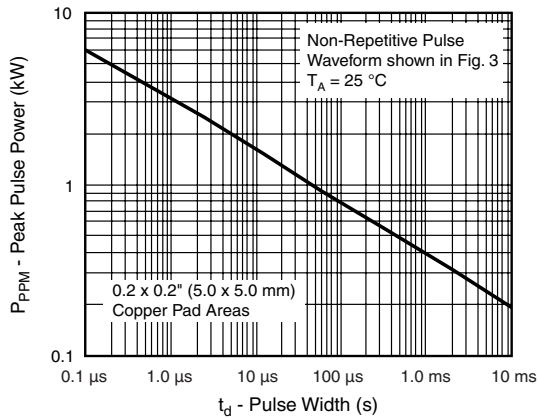


Figure 1. Peak Pulse Power Rating Curve

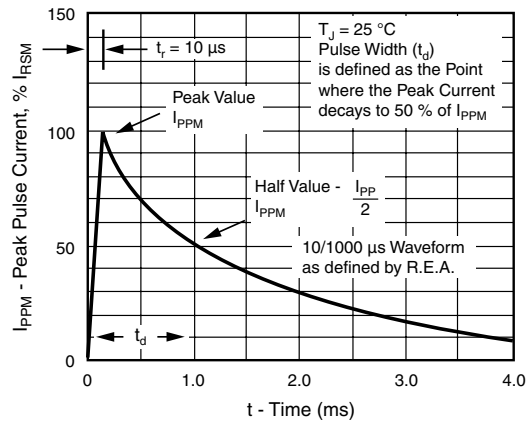


Figure 3. Pulse Waveform

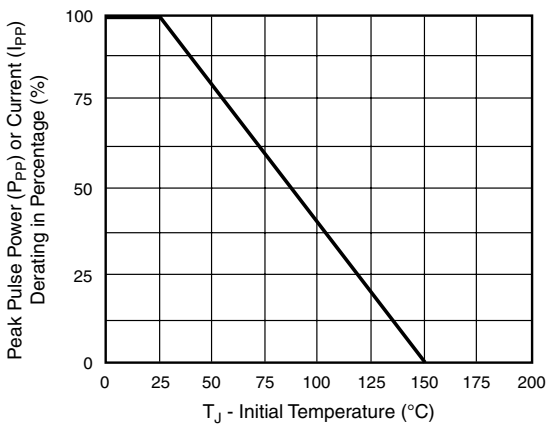


Figure 2. Pulse Derating Curve

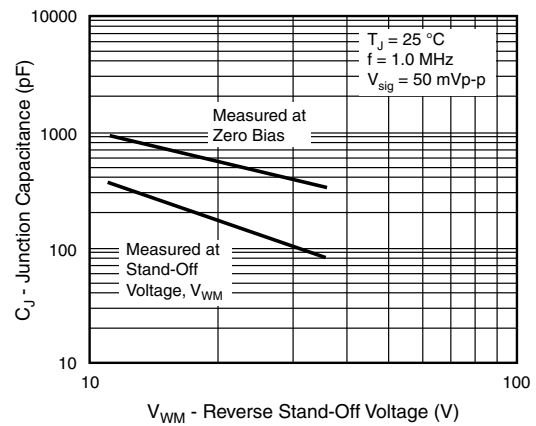
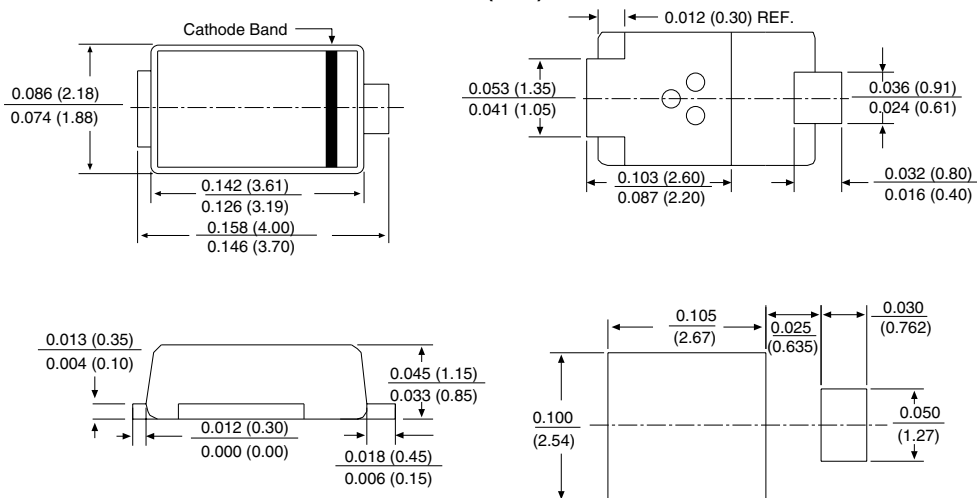


Figure 4. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-220AA (SMP)





Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.