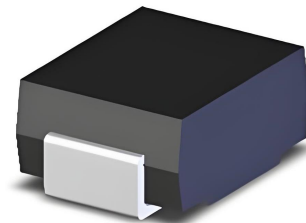


ECTNCZAxxVx

Ultra-low Capacitance Bidirectional Micro Packaged TVS Diodes for ESD Protection

Features

- Voltage Range 5.0V - 170V
- 3000W Peak Pulse Power Dissipation
- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Response Time is Typically < 1 ns
- Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min
- ESD Rating of above 16 kV per Human Body Model
- ESD Rating of above 30 kV (Contact Discharge) per IEC61000-4-2
- EFT (Electrical Fast Transients) Rating of 40 A per IEC61000-4-4
- Plastic material has UL flammability classification 94V-0
- Typical IR less than 1uA above 10V
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant



SMC

Ordering Information

Device	Qty per Reel	Reel Size
ECTNCZAxxVx	3000	13Inch

“xx” = Working Peak Reverse Voltage

Maximum Ratings and Electrical Characteristics

Characteristics	Symbols	Value	Unit
Peak Power Dissipation At $T_j = 25^\circ\text{C}$, $T_p = 1\text{ms}$ (Note 1,2)	P_{PK}	3000	W
Peak Forward Surge Current 8.3ms single half sine-wave super	I_{FSM}	300	A
Lead Soldering Temperature	T_L	260 (10 sec.)	$^\circ\text{C}$
Operating Temperature Range	T_J	-55 to +155	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +175	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Non-repetitive current pulse, per fig. 4 and derated above $T_A = 25^\circ\text{C}$ per fig.1.
2. Thermal Resistance junction to Lead
3. 8.3ms single half-sine wave duty cycle= 4 pulses maximum per minute (unidirectional units only).
4. Ratings at 25°C ambient temperature unless otherwise specified.
5. Single phase, half wave, 60Hz, resistive or inductive load.
6. For Capacitive Load, Derate Current By 20%

Electrical Characteristics (Tamb=25°C Unless Otherwise Specified)

