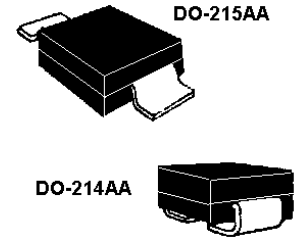


DESCRIPTION

This AVSMBJ5.0A-170A or AVSMBG5.0A-170A series of surface mount 600 W Transient Voltage Suppressors (TVSs) protects a variety of voltage-sensitive components from destruction or degradation. It is available in J-bend design (AVSMBJ) with the DO-214AA package for greater PC board mounting density or in a Gull-wing design (AVSMBG) in the DO-215AA for visible solder connections. It is available in both unidirectional and bidirectional configurations with an A or CA suffix part number as well as RoHS Compliant designated by an "e3" suffix. Their clamping response time is virtually instantaneous. As a result, they can be used for protection from ESD or EFT per IEC61000-4-2 and IEC61000-4-4, or for inductive switching environments and induced RF protection. They can also protect from secondary lightning effects per IEC61000-4-5 and class levels defined herein. Microsemi also offers numerous other TVS products to meet higher and lower power demands and special applications.

IMPORTANT: For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

PACKAGE



FEATURES

- Selections for 5.0 to 170 volts standoff voltages (V_{WM})
- **100% screened as follows for avionics applications:**
 1. Temperature Cycle (thermal shock) 20 Cycles -55°C to 125°C
 2. Solder Capability: Stress Tested at 260°C for 10 sec.
 3. Surge 1 pulse at 110% Ipp (Both Directions for Bidirectional)
 4. Surge 1 pulse at 100% Ipp (Both Directions for Bidirectional)
 5. Electrical Test
 6. Burn-in (HTRB) 48 hrs 125°C Polarity A for Bidirectional (96 hrs for Unidirectional)
 7. Electrical Test Delta I_D and $V_{(BR)}$ Polarity A
 8. Burn-in (HTRB) 48 hrs 125°C Polarity B for bidirectional (not required for Unidirectional)
 9. Electrical Test Delta I_D and $V_{(BR)}$ Polarity B (Not required for Unidirectional)
 10. Electrical Test GO-NO-GO
- RoHS Compliant devices available and designated by adding an "e3" suffix
- Economical surface mount design in both J-bend or Gull-wing terminations.
- Protects sensitive components such as IC's, CMOS, Bipolar, BiCMOS, ECL, DTL, T²L, etc.
- Protection from switching transients & induced RF

APPLICATIONS / BENEFITS

- Compliant to IEC61000-4-2 and IEC61000-4-4 for ESD and EFT protection respectively
- Secondary lightning protection per IEC61000-4-5 with 42 Ohms source impedance:
 - Class 1: AVSMB 5.0 to AVSMB 120A or CA
 - Class 2: AVSMB 5.0 to AVSMB 60A or CA
 - Class 3: AVSMB 5.0 to AVSMB 30A or CA
 - Class 4: AVSMB 5.0 to AVSMB 15A or CA
- Secondary lightning protection per IEC61000-4-5 with 12 Ohms source impedance:
 - Class 1: AVSMB 5.0 to AVSMB 36A or CA
 - Class 2: AVSMB 5.0 to AVSMB 18A or CA
- Compliant to RTCA/DO-160E Waveform 4, Levels 1 & 2
- Compliant to RTCA/DO-160E Waveform 4, Level 3 for AVSMB5.0 to AVSMB20A or CA
- Compliant to RTCA/DO-160E Waveform 4, Level 4 for AVSMB5.0 to AVSMB7.5
- Compliant to RTCA/DO-160E Waveform 5A, Level 1
- Compliant to RTCA/DO-160E Waveform 5A, Level 2 for AVSMB5.0 to AVSMB6.0A or CA

MAXIMUM RATINGS

- Peak Pulse Power dissipation at 25°C: 600 watts at 10/1000 μ s (also see Fig 1,2, and 3)
- Impulse repetition rate (duty factor): 0.01%
- $t_{clamping}$ (0 volts to $V_{(BR)}$ min.): < 100 ps theoretical for unidirectional and < 5 ns for bidirectional
- Operating and Storage temperature: -65°C to +150°C
- Thermal resistance: 25°C/W junction to lead or 90°C/W junction to ambient when mounted on FR4 PC board (1oz Cu) with recommended footprint (see last page)
- Steady-State Power dissipation: 5 watts at $T_L = 25^\circ\text{C}$, or 1.38 watts at $T_A = 25^\circ\text{C}$ when mounted on FR4 PC board with recommended footprint
- Forward Surge at 25°C: 100 amps peak impulse of 8.3 ms half-sine wave (unidirectional only)
- Solder temperatures: 260°C for 10 s (maximum)

