



THE DATASHEET OF SMBJ33CA/TR13



	E480232
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Features

- AEC-Q101 Qualified
- For Surface Mount Applications
- Unidirectional And Bidirectional
- Low Inductance
- High Temp Soldering: 260°C / 10 Seconds At Terminals
- For Bidirectional Devices Add "C" To The Suffix of The Part Number: i.e.SMAJ10CAHE3 for 5% Tolerance
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note2) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Mechanical Data

- Polarity: Indicated by Cathode Band Except Bi-directional Types
- Manufacturing Code Added for Better Tracking

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Typical Thermal Resistance: 100°C/W Junction to Ambient

Peak Pulse Power Surge Current with a 10/1000µs Waveform	I_{PPM}	See the Table	Note 3
Peak Pulse Power Dissipation	P_{PPM}	400W(Min.)	Note 3,7
Steady State Power Dissipation	$P_{M(AV)}$	1.5 W	Note 3,6

Note:

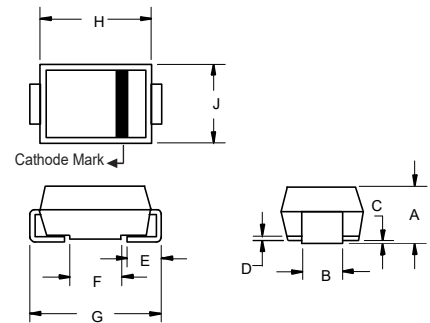
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
3. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.4.
4. Mounted on 5.0mm² copper pads to each terminal.
5. 8.3ms, single half sine wave duty cycle = 4 pulses per Minutes maximum.
6. Lead temperature at $T_L = 75^\circ\text{C}$.
7. Peak pulse power waveform is 10/1000us.

Pin Configuration:



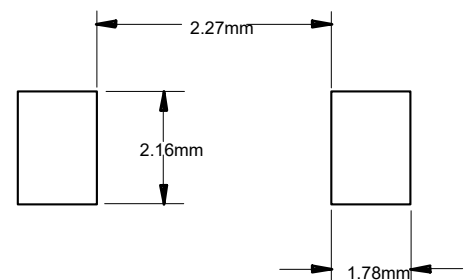
**400 Watt TVS
10 to 190 Volts**

**SMA (DO-214AC)
LEAD FRAME**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.075	0.096	1.90	2.44	
B	0.050	0.064	1.27	1.63	
C	0.002	0.008	0.051	0.203	
D	---	0.020	---	0.51	
E	0.030	0.060	0.76	1.52	
F	0.065	0.091	1.65	2.32	
G	0.189	0.220	4.80	5.59	
H	0.157	0.187	4.00	4.75	
J	0.090	0.115	2.25	2.92	