PART NUMBER		MARKING CODE		V _{RWM}	V _{BR} @ I _T (V)		I _T	I _R @ V _{RWM}	V _C (Max)	I _{pp} (Max)
Uni-polar	Bi-polar	Uni	Bi	(V)	Min	Max	(mA)	(uA)	(V)	(A)
ECTNCZA5VU	ECTNCZA5VB	HDE	IDE	5.0	6.40	7.35	10	800	9.2	326.1
ECTNCZA6VU	ECTNCZA6VB	HDG	IDG	6.0	6.67	7.89	10	800	10.3	291.3
ECTNCZA6V5U	SECTNCZA6V5B	HDK	IDK	6.5	7.22	8.30	10	500	11.2	267.9
ECTNCZA7VU	ECTNCZA7VB	HDM	IDM	7.0	7.78	8.95	10	200	12.0	250.0
ECTNCZA7V5U	ECTNCZA7V5B	HDP	IDP	7.5	8.33	9.58	1	100	12.9	232.6
ECTNCZA8VU	ECTNCZA8VB	HDR	IDR	8.0	8.89	10.23	1	50	13.6	220.6
ECTNCZA8V5U	ECTNCZA8V5B	HDT	IDT	8.5	9.44	10.82	1	20	14.4	208.3
ECTNCZA9VU	ECTNCZA9VB	HDV	IDV	9.0	10.0	11.5	1	10	15.4	194.8
ECTNCZA10VU	ECTNCZA10VB	HDX	IDX	10	11.1	12.8	1	5	17.0	176.5
ECTNCZA11VU	ECTNCZA11VB	HDZ	IDZ	11	12.2	14.0	1	5	18.2	164.8
ECTNCZA12VU	ECTNCZA12VB	HEE	IEE	12	13.3	15.3	1	5	19.9	150.8
ECTNCZA13VU	ECTNCZA13VB	HEG	IEG	13	14.4	16.5	1	5	21.5	139.5
ECTNCZA14VU	ECTNCZA14VB	HEK	IEK	14	15.6	17.9	1	5	23.2	129.3
ECTNCZA15VU	ECTNCZA15VB	HEM	IEM	15	16.7	19.2	1	5	24.4	123.0
ECTNCZA16VU	ECTNCZA16VB	HEP	IEP	16	17.8	20.5	1	5	26.0	115.4
ECTNCZA17VU	ECTNCZA17VB	HER	IER	17	18.9	21.7	1	5	27.6	108.7
ECTNCZA18VU	ECTNCZA18VB	HET	IET	18	20.0	23.3	1	5	29.2	102.7
ECTNCZA20VU	ECTNCZA20VB	HEV	IEV	20	22.2	25.5	1	5	32.4	92.6
ECTNCZA22VU	ECTNCZA22VB	HEX	IEX	22	24.4	28.0	1	5	35.5	84.5
ECTNCZA24VU	ECTNCZA24VB	HEZ	IEZ	24	26.7	30.7	1	5	38.9	77.1
ECTNCZA26VU	ECTNCZA26VB	HFE	IFE	26	28.9	33.2	1	5	42.1	71.3
ECTNCZA28VU	ECTNCZA28VB	HFG	IFG	28	31.1	35.8	1	5	45.4	66.1
ECTNCZA30VU	ECTNCZA30VB	HFK	IFK	30	33.3	38.3	1	5	48.4	62.0
ECTNCZA33VU	ECTNCZA33VB	HFM	IFM	33	36.7	42.2	1	5	53.3	56.3
ECTNCZA36VU	ECTNCZA36VB	HFP	IFP	36	40.0	46.0	1	5	58.1	51.6
ECTNCZA40VU	ECTNCZA40VB	HFR	IFR	40	44.4	51.1	1	5	64.5	46.5
ECTNCZA43VU	ECTNCZA43VB	HFT	IFT	43	47.8	54.9	1	5	69.4	43.2
ECTNCZA45VU	ECTNCZA45VB	HFV	IFV	45	50.0	57.5	1	5	72.7	41.3
ECTNCZA48VU	ECTNCZA48VB	HFX	IFX	48	53.3	61.3	1	5	77.4	38.8
ECTNCZA51VU	ECTNCZA51VB	HFZ	IFZ	51	56.7	65.2	1	5	82.4	36.4
ECTNCZA54VU	ECTNCZA54VB	HGE	IGE	54	60.0	69.0	1	5	87.1	34.4
ECTNCZA58VU	ECTNCZA58VB	HGG	IGG	58	64.4	74.1	1	5	93.6	32.1
ECTNCZA60VU	ECTNCZA60VB	HGK	IGK	60	66.7	76.7	1	5	96.8	31.0
ECTNCZA64VU	ECTNCZA64VB	HGM	IGM	64	71.1	81.8	1	5	103	29.1
ECTNCZA70VU	ECTNCZA70VB	HGP	IGP	70	77.8	89.5	1	5	113	26.5
ECTNCZA75VU	ECTNCZA75VB	HGR	IGR	75	83	95.8	1	5	121	24.8
ECTNCZA78VU	ECTNCZA78VB	HGT	IGT	78	86	99.7	1	5	126	23.8
ECTNCZA85VU	ECTNCZA85VB	HGV	IGV	85	94	108.2	1	5	137	21.9
ECTNCZA90VU	ECTNCZA90VB	HGX	IGX	90	100	115.5	1	5	146	20.5

Electrical Characteristics ($T_{amb}=25^{\circ}C$ Unless Otherwise Specified)

