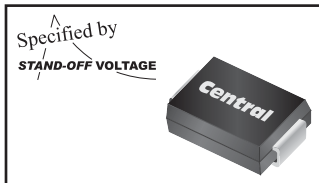
1SMB5.0CA
THRU
1SMB170CA

SURFACE MOUNT SILICON
BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSORS
600 WATT, 5.0 THRU 170 VOLT



SMB CASE

Central Semiconductor Corp.

www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1SMB5.0CA series devices are surface mount bi-directional glass passivated junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients.

THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.

Note: For Uni-directional devices, please refer to the 1SMB5.0A Series data sheet.

MARKING CODE: SEE ELECTRICAL CHARACTERISTICS TABLE

MAXIMUM RATINGS: (T_A=25°C unless otherwise noted)	**SYMBOL**		**UNITS**
Peak Power Dissipation (Note 1)	P_{PK}	600	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	°C

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

TYPE	REVERSE STAND-OFF VOLTAGE V_{RWM}	BREAKDOWN VOLTAGE V_{BR} @ I_T		TEST CURRENT I_T	MAXIMUM REVERSE LEAKAGE CURRENT I_R @ V_{RWM}	MAXIMUM CLAMPING VOLTAGE V_C @ I_{PP}	PEAK PULSE CURRENT (Note 1) I_{PP}	MARKING CODE
	V	MIN V	MAX V	mA	µA	V	A	
1SMB5.0CA	5.0	6.40	7.25	10	1600	9.2	65.2	CKEC
1SMB6.0CA	6.0	6.67	7.67	10	1600	10.3	58.3	CKGC
1SMB6.5CA	6.5	7.22	8.30	10	1000	11.2	53.6	CKKC
1SMB7.0CA	7.0	7.78	8.95	10	400	12	50	CKMC
1SMB7.5CA	7.5	8.33	9.58	1.0	200	12.9	46.5	CKPC
1SMB8.0CA	8.0	8.89	10.23	1.0	100	13.6	44.1	CKRC
1SMB8.5CA	8.5	9.44	10.82	1.0	20	14.4	41.7	CKTC
1SMB9.0CA	9.0	10	11.5	1.0	10	15.4	39	CKVC
1SMB10CA	10	11.1	12.8	1.0	5.0	17	35.3	CKXC
1SMB11CA	11	12.2	14	1.0	5.0	18.2	33	CKZC
1SMB12CA	12	13.3	15.3	1.0	5.0	19.9	30.2	CLEC
1SMB13CA	13	14.4	16.5	1.0	5.0	21.5	27.9	CLGC
1SMB14CA	14	15.6	17.9	1.0	5.0	23.2	25.8	CLKC
1SMB15CA	15	16.7	19.2	1.0	5.0	24.4	24	CLMC
1SMB16CA	16	17.8	20.5	1.0	5.0	26	23.1	CLPC
1SMB17CA	17	18.9	21.7	1.0	5.0	27.6	21.7	CLRC
1SMB18CA	18	20	23.3	1.0	5.0	29.2	20.5	CLTC
1SMB20CA	20	22.2	25.5	1.0	5.0	32.4	18.5	CLVC
1SMB22CA	22	24.4	28	1.0	5.0	35.5	16.9	CLXC
1SMB24CA	24	26.7	30.7	1.0	5.0	38.9	15.4	CLZC
1SMB26CA	26	28.9	33.2	1.0	5.0	42.1	14.2	CMEC
1SMB28CA	28	31.1	35.8	1.0	5.0	45.4	13.2	CMGC
1SMB30CA	30	33.3	38.3	1.0	5.0	48.4	12.4	CMKC

Note 1: Non-repetitive 10x1,000µs pulse.