SUGGESTED SOLDER PAD LAYOUT



Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC PART NUMBER		REVERSE STAND-OFF VOLTAGE V_{WM}	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ I_{PP}	PEAK PULSE CURRENT I_{PP}	MAXIMUM REVERSE LEAKAGE @ V_{WM} I_D	MARKING CODE	
UNI-POLAR	BI-POLAR	(VOLTS)	MIN	MAX	I_T (mA)	(VOLTS)	(AMPS)	(μ A)	UNI	BI
SMAJ10AHE3	SMAJ10CAHE3	10	11.1	12.3	1	17.0	23.5	5	AX	WX
SMAJ11AHE3	SMAJ11CAHE3	11	12.2	13.5	1	18.2	22.0	1	AZ	WZ
SMAJ12AHE3	SMAJ12CAHE3	12	13.3	14.7	1	19.9	20.1	1	BE	XE
SMAJ13AHE3	SMAJ13CAHE3	13	14.4	15.9	1	21.5	18.6	1	BG	XG
SMAJ14AHE3	SMAJ14CAHE3	14	15.6	17.2	1	23.2	17.2	1	BK	XK
SMAJ15AHE3	SMAJ15CAHE3	15	16.7	18.5	1	24.4	16.4	1	BM	XM
SMAJ16AHE3	SMAJ16CAHE3	16	17.8	19.7	1	26.0	15.3	1	BP	XP
SMAJ17AHE3	SMAJ17CAHE3	17	18.9	20.9	1	27.6	14.5	1	BR	XR
SMAJ18AHE3	SMAJ18CAHE3	18	20.0	22.1	1	29.2	13.7	1	BT	XT
SMAJ20AHE3	SMAJ20CAHE3	20	22.2	24.5	1	32.4	12.3	1	BV	XV
SMAJ22AHE3	SMAJ22CAHE3	22	24.4	26.9	1	35.5	11.2	1	BX	XX
SMAJ24AHE3	SMAJ24CAHE3	24	26.7	29.5	1	38.9	10.3	1	BZ	XZ
SMAJ26AHE3	SMAJ26CAHE3	26	28.9	31.9	1	42.1	9.5	1	CE	YE
SMAJ28AHE3	SMAJ28CAHE3	28	31.1	34.4	1	45.4	8.8	1	CG	YG
SMAJ30AHE3	SMAJ30CAHE3	30	33.3	36.8	1	48.4	8.3	1	CK	YK
SMAJ33AHE3	SMAJ33CAHE3	33	36.7	40.6	1	53.3	7.5	1	CM	YM
SMAJ36AHE3	SMAJ36CAHE3	36	40.0	44.2	1	58.1	6.9	1	CP	YP
SMAJ40AHE3	SMAJ40CAHE3	40	44.4	49.1	1	64.5	6.2	1	CR	YR
SMAJ43AHE3	SMAJ43CAHE3	43	47.8	52.8	1	69.4	5.7	1	CT	YT
SMAJ45AHE3	SMAJ45CAHE3	45	50.0	55.3	1	72.7	5.5	1	CV	YV
SMAJ48AHE3	SMAJ48CAHE3	48	53.3	58.9	1	77.4	5.2	1	CX	YX
SMAJ51AHE3	SMAJ51CAHE3	51	56.7	62.7	1	82.4	4.9	1	CZ	YZ
SMAJ54AHE3	SMAJ54CAHE3	54	60.0	66.3	1	87.1	4.6	1	RE	ZE
SMAJ58AHE3	SMAJ58CAHE3	58	64.4	71.2	1	93.6	4.3	1	RG	ZG
SMAJ60AHE3	SMAJ60CAHE3	60	66.7	73.7	1	96.8	4.1	1	RK	ZK
SMAJ64AHE3	SMAJ64CAHE3	64	71.1	78.6	1	103	3.9	1	RM	ZM
SMAJ70AHE3	SMAJ70CAHE3	70	77.8	86.0	1	113	3.5	1	RP	ZP
SMAJ75AHE3	SMAJ75CAHE3	75	83.3	92.1	1	121	3.3	1	RR	ZR
SMAJ78AHE3	SMAJ78CAHE3	78	86.7	95.8	1	126	3.2	1	RT	ZT
SMAJ80AHE3	SMAJ80CAHE3	80	88.8	97.6	1	129	3.1	1	RB	ZB
SMAJ85AHE3	SMAJ85CAHE3	85	94.4	104.0	1	137	2.9	1	RV	ZV
SMAJ90AHE3	SMAJ90CAHE3	90	100.0	111.0	1	146	2.7	1	RX	ZX
SMAJ100AHE3	SMAJ100CAHE3	100	111.0	123.0	1	162	2.5	1	RZ	ZZ
SMAJ110AHE3	SMAJ110CAHE3	110	122.0	135.0	1	177	2.3	1	SE	VE
SMAJ120AHE3	SMAJ120CAHE3	120	133.0	147.0	1	193	2.1	1	SG	VG
SMAJ130AHE3	SMAJ130CAHE3	130	144.0	159.0	1	209	1.9	1	SK	VK
SMAJ140AHE3	SMAJ140CAHE3	140	155.0	171.0	1	227	1.8	1	SL	VL
SMAJ150AHE3	SMAJ150CAHE3	150	167.0	185.0	1	243	1.7	1	SM	VM
SMAJ160AHE3	SMAJ160CAHE3	160	178.0	197.0	1	259	1.5	1	SP	VP
SMAJ170AHE3	SMAJ170CAHE3	170	189.0	209.0	1	275	1.5	1	SR	VR
SMAJ180AHE3	SMAJ180CAHE3	180	200.0	220.0	1	292	1.4	1	ST	VT
SMAJ190AHE3	SMAJ190CAHE3	190	211.0	232.0	1	308	1.3	1	SU	VU

For bi-directional type having V_{WM} of 10 Volts and less, the I_R limit is double.
 For parts without A, the V_{BR} is +10%.

