T-11-23

Microsemi Corp.
The diode experts

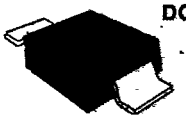
SANTA ANA, CA

SCOTTSDALE, AZ
For more information call:
(602) 941-6300

SMS SERIES
5.0 thru 170.0 Volts
600 WATTS

UNI- and BI-DIRECTIONAL SURFACE MOUNT

DO-215AA



DO-214AA

See Page 323 for Package Dimensions.

FEATURES

- LOW PROFILE PACKAGE FOR SURFACE MOUNTING
- VOLTAGE RANGE: 5.0 TO 170 VOLTS
- 600 WATTS PEAK POWER
- UNIDIRECTIONAL AND BIDIRECTIONAL
- LOW INDUCTANCE

This series of TAZ (transient absorption zeners), available in small outline surface mountable packages, is designed to optimize board space. Packaged for use with surface mount technology automated assembly equipment, these parts can be placed on printed circuit boards and ceramic substrates to protect sensitive components from transient voltage damage.

The SMS series, rated for 600 watts, during a one millisecond pulse, can be used to protect sensitive circuits against transients induced by lightning and inductive load switching. With a response time of 1×10^{-12} seconds (theoretical) they are also effective against electrostatic discharge and NEMP.

MAXIMUM RATINGS

600 watts of Peak Power dissipation (10 x 1000μs)
$t_{clamping}$ (0 volts to $V_{(BR)}$ min): less than 1×10^{-12} seconds (theoretical)
Forward surge rating: 50 Amps, 1/120 sec @ 25°C (Excluding Bidirectional)
Operating and Storage Temperature: -65° to +175°C

NOTE: A TAZ is normally selected according to the reverse "Stand Off Voltage" (V_{RM}) which should be equal to or greater than the DC or continuous peak operating voltage level.

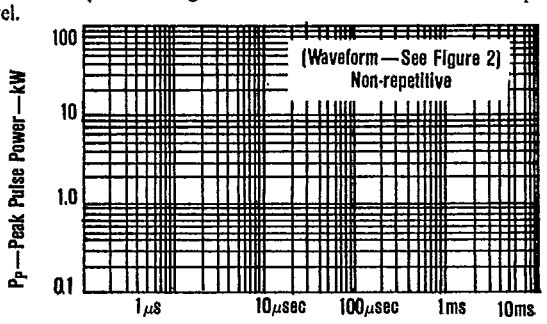


FIGURE 1 PEAK PULSE POWER VS PULSE TIME

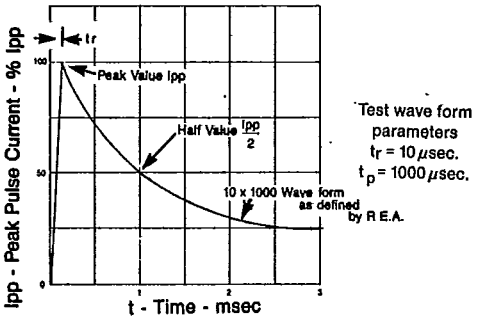


FIGURE 2
PULSE WAVEFORM

MECHANICAL CHARACTERISTICS

CASE: Molded Surface Mountable.

TERMINAL: Gull-wing or Modified J-bend leads, solder dipped.

POLARITY: Cathode indicated by dot. No marking on bidirectional devices.

PACKAGING: Standard 12 mm tape (see EIA Std. RS-481).

THERMAL RESISTANCE: 25°C/W (typical) junction to lead (tab) at mounting plane.