R7 (11-September 2018)

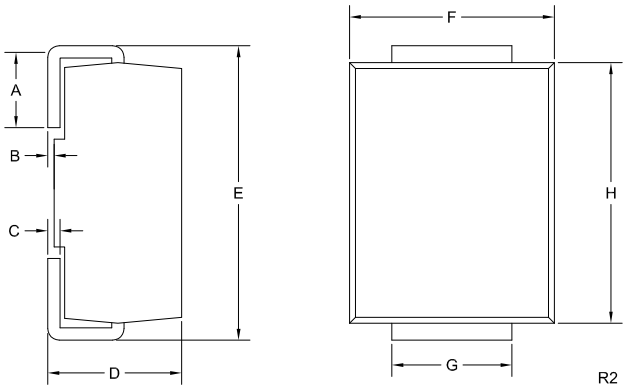
1SMB5.0CA
THRU
1SMB170CA

SURFACE MOUNT SILICON
BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSORS
600 WATT, 5.0 THRU 170 VOLT

ELECTRICAL CHARACTERISTICS - Continued: (T_A=25°C unless otherwise noted)

TYPE	REVERSE STAND-OFF VOLTAGE V_{RWM}	BREAKDOWN VOLTAGE V_{BR} @ I_T		TEST CURRENT I_T	MAXIMUM REVERSE LEAKAGE CURRENT I_R @ V_{RWM}	MAXIMUM CLAMPING VOLTAGE V_C @ I_{PP}	PEAK PULSE CURRENT (Note 1) I_{PP}	MARKING CODE
	V	MIN V	MAX V	mA	μA	V	A	
1SMB33CA	33	36.7	42.2	1.0	5.0	53.3	11.3	CMMC
1SMB36CA	36	40	46	1.0	5.0	58.1	10.3	CMPC
1SMB40CA	40	44.4	51.1	1.0	5.0	64.5	9.3	CMRC
1SMB43CA	43	47.8	54.9	1.0	5.0	69.4	8.6	CMTC
1SMB45CA	45	50	57.5	1.0	5.0	72.7	8.3	CMVC
1SMB48CA	48	53.3	61.3	1.0	5.0	77.4	7.7	CMXC
1SMB51CA	51	56.7	65.2	1.0	5.0	82.4	7.3	CMZC
1SMB54CA	54	60	69	1.0	5.0	87.1	6.9	CNEC
1SMB58CA	58	64.4	74.1	1.0	5.0	93.6	6.4	CNGC
1SMB60CA	60	66.7	76.7	1.0	5.0	96.8	6.2	CNKC
1SMB64CA	64	71.1	81.8	1.0	5.0	103	5.8	CNMC
1SMB70CA	70	77.8	89.5	1.0	5.0	113	5.3	CNPC
1SMB75CA	75	83.3	95.8	1.0	5.0	121	4.9	CNRC
1SMB78CA	78	86.7	99.7	1.0	5.0	126	4.7	CNTC
1SMB85CA	85	94.4	108.2	1.0	5.0	137	4.4	CNVC
1SMB90CA	90	100	115.5	1.0	5.0	146	4.1	CNXC
1SMB100CA	100	111	128	1.0	5.0	162	3.7	CNZC
1SMB110CA	110	122	140.5	1.0	5.0	177	3.4	CPEC
1SMB120CA	120	133	153	1.0	5.0	193	3.1	CPGC
1SMB130CA	130	144	165.5	1.0	5.0	209	2.9	CPKC
1SMB150CA	150	167	192.5	1.0	5.0	243	2.5	CPMC
1SMB160CA	160	178	205	1.0	5.0	259	2.3	CPPC
1SMB170CA	170	189	217.5	1.0	5.0	275	2.2	CPRC

SMB CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.030	0.060	0.76	1.52
B	0.000	0.008	0.00	0.20
C	0.006	0.012	0.15	0.30
D	0.086	0.096	2.18	2.44
E	0.200	0.220	5.08	5.59
F	0.130	0.150	3.30	3.81
G	0.077	0.083	1.96	2.11
H	0.160	0.191	4.06	4.85

SMB (REV: R2)

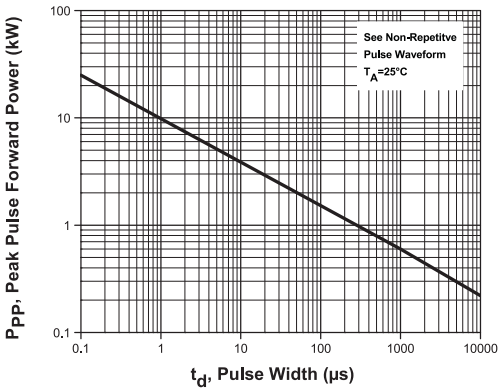
R7 (11-September 2018)