MECHANICAL AND PACKAGING

- 2-Stage: Robust, High Reliability Lead Frame
- CASE: Void-free transfer molded thermosetting epoxy body meeting UL94V-0
- TERMINALS: Gull-wing or C-bend (modified J-bend) leads Tin-Lead or RoHS compliant annealed matte-Tin plating solderable per MIL-STD-750, method 2026
- POLARITY: Cathode indicated by band. No band on bi-directional devices.
- MARKING: See Page 2 marking column.
- TAPE & REEL option: Standard per EIA-481-1-A with 12 mm tape, 750 per 7 inch reel or 2500 per 13 inch reel.
- WEIGHT: 0.1 grams
- See package dimension on last page



AVSMBJ5.0A thru AVSMBJ170A, CA e3 and
AVSMBG5.0A thru AVSMBG170A, CA, e3

**SURFACE MOUNT 600 Watt
Transient Voltage Suppressor**

ELECTRICAL CHARACTERISTICS @ 25°C UNLESS OTHERWISE SPECIFIED

MICROSEMI PART NUMBER			REVERSE STANDOFF VOLTAGE V_{WM}	BREAKDOWN VOLTAGE V_{BR} @ $I_{(BR)}$		MAXIMUM CLAMPING VOLTAGE @ I_{PP}	PEAK PULSE CURRENT (See Fig. 2) I_{PP}	MAXIMUM STANDBY CURRENT I_D @ V_{WM}
Gull-Wing Lead	Modified "J" Bend Lead	Marking	Volts	Volts		Volts	Amps	μA
				MIN.	$I_{(BR)}$ mA			
AVSMBG5.0A	AVSMBJ5.0A	AV5.0A	5.0	6.40	10	9.2	65.2	100
AVSMBG6.0A	AVSMBJ6.0A	AV6.0A	6.0	6.67	10	10.3	58.3	500
AVSMBG7.5A	AVSMBJ7.5A	AV7.5A	7.5	8.33	1	12.9	46.5	100
AVSMBG10A	AVSMBJ10A	AV10A	10	11.1	1	17.0	35.3	1
AVSMBG11A	AVSMBJ11A	AV11A	11	12.2	1	18.2	33.0	.5
AVSMBG12A	AVSMBJ12A	AV12A	12	13.3	1	19.9	30.2	.5
AVSMBG16A	AVSMBJ16A	AV16A	16	17.8	1	26.0	23.1	.5
AVSMBG17A	AVSMBJ17A	AV17A	17	18.9	1	27.6	21.7	.5
AVSMBG20A	AVSMBJ20A	AV20A	20	22.2	1	32.4	18.5	.5
AVSMBG43A	AVSMBJ43A	AV43A	43	47.8	1	69.4	8.6	.5
AVSMBG45A	AVSMBJ45A	AV45A	45	50.0	1	72.7	8.3	.5
AVSMBG48A	AVSMBJ48A	AV48A	48	53.3	1	77.4	7.7	.5
AVSMBG170A	AVSMBJ170A	AV170A	170	189	1	275	2.2	.5

