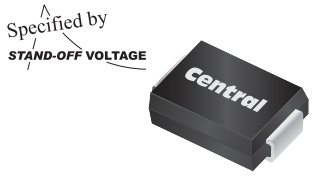
1SMC5.0A
THRU
1SMC170A

SURFACE MOUNT SILICON
UNI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSORS
1500 WATT, 5.0 THRU 170 VOLT



SMC CASE

Central Semiconductor Corp.

www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 1SMC5.0A series devices are surface mount uni-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 bi-directional devices, please refer to the 1SMC5.0CA 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}	1500	W
Peak Forward Surge Current (JEDEC Method)	I_{FSM}	200	A
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	
1SMC5.0A	5.0	6.40	7.25	10	1000	9.2	163	CGDE
1SMC6.0A	6.0	6.67	7.67	10	1000	10.3	145.6	CGDG
1SMC6.5A	6.5	7.22	8.30	10	500	11.2	133.9	CGDK
1SMC7.0A	7.0	7.78	8.95	10	200	12	125	CGDM
1SMC7.5A	7.5	8.33	9.58	1.0	100	12.9	116.3	CGDP
1SMC8.0A	8.0	8.89	10.23	1.0	50	13.6	110.3	CGDR
1SMC8.5A	8.5	9.44	10.82	1.0	20	14.4	104.2	CGDT
1SMC9.0A	9.0	10	11.5	1.0	10	15.4	97.4	CGDV
1SMC10A	10	11.1	12.8	1.0	5.0	17	88.2	CGDX
1SMC11A	11	12.2	14	1.0	5.0	18.2	82.4	CGDZ
1SMC12A	12	13.3	15.3	1.0	5.0	19.9	75.3	CGEE
1SMC13A	13	14.4	16.5	1.0	5.0	21.5	69.7	CGEG
1SMC14A	14	15.6	17.9	1.0	5.0	23.2	64.7	CGEK
1SMC15A	15	16.7	19.2	1.0	5.0	24.4	61.5	CGEM
1SMC16A	16	17.8	20.5	1.0	5.0	26	57.7	CGEP
1SMC17A	17	18.9	21.7	1.0	5.0	27.6	53.3	CGER
1SMC18A	18	20	23.3	1.0	5.0	29.2	51.4	CGET
1SMC20A	20	22.2	25.5	1.0	5.0	32.4	46.3	CGEV
1SMC22A	22	24.4	28	1.0	5.0	35.5	42.2	CGEX
1SMC24A	24	26.7	30.7	1.0	5.0	38.9	38.6	CGEZ
1SMC26A	26	28.9	33.2	1.0	5.0	42.1	35.6	CGFE
1SMC28A	28	31.1	35.8	1.0	5.0	45.4	33	CGFG
1SMC30A	30	33.3	38.3	1.0	5.0	48.4	31	CGFK

Notes: (1) Non-repetitive 10x1,000μs pulse.

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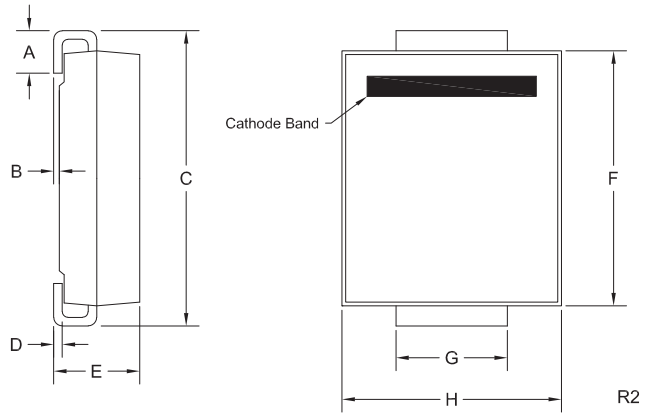
1500 WATT, 5.0 THRU 170 VOLT

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	
1SMC33A	33	36.7	42.2	1.0	5.0	53.3	28.1	CGFM
1SMC36A	36	40	46	1.0	5.0	58.1	25.8	CGFP
1SMC40A	40	44.4	51.1	1.0	5.0	64.5	23.2	CGFR
1SMC43A	43	47.8	54.9	1.0	5.0	69.4	21.6	CGFT
1SMC45A	45	50	57.5	1.0	5.0	72.7	20.6	CGFV
1SMC48A	48	53.3	61.3	1.0	5.0	77.4	19.4	CGFX
1SMC51A	51	56.7	65.2	1.0	5.0	82.4	18.2	CGFZ
1SMC54A	54	60	69	1.0	5.0	87.1	17.2	CGGE
1SMC58A	58	64.4	74.1	1.0	5.0	93.6	16	CGGG
1SMC60A	60	66.7	76.7	1.0	5.0	96.8	15.5	CGGK
1SMC64A	64	71.1	81.8	1.0	5.0	103	14.6	CGGM
1SMC70A	70	77.8	89.5	1.0	5.0	113	13.3	CGGP
1SMC75A	75	83.3	95.8	1.0	5.0	121	12.4	CGGR
1SMC78A	78	86.7	99.7	1.0	5.0	126	11.4	CGGT
1SMC85A	85	94.4	108.2	1.0	5.0	137	10.4	CGGV
1SMC90A	90	100	115.5	1.0	5.0	146	10.3	CGGX
1SMC100A	100	111	128	1.0	5.0	162	9.3	CGGZ
1SMC110A	110	122	140.5	1.0	5.0	177	8.4	CGHE
1SMC120A	120	133	153	1.0	5.0	193	7.9	CGHG
1SMC130A	130	144	165.5	1.0	5.0	209	7.2	CGHK
1SMC150A	150	167	192.5	1.0	5.0	243	6.2	CGHM
1SMC160A	160	178	205	1.0	5.0	259	5.8	CGHP
1SMC170A	170	189	217.5	1.0	5.0	275	5.5	CGHR

