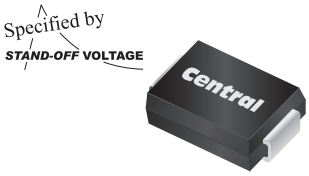
TWM CERTIFIED

3SMC-TM SERIES

**SURFACE MOUNT SILICON
TIN WHISKER MITIGATED
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSORS
3000 WATT, 5.0 THRU 51 VOLT**



SMC CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 3SMC-TM series devices are surface mount, glass passivated junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. The devices have undergone AEM's proprietary TWM Pb electroplating process to mitigate tin whisker growth.

MARKING CODE: SEE ELECTRICAL CHARACTERISTICS TABLE

Note: Uni-directional devices use the suffix "A-TM".
Bi-directional devices use the suffix "CA-TM".

FEATURES:

- Minimum of 5% Pb content guaranteed
- No change to mechanical dimensions following plating process
- No change to package coplanarity following plating process
- Components are not exposed to damaging high temperatures during processing

MAXIMUM RATINGS: (T_A=25°C unless otherwise noted)	**SYMBOL**		**UNITS**
Peak Power Dissipation (Note 1)	P_{PK}	3000	W
Peak Forward Surge Current (JEDEC Method, Note 2)	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	
3SMC5.0A-TM	5.0	6.40	7.25	10	1000	9.2	326.0	CHDE
3SMC5.0CA-TM	5.0	6.40	7.25	10	2000	9.2	326.0	CIDE
3SMC13A-TM	13	14.4	16.5	1.0	5.0	21.5	139.4	CHEG
3SMC22CA-TM	22	24.4	28.0	1.0	5.0	35.5	84.4	CIEX
3SMC40CA-TM	40	44.4	51.1	1.0	5.0	64.5	46.4	CIFR
3SMC51CA-TM	51	56.7	65.2	1.0	5.0	82.4	36.4	CIFZ

Notes: (1) Non-repetitive 10x1,000μs pulse
(2) Uni-directional devices only

R2 (25-September 2025)

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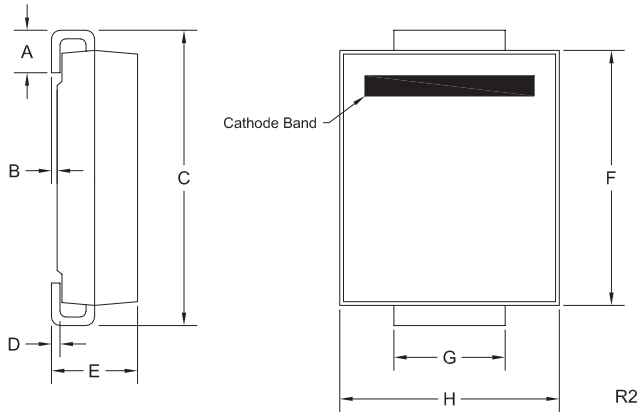
SMC CASE - MECHANICAL OUTLINE



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)

R2 (25-September 2025)

TWM CERTIFIED

3SMC-TM SERIES

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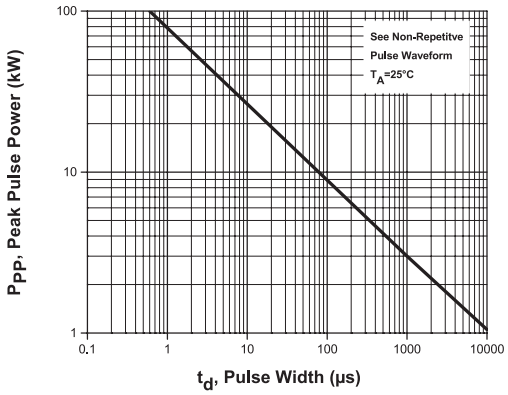
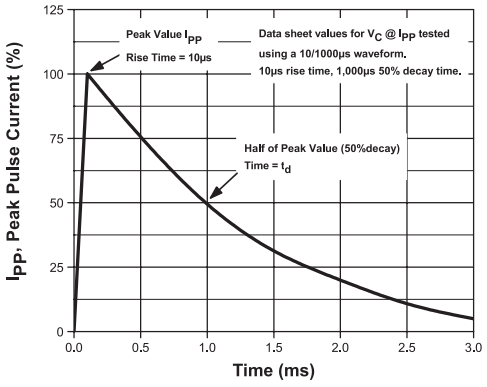
TIN WHISKER MITIGATED
GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSORS
3000 WATT, 5.0 THRU 51 VOLT**

