

3SMC5.0CAQ
THRU
3SMC170CAQ



**SURFACE MOUNT SILICON
AUTOMOTIVE BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSORS
3000 WATT, 5.0 THRU 170 VOLT**



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 3SMC5.0CA series devices are surface mount bi-directional glass passivated junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. Manufactured and qualified to AEC-Q101.

Note: For uni-directional devices, please refer to the 3SMC5.0AQ series data sheet.

MARKING CODE: SEE MARKING CODE ON ELECTRICAL CHARACTERISTIC TABLE

Specified by
STAND-OFF VOLTAGE



SMC CASE

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)
Peak Power Dissipation (Note 1)
Operating and Storage Junction Temperature

SYMBOL		UNITS
P_{PK}	3000	W
T_J, T_{stg}	-65 to +150	$^{\circ}\text{C}$

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

TYPE	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE		TEST CURRENT	MAXIMUM REVERSE LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE	PEAK PULSE CURRENT	MARKING CODE
	V_{RWM}	$V_{BR} @ I_T$		I_T	$I_R @ V_{RWM}$	$V_C @ I_{PP}$	(Note 1) I_{PP}	
	V	MIN V	MAX V	mA	μA	V	A	
3SMC5.0CAQ	5.0	6.40	7.25	10	2000	9.2	326.0	CIDE
3SMC6.0CAQ	6.0	6.67	7.67	10	2000	10.3	291.3	CIDG
3SMC6.5CAQ	6.5	7.22	8.30	10	1000	11.2	267.9	CIDK
3SMC7.0CAQ	7.0	7.78	8.95	10	400	12.0	250.0	CIDM
3SMC7.5CAQ	7.5	8.33	9.58	1.0	200	12.9	232.6	CIDP
3SMC8.0CAQ	8.0	8.89	10.23	1.0	100	13.6	220.6	CIDR
3SMC8.5CAQ	8.5	9.44	10.82	1.0	50	14.4	208.4	CIDT
3SMC9.0CAQ	9.0	10.0	11.5	1.0	20	15.4	194.8	CIDV
3SMC10CAQ	10	11.1	12.8	1.0	5.0	17.0	176.4	CIDXS
3SMC11CAQ	11	12.2	14.0	1.0	5.0	18.2	184.8	CIDZ
3SMC12CAQ	12	13.3	15.3	1.0	5.0	19.9	150.6	CIEE
3SMC13CAQ	13	14.4	16.5	1.0	5.0	21.5	139.4	CIEG
3SMC14CAQ	14	15.6	17.9	1.0	5.0	23.2	129.4	CIEK
3SMC15CAQ	15	16.7	19.2	1.0	5.0	24.4	123.0	CIEM
3SMC16CAQ	16	17.8	20.5	1.0	5.0	26.0	115.4	CIEP
3SMC17CAQ	17	18.9	21.7	1.0	5.0	27.6	106.6	CIER
3SMC18CAQ	18	20.0	23.3	1.0	5.0	29.2	102.8	CIET
3SMC20CAQ	20	22.2	25.5	1.0	5.0	32.4	92.6	CIEV
3SMC22CAQ	22	24.4	28.0	1.0	5.0	35.5	84.4	CIEX
3SMC24CAQ	24	26.7	30.7	1.0	5.0	38.9	77.2	CIEZ
3SMC26CAQ	26	28.9	33.2	1.0	5.0	42.1	71.2	CIFE
3SMC28CAQ	28	31.1	35.8	1.0	5.0	45.4	66.0	CIFG
3SMC30CAQ	30	33.3	38.3	1.0	5.0	48.4	62.0	CIFK

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

3SMC5.0CAQ
THRU
3SMC170CAQ



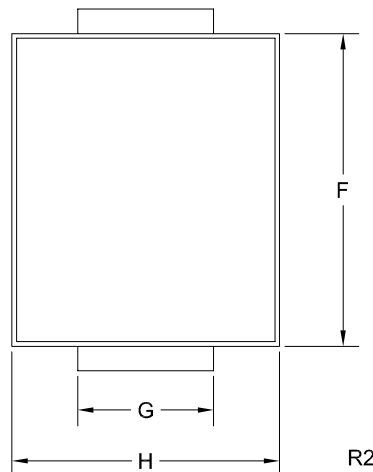
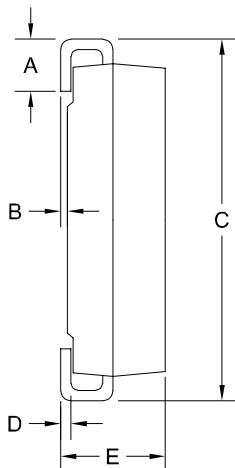
**SURFACE MOUNT SILICON
AUTOMOTIVE BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSORS
3000 WATT, 5.0 THRU 170 VOLT**



ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

TYPE	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE		TEST CURRENT	MAXIMUM REVERSE LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE	PEAK PULSE CURRENT (Note 1)	MARKING CODE
	V_{RWM}	$V_{BR} @ I_T$		I_T	$I_R @ V_{RWM}$	$V_C @ I_{PP}$	I_{PP}	
	V	MIN V	MAX V	mA	μA	V	A	
3SMC33CAQ	33	36.7	42.2	1.0	5.0	53.3	56.2	CIFM
3SMC36CAQ	36	40.0	46.0	1.0	5.0	58.1	51.6	CIFP
3SMC40CAQ	40	44.4	51.1	1.0	5.0	64.5	46.4	CIFR
3SMC43CAQ	43	47.8	54.9	1.0	5.0	69.4	43.2	CIFT
3SMC45CAQ	45	50.0	57.5	1.0	5.0	72.7	41.2	CIFV
3SMC48CAQ	48	53.3	61.3	1.0	5.0	77.4	38.8	CIFX
3SMC51CAQ	51	56.7	65.2	1.0	5.0	82.4	36.4	CIFZ
3SMC54CAQ	54	60.0	69.0	1.0	5.0	87.1	34.4	CIGE
3SMC58CAQ	58	64.4	74.1	1.0	5.0	93.6	32.0	CIGG
3SMC60CAQ	60	66.7	76.7	1.0	5.0	96.8	31.0	CIGK
3SMC64CAQ	64	71.1	81.8	1.0	5.0	103	29.2	CIGM
3SMC70CAQ	70	77.8	89.5	1.0	5.0	113	26.6	CIGP
3SMC75CAQ	75	83.3	95.8	1.0	5.0	121	24.8	CIGR
3SMC78CAQ	78	86.7	99.7	1.0	5.0	126	22.8	CIGT
3SMC85CAQ	85	94.4	108.2	1.0	5.0	137	20.8	CIGV
3SMC90CAQ	90	100.0	115.5	1.0	5.0	146	20.6	CIGX
3SMC100CAQ	100	111.0	128.0	1.0	5.0	162	18.6	CIGZ
3SMC110CAQ	110	122.0	140.5	1.0	5.0	177	16.8	CIHE
3SMC120CAQ	120	133.0	153.0	1.0	5.0	193	15.6	CIHG
3SMC130CAQ	130	144.0	165.5	1.0	5.0	209	14.4	CIHK
3SMC150CAQ	150	167.0	192.5	1.0	5.0	243	12.4	CIHM
3SMC160CAQ	160	178.0	205.0	1.0	5.0	259	11.6	CIHP
3SMC170CAQ	170	189.0	217.5	1.0	5.0	275	11.0	CIHR

SMC CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	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)

R1 (11-March 2025)