SMC CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.030	0.060	0.76	1.52
B	0.002	0.008	0.05	0.20
C	0.305	0.320	7.75	8.13
D	0.006	0.012	0.15	0.31
E	0.079	0.103	2.00	2.62
F	0.260	0.280	6.60	7.11
G	0.108	0.128	2.75	3.25
H	0.220	0.245	5.59	6.22

SMC (REV: R2)

R7 (22-August 2016)

1SMC5.0A
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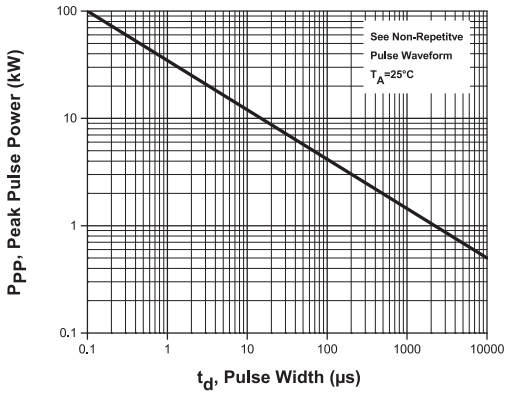
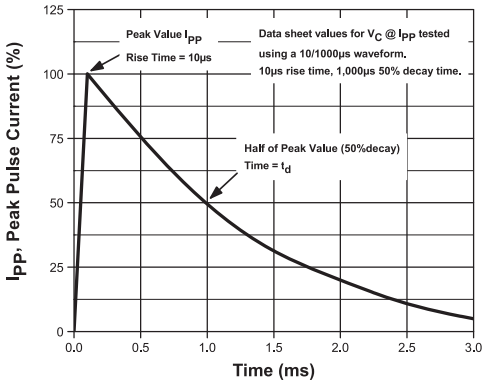
1500 WATT, 5.0 THRU 170 VOLT

TYPICAL ELECTRICAL CHARACTERISTICS

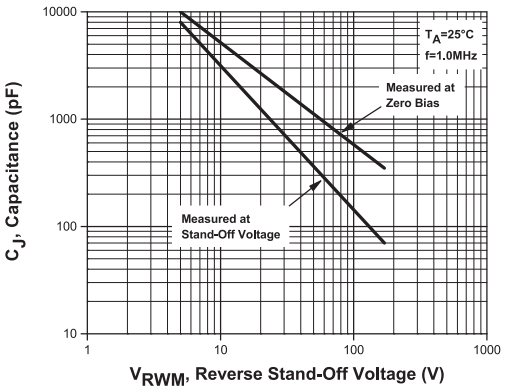
Peak Pulse Power



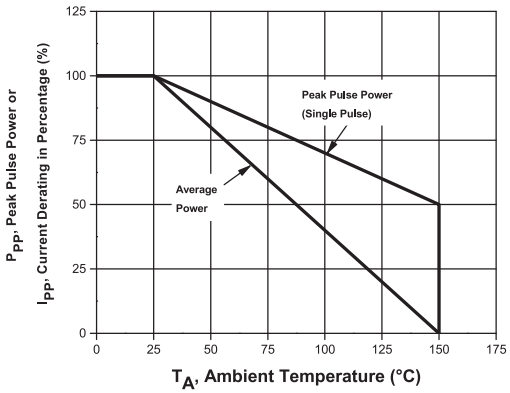
Non-Repetitive Pulse Waveform



Capacitance



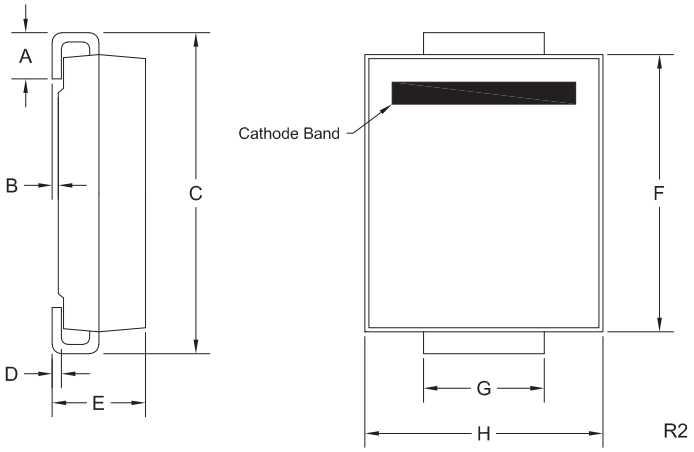
Power & Current Derating



R7 (22-August 2016)