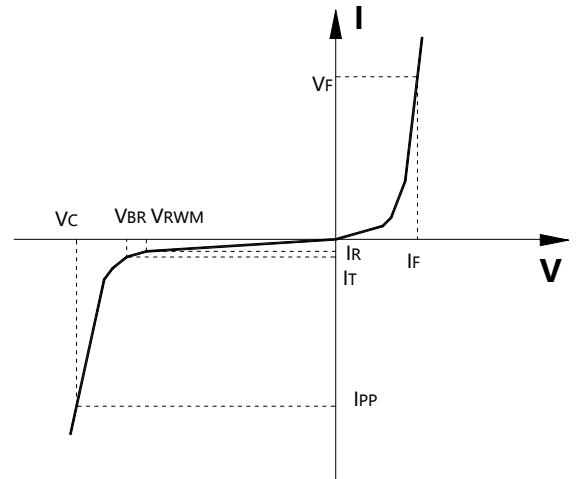
PART NUMBER		MARKING CODE		VRWM	VBR @ IT (V)		IT	IR @ VRWM	VC(Max)	IPP(Max)
Uni-polar	Bi-polar	Uni	Bi	(V)	Min	Max	(mA)	(uA)	(V)	(A)
ECTNCZA100VU	ECTNCZA100VB	HGZ	IGZ	100	111	128.0	1	5	162	18.5
ECTNCZA110VU	ECTNCZA110VB	HHE	IHE	110	122	140.5	1	5	177	16.9
ECTNCZA120VU	ECTNCZA120VB	HHG	IHG	120	133	153.0	1	5	193	15.5
ECTNCZA130VU	ECTNCZA130VB	HHK	IHK	130	144	165.5	1	5	209	14.4
ECTNCZA150VU	ECTNCZA150VB	HHM	IHM	150	167	192.5	1	5	243	12.3
ECTNCZA160VU	ECTNCZA160VB	HHP	IHP	160	178	205.0	1	5	259	11.6
ECTNCZA170VU	ECTNCZA170VB	HHR	IHR	170	189	217.5	1	5	275	10.9

①: Surge waveform: 10/1000 μ s

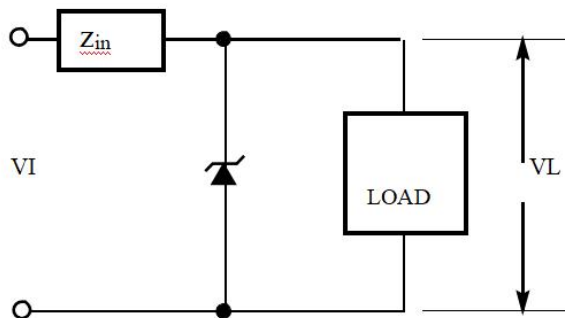
For bidirectional type having V_{rwm} of 10 volts and less, the IR limit is double.

The available parts are "A" type only, the parts without A (V_{BR} is $\pm 10\%$) is not available

Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_R	Leakage current at V_{RWM}
I_{PP}	Peak pulse current