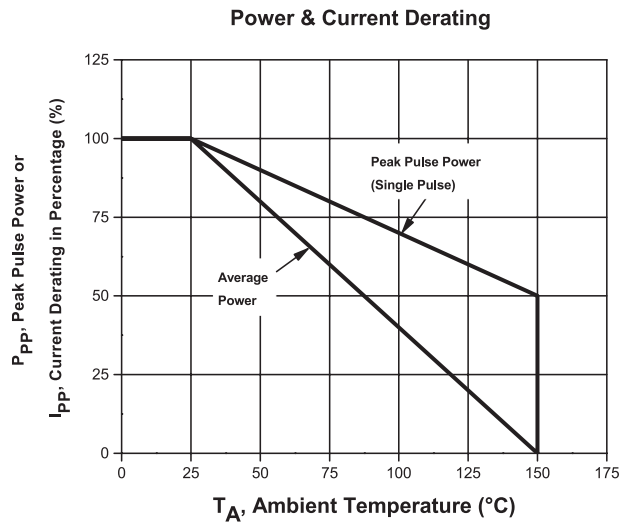
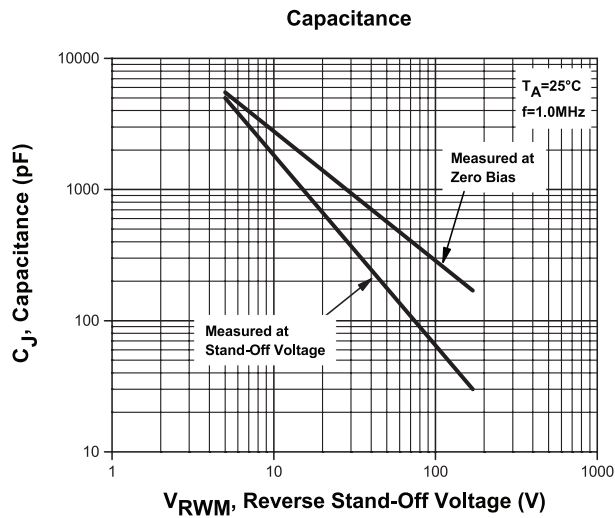
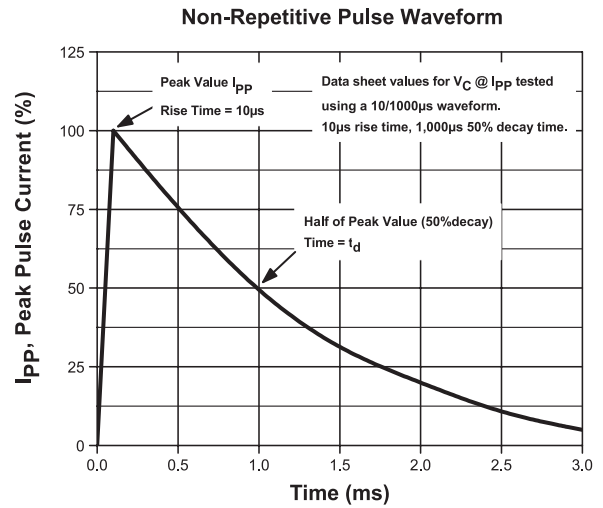
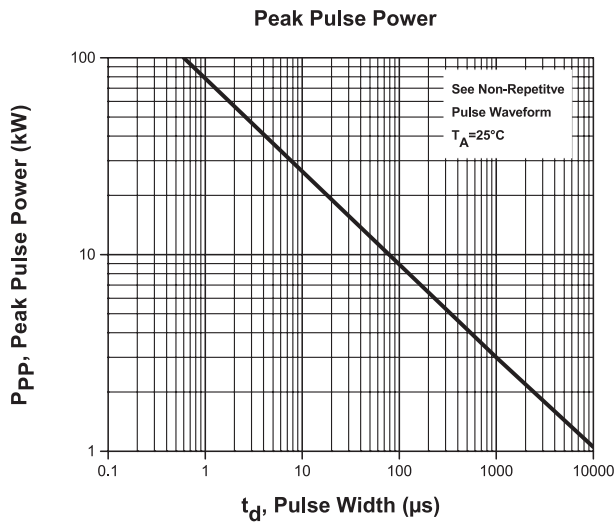
3SMC5.0CAQ
THRU
3SMC170CAQ



SURFACE MOUNT SILICON
AUTOMOTIVE BI-DIRECTIONAL
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSORS
3000 WATT, 5.0 THRU 170 VOLT