Package Details
SMC Case

Mechanical Drawing



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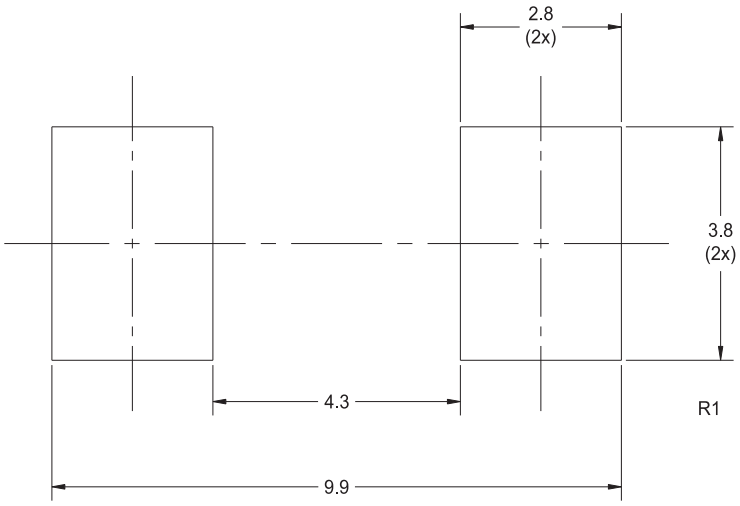
D	0.006	0.012	0.15	0.31
E	0.079	0.103	2.00	2.62
F	0.260	0.280	6.60	7.11
G	0.108	0.128	2.75	3.25
H	0.220	0.245	5.59	6.22

SMC (REV: R2)

Lead Code:
Reference individual device datasheet.

Part Marking: 3-6 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)

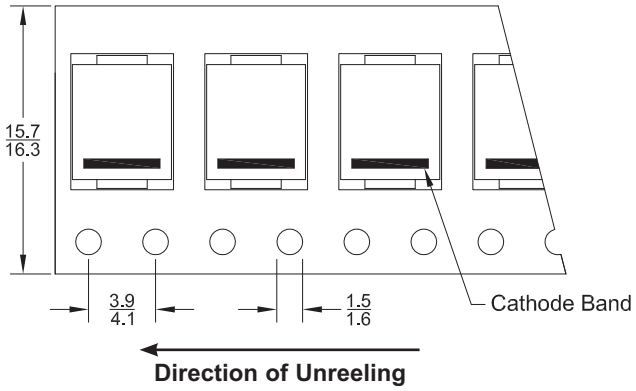


R4 (18-February 2021)

Package Details
SMC Case

Tape Dimensions and Orientation (Dimensions in mm)

Tape Width: 16mm



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”	4	12,000	15x4x15	38x10x38	12	6
	11	33,000	15x15x9	38x38x23	30	14
	24	72,000	15x15x18	38x38x46	64	29

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

SMC Case

Device average mass . . . . . **232.5 mg**

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

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	1.63%	3.8	Si	7440-21-3	1.63%	3.8	16,344
leadframe	copper	39.11%	90.92	Cu	7440-50-8	39.11%	90.92	391,054
die attach	high temperature solder paste	1.88%	4.36	Pb	7439-92-1	1.73%	4.033	17,346
				Sn	7440-31-5	0.09%	0.218	938
				Ag	7440-22-4	0.05%	0.109	469
encapsulation*	EMC	56.77%	132	silica	7631-86-9	38.61%	89.76	386,065
				epoxy resin	29690-82-2	11.35%	26.4	113,548
				phenol resin	9003-35-4	5.68%	13.2	56,774
				Sb_2O_3	1309-64-4	0.57%	1.32	5,677
				Br	7726-95-6	0.57%	1.32	5,677
	EMC GREEN	56.77%	132	silica (fused)	60676-86-0	43.72%	101.64	437,161
				epoxy resin	29690-82-2	5.68%	13.2	56,774
				phenol resin	9003-35-4	5.51%	12.804	55,071
				carbon black	1333-86-4	0.17%	0.396	1,703
				metal hydroxide	1309-42-8	1.7%	3.96	17,032
plating**	tin/lead process	0.61%	1.42	Sn	7440-31-5	0.49%	1.136	4,886
				Pb	7439-92-1	0.12%	0.284	1,222
	matte tin	0.61%	1.42	Sn	7440-31-5	0.61%	1.42	6,108

*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
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