1SMB5.0CA
THRU
1SMB170CA

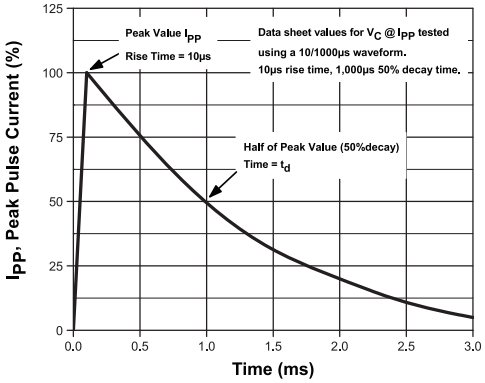
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TYPICAL ELECTRICAL CHARACTERISTICS

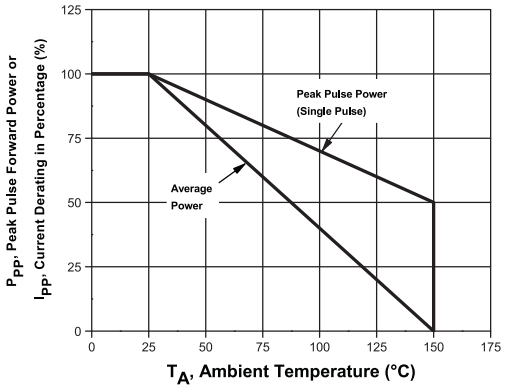
Peak Pulse Forward Power



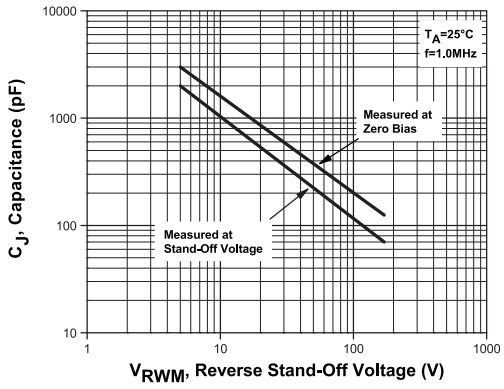
Non-Repetitive Pulse Waveform



Power & Current Derating



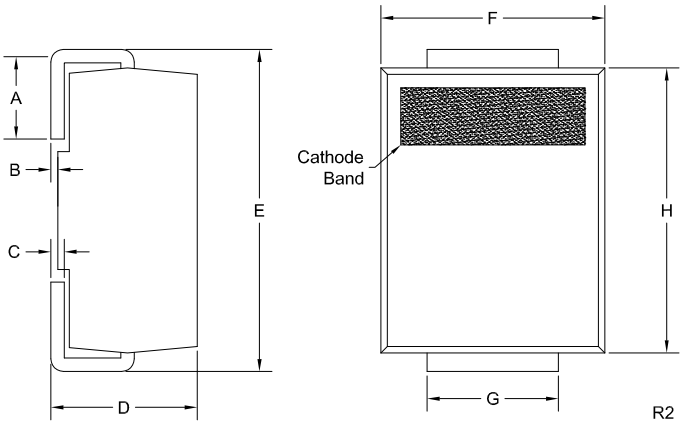
Typical Capacitance



Package Details
SMB Case



Mechanical Drawing



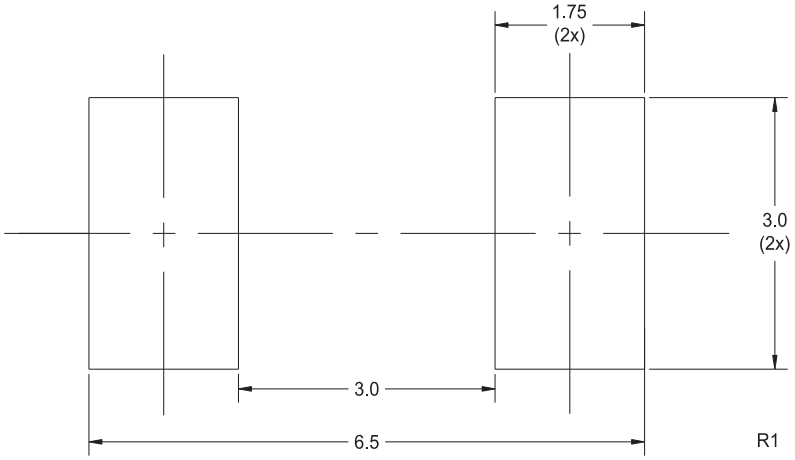
DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.030	0.060	0.76	1.52
B	0.000	0.008	0.00	0.20
C	0.006	0.012	0.15	0.30
D	0.086	0.096	2.18	2.44
E	0.200	0.220	5.08	5.59
F	0.130	0.150	3.30	3.81
G	0.077	0.083	1.96	2.11
H	0.160	0.191	4.06	4.85

SMB (REV: R2)

Lead Code:
Reference individual device datasheet.