TYPICAL ELECTRICAL CHARACTERISTICS

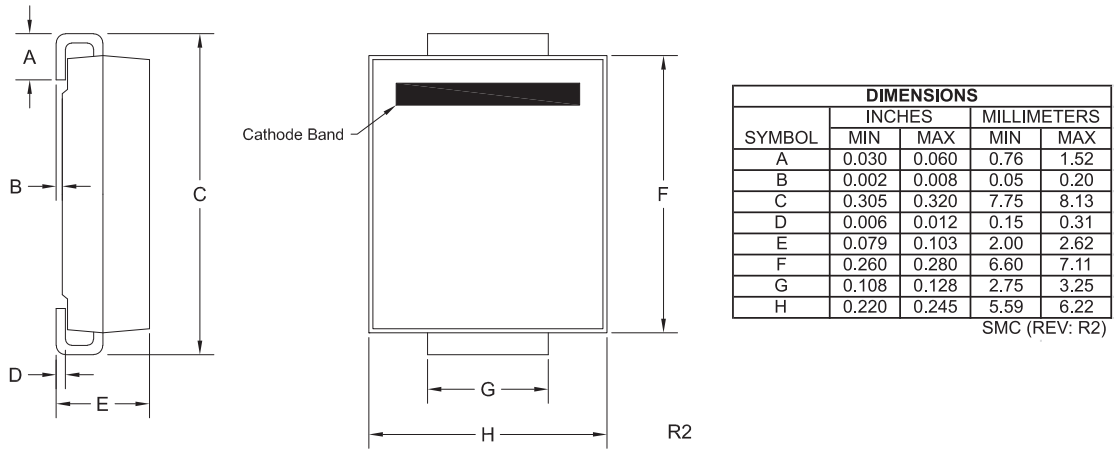


Package Details

SMC Case



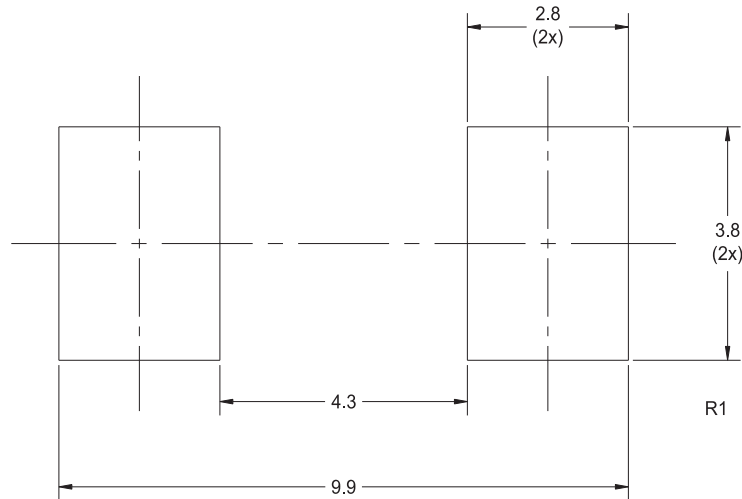
Mechanical Drawing



Lead Code:
Reference individual device datasheet.

Part Marking: 3-6 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)



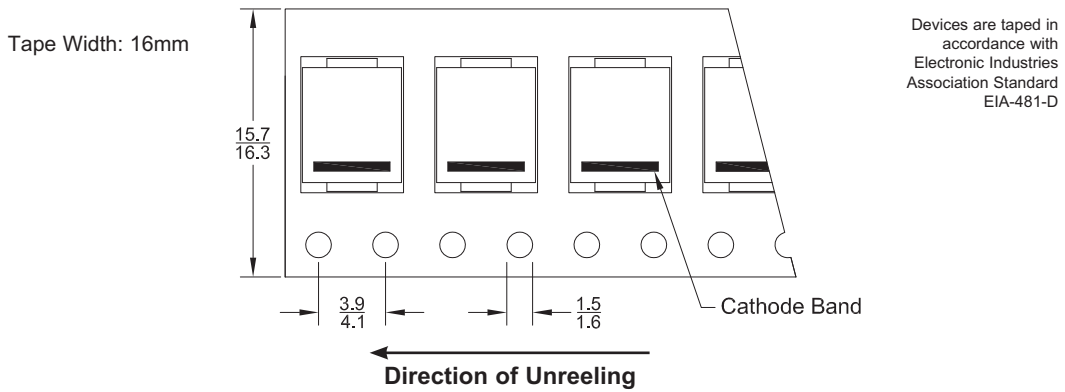
R4 (18-February 2021)

Package Details

SMC Case



Tape Dimensions and Orientation (Dimensions in mm)



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.

R4 (18-February 2021)

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 ₂ O 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

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.

R6 (16-July 2018)

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 ₂ O 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

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.

R6 (16-July 2018)