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

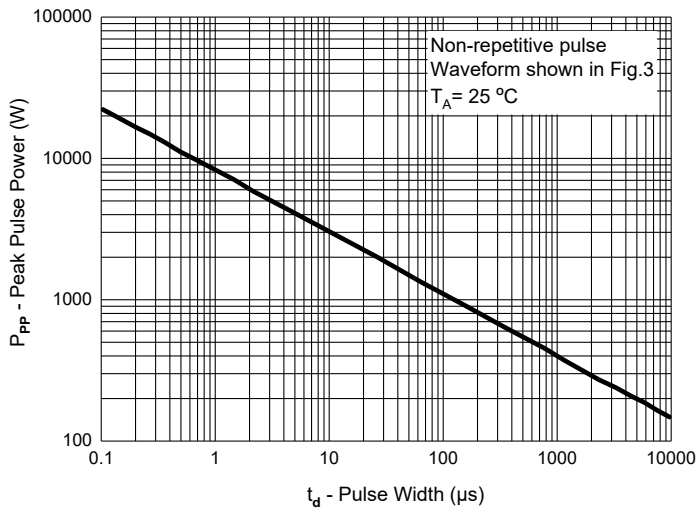


Fig. 2 - Typical Junction Capacitance

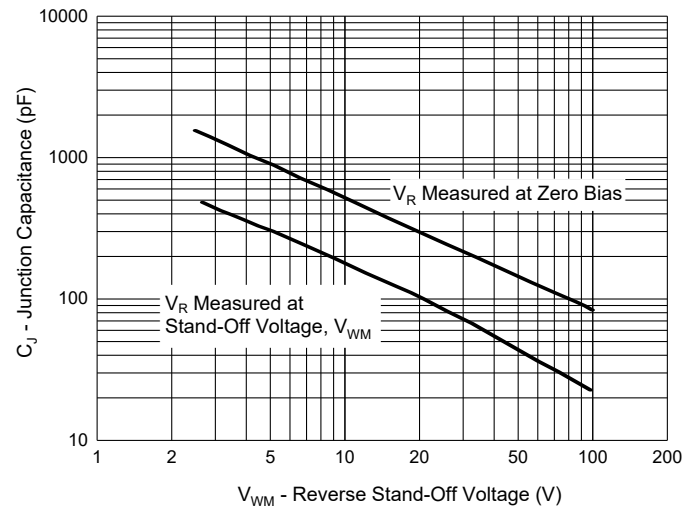


Fig. 3 - Pulse Waveform

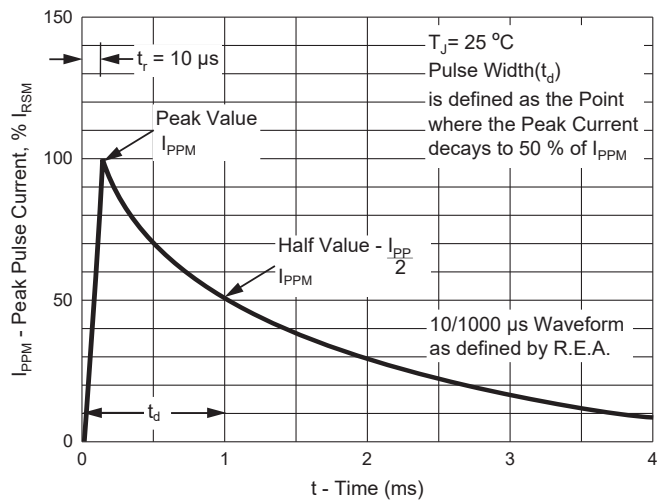
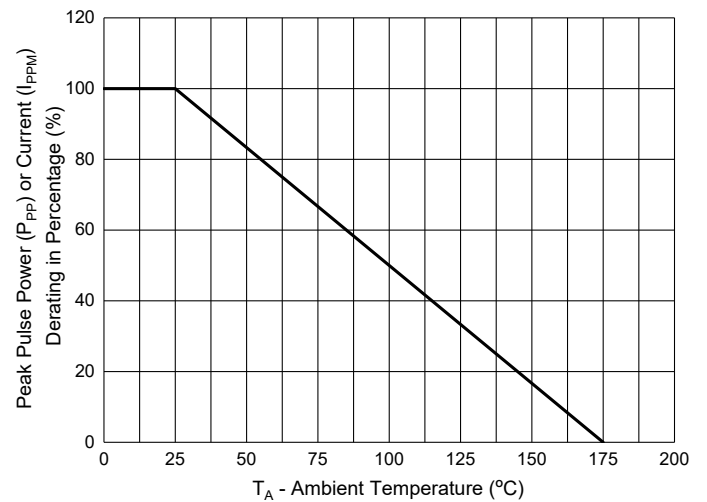


Fig. 4 - Pulse Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:5Kpcs/Reel

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