Part Marking: 3-6 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)

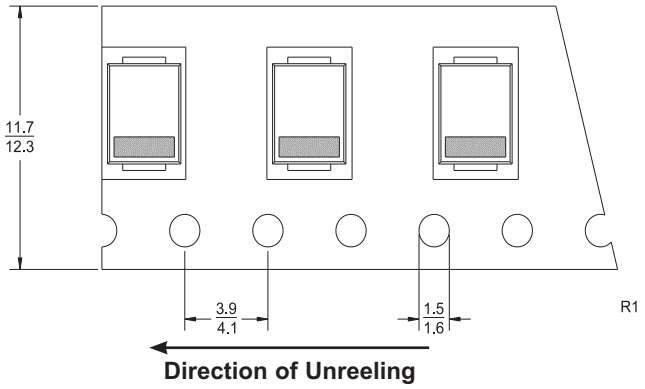


R3 (4-September 2018)

Package Details
SMB Case

Tape Dimensions and Orientation (Dimensions in mm)

Tape Width: 12mm



Devices are taped in accordance with Electronic Industries Association Standard EIA-481-D

Packaging Base

13” Reel = 3,000 pcs.

Reel Labeling Information

Each reel is labeled with the following information:
Central Part Number, Customer Part Number, Purchase Order Number, Quantity, Lot Number, Date Code and Ship Date.

Reel Packing Information

Reel Size	Reels per Box (Maximum)	Parts per Box (Maximum)	Box Dimensions		Shipping Weight (Max.)	
			INCH	CM	LB	KG
13”	5	15,000	15x4x15	38x10x38	8	4
	14	42,000	15x15x9	38x38x23	21	10
	26	78,000	15x15x18	38x38x46	39	18

Ordering Information

- For devices taped and reeled on 13” reels, add TR13 suffix to part number.
- All SMDs are available in small quantities for prototype and manual placement applications.

Material Composition Specification

SMB Case



Device average mass . . . . . **92 mg**

Fluctuation margin . . . . . **+/-10%**

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	0.83%	0.76	Si	7440-21-3	0.83%	0.76	8,262
leadframe	copper	37%	34.04	Cu	7440-50-8	37%	34.04	370,032
die attach	high temperature solder paste	2.45%	2.25	Pb	7439-92-1	2.26%	2.081	22,622
				Sn	7440-31-5	0.12%	0.113	1,228
				Ag	7440-22-4	0.06%	0.056	609
encapsulation*	EMC	58.96%	54.23	silica	7631-86-9	40.09%	36.88	400,904
				epoxy resin	29690-82-2	11.79%	10.85	117,945
				phenol resin	9003-35-4	5.89%	5.42	58,918
				Sb_2O_3	1309-64-4	0.59%	0.542	5,892
				Br	7726-95-6	0.59%	0.542	5,892
	EMC GREEN	58.96%	54.23	silica (fused)	60676-86-0	45.4%	41.76	453,953
				epoxy resin	29690-82-2	5.9%	5.423	58,951
				phenol resin	9003-35-4	5.72%	5.26	57,179
				carbon black	1333-86-4	0.18%	0.163	1,772
				metal hydroxide	1309-42-8	1.77%	1.628	17,697
plating**	tin/lead process	0.77%	0.71	Sn	7440-31-5	0.62%	0.566	6,153
				Pb	7439-92-1	0.15%	0.142	1,544
	matte tin	0.77%	0.71	Sn	7440-31-5	0.77%	0.708	7,696

*EMC GREEN molding compound is Halogen-Free.

**For Lead Free plating, add suffix “PB FREE” to part number.
For Tin/Lead plating, add suffix “TIN/LEAD” to part number.
No suffix designation allows for the supply of either lead-free or tin/lead plated product depending on availability.

Disclaimer
The information provided in this Material Composition data sheet is, to the best of our knowledge, correct. However, there is no guarantee to completeness or accuracy, as some information is derived from data sources outside the company.

Material Composition Specification

SMB Case



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