TYPICAL ELECTRICAL CHARACTERISTICS

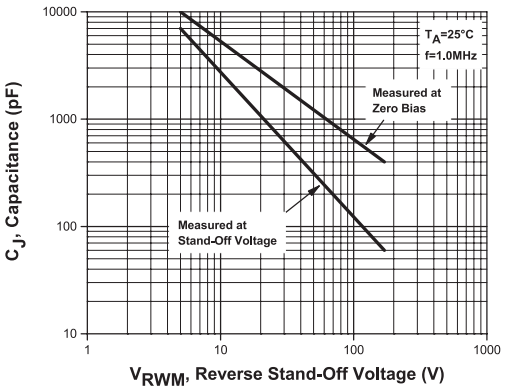
Peak Pulse Power



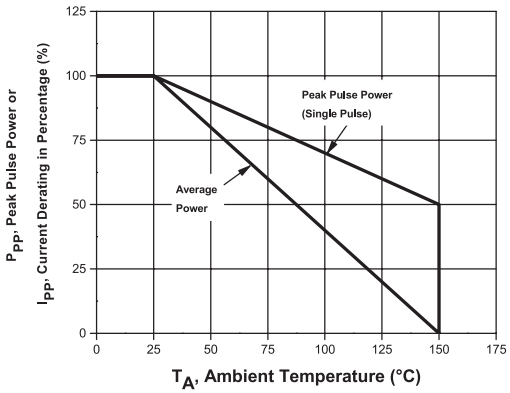
Non-Repetitive Pulse Waveform



Capacitance



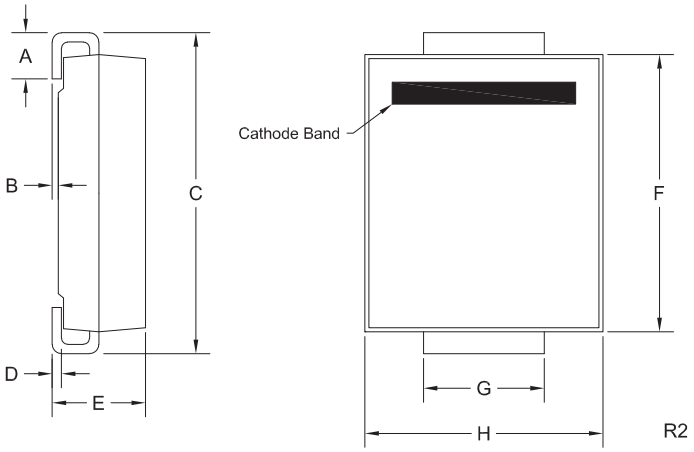
Power & Current Derating



R2 (25-September 2025)

Package Details
SMC Case

Mechanical Drawing



DIMENSIONS				
	INCHES		MILLIMETERS	
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A	0.030	0.060	0.76	1.52
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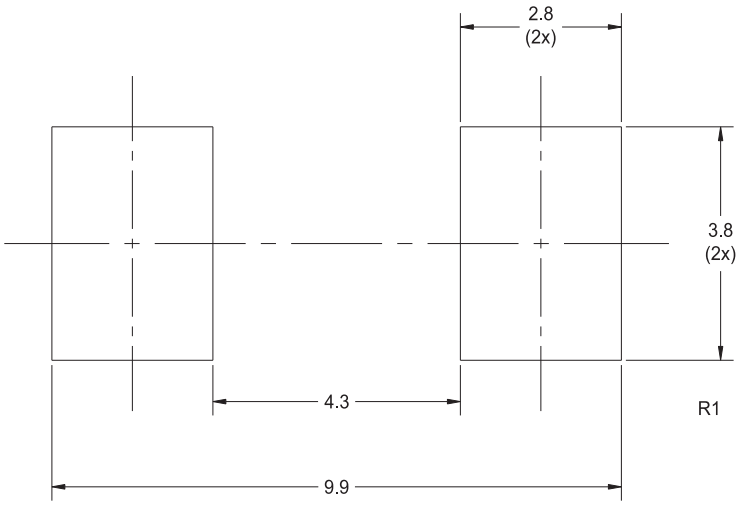
D	0.006	0.012	0.15	0.31
E	0.079	0.103	2.00	2.62
F	0.260	0.280	6.60	7.11
G	0.108	0.128	2.75	3.25
H	0.220	0.245	5.59	6.22

SMC (REV: R2)

Lead Code:
Reference individual device datasheet.

Part Marking: 3-6 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)

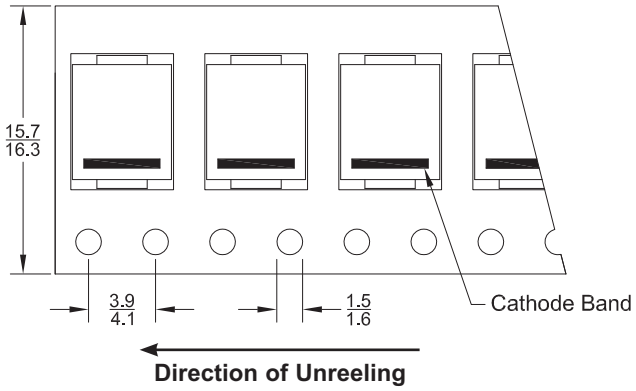


R4 (18-February 2021)

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.

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OUTSTANDING SUPPORT AND SUPERIOR SERVICES

PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

CONTACT US

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