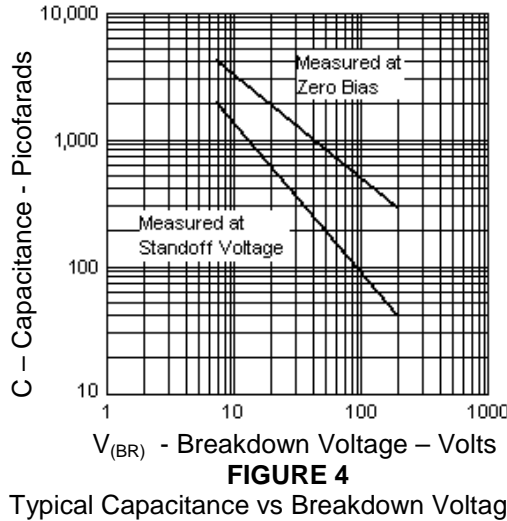
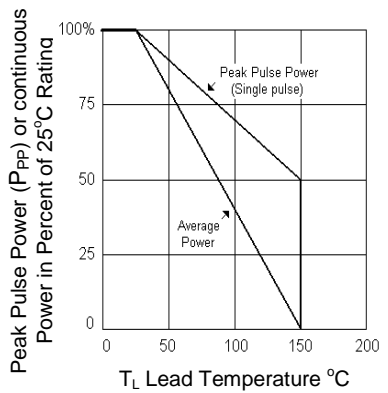
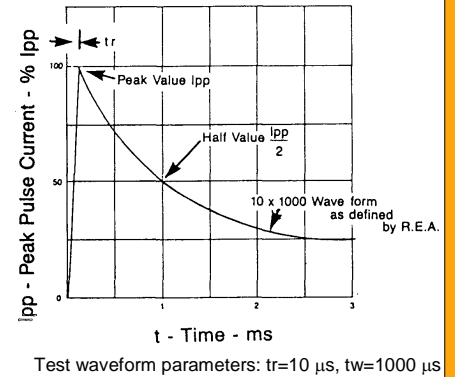
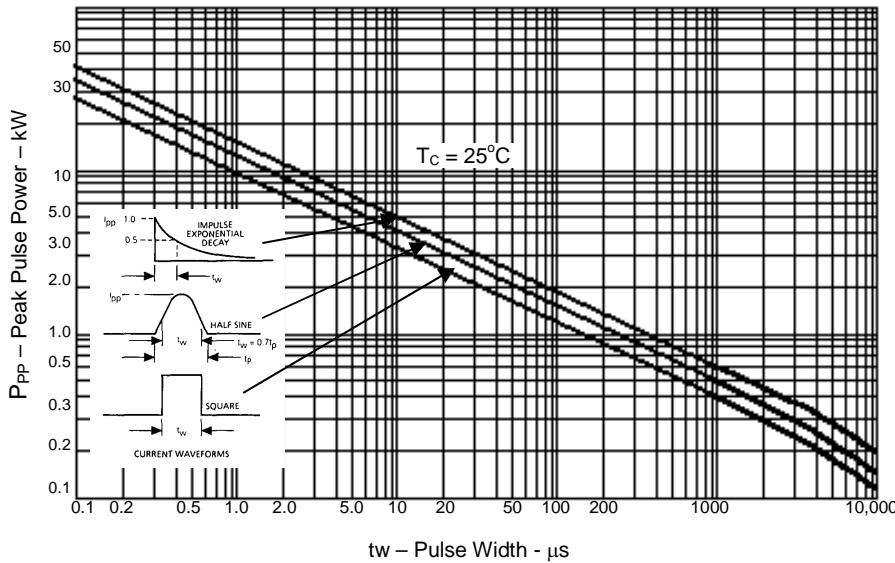
"FOR OTHER VOLTAGES CONTACT THE FACTORY"

- Bidirectional device types are indicated by a CA suffix after the part number. (e.g.: AVSMBG170CA).
- Bidirectional capacitance is half that shown in figure 4 at zero volts.
- Microsemi Corp's AVSMB series (600 W) surface mountable packages are designed specifically for transient voltage suppression. The wide leads assure a large surface contact for good heat dissipation, and a low resistance path for surge current flow to ground. These high speed transient voltage suppressors can be used to effectively protect sensitive components such as integrated circuits and MOS devices.

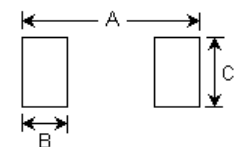
SYMBOLS & DEFINITIONS

Symbol	Definition	Symbol	Definition
V_{WM}	Working Peak (Standoff) Voltage	I_{PP}	Peak Pulse Current
P_{PP}	Peak Pulse Power	V_C	Clamping Voltage
$V_{(BR)}$	Breakdown Voltage	$I_{(BR)}$	Breakdown Current for $V_{(BR)}$
I_D	Standby Current		

GRAPHS



PAD LAYOUT



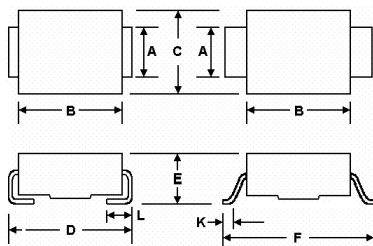
SMBJ

	INCHES	mm
A	.260	6.60
B	.085	2.16
C	.110	2.79

SMBG

	INCHES	mm
A	0.320	8.13
B	0.085	2.16
C	0.110	2.79

PACKAGE DIMENSIONS



	A	B	C	D	E	F	K	L
MIN	.077	.160	.130	.205	.077	.235	.015	.030
MAX	.083	.180	.155	.220	.104	.255	.030	.060
DIMENSIONS IN MILLIMETERS								
MIN	1.96	4.06	3.30	5.21	1.95	5.97	.381	.760
MAX	2.10	4.57	3.94	5.59	2.65	6.48	.762	1.520