T-11-23

SMS 5.0 thru 170.0 Volts

ELECTRICAL CHARACTERISTICS @ 25°C

MICROSEMI CORP. PART NUMBER		REVERSE STAND-OFF VOLTAGE (See Note)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS			MAXIMUM CLAMPING VOLTAGE	PEAK PULSE CURRENT (See Fig. 2)	MAXIMUM REVERSE LEAKAGE @ V_{WM}
GULL-WING LEAD	MODIFIED "J" BEND LEAD	V_{WM} VOLTS	MIN.	MAX.	I_T mA	@ I_{PP} VOLTS	I_{PP} AMPS	I_D μA
SMSG5.0	SMSJ5.0	5.0	6.40	7.30	10	9.6	62.5	800
SMSG5.0A	SMSJ5.0A	5.0	6.40	7.00	10	9.2	65.2	800
SMSG6.0	SMSJ6.0	6.0	6.67	8.15	10	11.4	52.6	800
SMSG6.0A	SMSJ6.0A	6.0	6.67	7.37	10	10.3	58.3	800
SMSG6.5	SMSJ6.5	6.5	7.22	8.82	10	12.3	48.7	500
SMSG6.5A	SMSJ6.5A	6.5	7.22	7.98	10	11.2	53.6	500
SMSG7.0	SMSJ7.0	7.0	7.78	9.51	10	13.3	45.1	200
SMSG7.0A	SMSJ7.0A	7.0	7.78	8.60	10	12.0	50.0	200
SMSG7.5	SMSJ7.5	7.5	8.33	10.2	1	14.3	42.0	100
SMSG7.5A	SMSJ7.5A	7.5	8.33	9.21	1	12.9	46.5	100
SMSG8.0	SMSJ8.0	8.0	8.89	10.9	1	15.0	40.0	50
SMSG8.0A	SMSJ8.0A	8.0	8.89	9.83	1	13.6	44.1	50
SMSG8.5	SMSJ8.5	8.5	9.44	11.5	1	15.9	37.7	10
SMSG8.5A	SMSJ8.5A	8.5	9.44	10.4	1	14.4	41.7	10
SMSG9.0	SMSJ9.0	9.0	10.0	12.2	1	16.9	35.5	5
SMSG9.0A	SMSJ9.0A	9.0	10.0	11.1	1	15.4	39.0	5
SMSG10	SMSJ10	10	11.1	13.6	1	18.8	31.9	5
SMSG10A	SMSJ10A	10	11.1	12.3	1	17.0	35.3	5
SMSG11	SMSJ11	11	12.2	14.9	1	20.1	29.9	5
SMSG11A	SMSJ11A	11	12.2	13.5	1	18.2	33.0	5
SMSG12	SMSJ12	12	13.3	16.3	1	22.0	27.3	5
SMSG12A	SMSJ12A	12	13.3	14.7	1	19.9	30.2	5
SMSG13	SMSJ13	13	14.4	17.6	1	23.8	25.2	5
SMSG13A	SMSJ13A	13	14.4	15.9	1	21.5	27.9	5
SMSG14	SMSJ14	14	15.6	19.1	1	25.8	23.3	5
SMSG14A	SMSJ14A	14	15.6	17.2	1	23.2	25.8	5
SMSG15	SMSJ15	15	16.7	20.4	1	26.9	22.3	5
SMSG15A	SMSJ15A	15	16.7	18.5	1	24.4	24.0	5
SMSG16	SMSJ16	16	17.8	21.8	1	28.8	20.8	5
SMSG16A	SMSJ16A	16	17.8	19.7	1	26.0	23.1	5
SMSG17	SMSJ17	17	18.9	23.1	1	30.5	19.7	5
SMSG17A	SMSJ17A	17	18.9	20.9	1	27.6	21.7	5
SMSG18	SMSJ18	18	20.0	24.4	1	32.2	18.6	5
SMSG18A	SMSJ18A	18	20.0	22.1	1	29.2	20.5	5
SMSG20	SMSJ20	20	22.2	27.1	1	35.8	16.7	5
SMSG20A	SMSJ20A	20	22.2	24.5	1	32.4	18.5	5
SMSG22	SMSJ22	22	24.4	29.8	1	39.4	15.2	5
SMSG22A	SMSJ22A	22	24.4	26.9	1	35.5	16.9	5
SMSG24	SMSJ24	24	26.7	32.6	1	43.0	14.0	5
SMSG24A	SMSJ24A	24	26.7	29.5	1	38.9	15.4	5
SMSG26	SMSJ26	26	28.9	35.3	1	46.6	12.4	5
SMSG26A	SMSJ26A	26	28.9	31.9	1	42.1	14.2	5
SMSG28	SMSJ28	28	31.1	38.0	1	50.0	12.0	5
SMSG28A	SMSJ28A	28	31.1	34.4	1	45.4	13.2	5
SMSG30	SMSJ30	30	33.3	40.7	1	53.5	11.2	5
SMSG30A	SMSJ30A	30	33.3	36.8	1	48.4	12.4	5
SMSG33	SMSJ33	33	36.7	44.9	1	59.0	10.2	5
SMSG33A	SMSJ33A	33	36.7	40.6	1	53.3	11.3	5
SMSG36	SMSJ36	36	40.0	48.9	1	64.3	9.3	5
SMSG36A	SMSJ36A	36	40.0	44.2	1	58.1	10.3	5
SMSG40	SMSJ40	40	44.4	54.3	1	71.4	8.4	5
SMSG40A	SMSJ40A	40	44.4	49.1	1	64.5	9.3	5
SMSG43	SMSJ43	43	47.8	58.4	1	76.7	7.8	5
SMSG43A	SMSJ43A	43	47.8	52.8	1	68.4	8.6	5
SMSG45	SMSJ45	45	50.0	61.1	1	80.3	7.5	5
SMSG45A	SMSJ45A	45	50.0	55.3	1	72.7	8.3	5
SMSG48	SMSJ48	48	53.3	65.1	1	85.5	7.0	5
SMSG48A	SMSJ48A	48	53.3	58.9	1	77.4	7.7	5
SMSG51	SMSJ51	51	56.7	69.3	1	91.1	6.6	5
SMSG51A	SMSJ51A	51	56.7	62.7	1	82.4	7.3	5
SMSG54	SMSJ54	54	60.0	73.3	1	96.3	6.2	5
SMSG54A	SMSJ54A	54	60.0	66.3	1	87.1	6.9	5
SMSG58	SMSJ58	58	64.4	78.7	1	103.0	5.8	5
SMSG58A	SMSJ58A	58	64.4	71.2	1	93.6	6.4	5
SMSG60	SMSJ60	60	66.7	81.5	1	107.0	5.6	5
SMSG60A	SMSJ60A	60	66.7	73.7	1	96.8	6.2	5
SMSG64	SMSJ64	64	71.1	86.9	1	114.0	5.3	5
SMSG64A	SMSJ64A	64	71.1	78.6	1	103.0	5.8	5