Typical Protection Circuit



Typical Electrical Characteristics Applications

Rating and Characteristics Curves

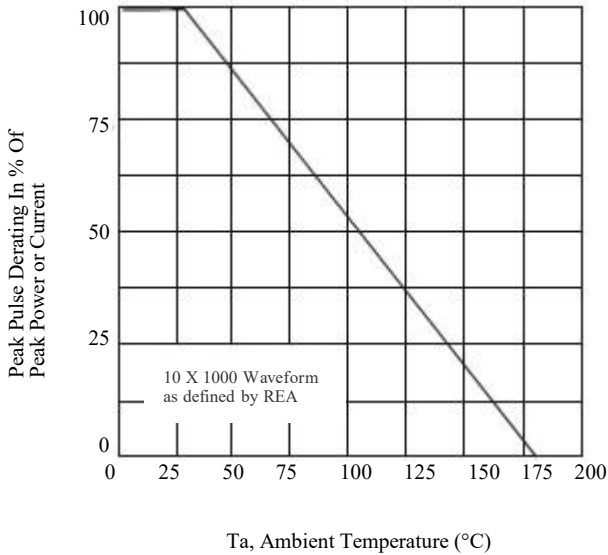


Fig. 1, Pulse Derating Curve

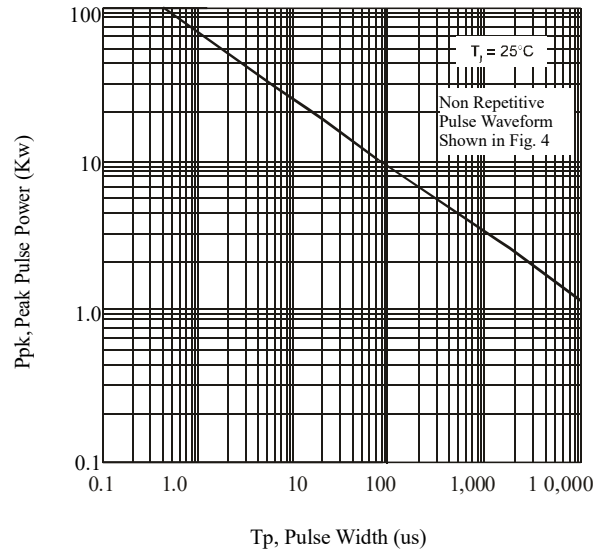


Fig. 2, Pulse Rating Curve

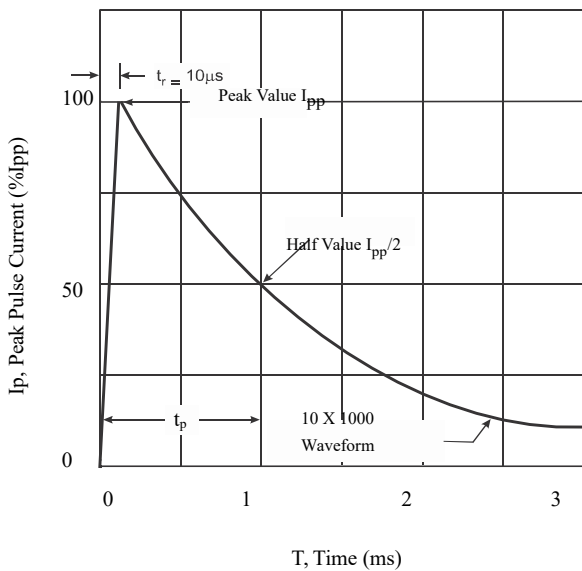


Fig. 3, Pulse Waveform

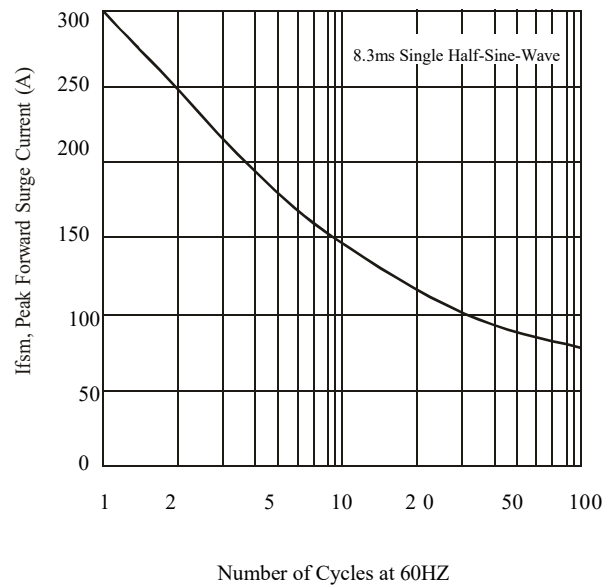


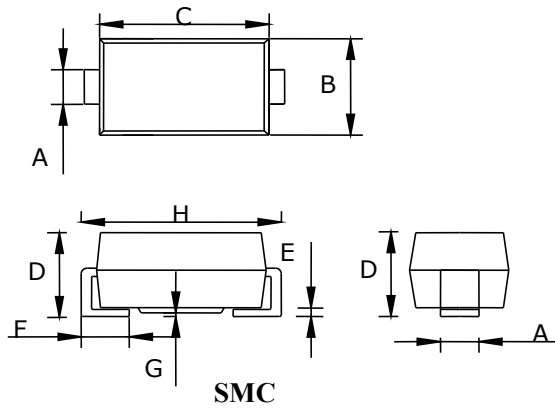
Fig. 4, Maximum Non-Repetitive Surge Current

Package Information

SMC

Mechanical Data

- Case: SMC
- Case Material: Molded Plastic. UL Flammability



DMI	Millimeters	
	Min	Max
A	2.75	3.25
B	5.50	6.20
C	6.50	7.11
D	2.10	2.70
E	0.051	0.203
F	0.90	1.52
G	-	0.203
H	7.40	8.40

Recommended Pad outline