T-11-23

SMS 5.0 thru 170 Volts

ELECTRICAL CHARACTERISTICS @ 25°C

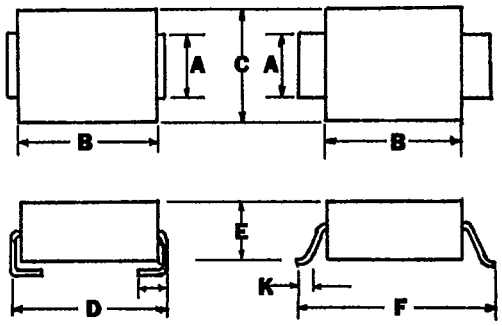
MICROSEMI CORP. PART NUMBER		REVERSE STAND-OFF VOLTAGE (See Note)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS			MAXIMUM CLAMPING VOLTAGE	PEAK PULSE CURRENT (See Fig. 2)	MAXIMUM REVERSE LEAKAGE @ V_{WM}
GULL-WING LEAD	MODIFIED "J" BEND LEAD	V_{WM} VOLTS	MIN.	MAX.	I_T mA	@ I_{PP} VOLTS	I_{PP} AMPS	I_D µA
SMSG70	SMSJ70	70	77.8	95.1	1	125	4.8	5
SMSG70A	SMSJ70A	70	77.8	86.0	1	113	5.3	5
SMSG75	SMSJ75	75	83.3	102.0	1	134	4.5	5
SMSG75A	SMSJ75A	75	83.3	92.1	1	121	4.9	5
SMSG78	SMSJ78	78	86.7	106.0	1	139	4.3	5
SMSG78A	SMSJ78A	78	86.7	95.8	1	126	4.7	5
SMSG85	SMSJ85	85	94.4	115.0	1	151	3.9	5
SMSG85A	SMSJ85A	85	94.4	104.0	1	137	4.4	5
SMSG90	SMSJ90	90	100	122	1	160	3.8	5
SMSG90A	SMSJ90A	90	100	111	1	146	4.1	5
SMSG100	SMSJ100	100	111	136	1	179	3.4	5
SMSG100A	SMSJ100A	100	111	123	1	162	3.7	5
SMSG110	SMSJ110	110	122	149	1	198	3.0	5
SMSG110A	SMSJ110A	110	122	135	1	177	3.4	5
SMSG120	SMSJ120	120	133	163	1	214	2.8	5
SMSG120A	SMSJ120A	120	133	147	1	193	3.1	5
SMSG130	SMSJ130	130	144	176	1	231	2.6	5
SMSG130A	SMSJ130A	130	144	159	1	209	2.9	5
SMSG150	SMSJ150	150	167	204	1	268	2.2	5
SMSG150A	SMSJ150A	150	167	185	1	243	2.5	5
SMSG160	SMSJ160	160	178	218	1	287	2.1	5
SMSG160A	SMSJ160A	160	178	197	1	259	2.3	5
SMSG170	SMSJ170	170	189	231	1	304	2.0	5
SMSG170A	SMSJ170A	170	189	209	1	275	2.2	5

⑤

For Bidirectional indicate a C or CA suffix after the part number. (i.e.: SMSG170CA or SMSJ170C)

Microsemi Corp.'s SMS Series (600W) 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.

PACKAGE DIMENSIONS



DIMENSIONS IN INCHES

	A	B	C	D	E	F	K	L
MIN.	.077	.160	.130	.205	.075	.235	.015	.030
MAX.	.083	.180	.155	.220	.095	.255	.030	.060
DIMENSIONS IN MILLIMETERS								
MIN.	1.96	4.06	3.30	5.21	1.90	5.97	0.381	0.760
MAX.	2.10	4.57	3.94	5.59	2.41	6.48	0.762	1.520

Typical Standoff Height: 0.004"-0.008" (0.1mm-0.2mm)

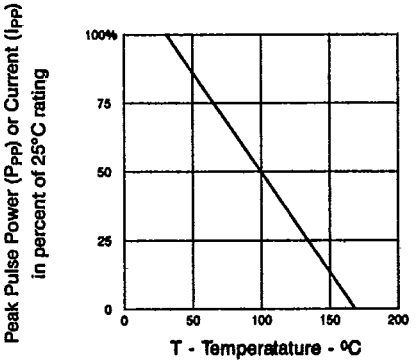


FIGURE 3 DERATING CURVE

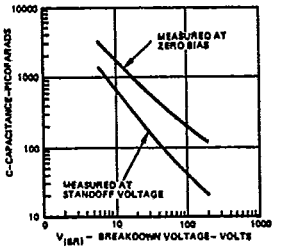


FIGURE 4
TYPICAL CAPACITANCE VS. BREAKDOWN VOLTAGE