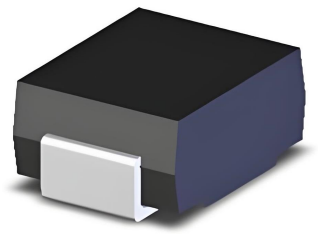
ECTNCZBxxVx

Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors

Features

- Voltage Range 5.0V - 440V
- 400W 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, form 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



SMA

Ordering Information		
Device	**Qty per Reel**	**Reel Size**
ECTNCZBxxVx	2000	7 Inch
	5000	13 Inch

"xx" =Working Peak Reverse Voltage

Maximum Ratings and Electrical Characteristics			
Characteristics	**Symbols**	**Value**	**Unit**
Peak Power Dissipation At T_j = 25℃, T_p = 1ms (Note 1,2)	P_{PK}	400	W
Peak Forward Surge Current 8.3ms single half sine-wave super	I_{FSM}	40	A
Lead Soldering Temperature	T_L	260 (10 sec.)	^{0}C
Operating Temperature Range	T_J	-55 to +155	^{0}C
Storage Temperature Range	T_{STG}	-55 to +175	^{0}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 TA= 25 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℃ ambient temperature unless otherwise specified.

5.Single phase, half wave, 60Hz, resistive or inductive load.

6. For Capacitive Load, Derate Current By 20%

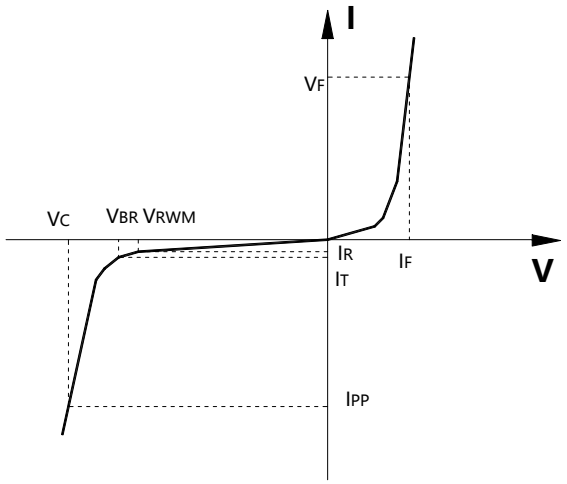
Electrical Characteristics (Tamb=25℃ Unless Otherwise Specified)

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)
ECTNCZB5VU	ECTNCZB5VB	HE	TE	5	6.4	7.35	10	800	9.2	43.5
ECTNCZB6VU	ECTNCZB6VB	HG	TG	6	6.67	7.89	10	800	10.3	38.8
ECTNCZB6V5U	ECTNCZB6V5B	HK	TK	6.5	7.22	8.3	10	500	11.2	35.7
ECTNCZB7VU	ECTNCZB7VB	HM	TM	7	7.78	8.95	10	200	12	33.3
ECTNCZB7V5U	ECTNCZB7V5B	HP	TP	7.5	8.33	9.58	1	100	12.9	31
ECTNCZB8VU	ECTNCZB8VB	HR	TR	8	8.89	10.23	1	50	13.6	29.4
ECTNCZB8V5U	ECTNCZB8V5B	HT	TT	8.5	9.44	10.82	1	20	14.4	27.8
ECTNCZB9VU	ECTNCZB9VB	HV	TV	9	10	11.5	1	10	15.4	26
ECTNCZB10VU	ECTNCZB10VB	HX	TX	10	11.1	12.8	1	5	17	23.5
ECTNCZB11VU	ECTNCZB11VB	HZ	TZ	11	12.2	14	1	5	18.2	22
ECTNCZB12VU	ECTNCZB12VB	IE	UE	12	13.3	15.3	1	5	19.9	20.1
ECTNCZB13VU	ECTNCZB13VB	IG	UG	13	14.4	16.5	1	5	21.5	18.6
ECTNCZB14VU	ECTNCZB14VB	IK	UK	14	15.6	17.9	1	5	23.2	17.2
ECTNCZB15VU	ECTNCZB15VB	IM	UM	15	16.7	19.2	1	5	24.4	16.4
ECTNCZB16VU	ECTNCZB16VB	IP	UP	16	17.8	20.5	1	5	26	15.4
ECTNCZB17VU	ECTNCZB17VB	IR	UR	17	18.9	21.7	1	5	27.6	14.5
ECTNCZB18VU	ECTNCZB18VB	IT	UT	18	20	23.3	1	5	29.2	13.7
ECTNCZB20VU	ECTNCZB20VB	IV	UV	20	22.2	25.5	1	5	32.4	12.3
ECTNCZB22VU	ECTNCZB22VB	IX	UX	22	24.4	28	1	5	35.5	11.3
ECTNCZB24VU	ECTNCZB24VB	IZ	UZ	24	26.7	30.7	1	5	38.9	10.3
ECTNCZB26VU	ECTNCZB26VB	JE	VE	26	28.9	33.2	1	5	42.1	9.5
ECTNCZB28VU	ECTNCZB28VB	JG	VG	28	31.1	35.8	1	5	45.4	8.8
ECTNCZB30VU	ECTNCZB30VB	JK	VK	30	33.3	38.3	1	5	48.4	8.3
ECTNCZB33VU	ECTNCZB33VB	JM	VM	33	36.7	42.2	1	5	53.3	7.5
ECTNCZB36VU	ECTNCZB36VB	JP	VP	36	40	46	1	5	58.1	6.9
ECTNCZB40VU	ECTNCZB40VB	JR	VR	40	44.4	51.1	1	5	64.5	6.2
ECTNCZB43VU	ECTNCZB43VB	JT	VT	43	47.8	54.9	1	5	69.4	5.8
ECTNCZB45VU	ECTNCZB45VB	JV	VV	45	50	57.5	1	5	72.7	5.5
ECTNCZB48VU	ECTNCZB48VB	JX	VX	48	53.3	61.3	1	5	77.4	5.2
ECTNCZB51VU	ECTNCZB51VB	JZ	VZ	51	56.7	65.2	1	5	82.4	4.9
ECTNCZB54VU	ECTNCZB54VB	RE	WE	54	60	69	1	5	87.1	4.6
ECTNCZB58VU	ECTNCZB58VB	RG	WG	58	64.4	74.1	1	5	93.6	4.3
ECTNCZB60VU	ECTNCZB60VB	RK	WK	60	66.7	76.7	1	5	96.8	4.1
ECTNCZB64VU	ECTNCZB64VB	RM	WM	64	71.1	81.8	1	5	103	3.9
ECTNCZB70VU	ECTNCZB70VB	RP	WP	70	77.8	89.5	1	5	113	3.5
ECTNCZB75VU	ECTNCZB75VB	RR	WR	75	83	95.8	1	5	121	3.3
ECTNCZB78VU	ECTNCZB78VB	RT	WT	78	86	99.7	1	5	126	3.2
ECTNCZB85VU	ECTNCZB85VB	RV	WV	85	94	108.2	1	5	137	2.9
ECTNCZB90VU	ECTNCZB90VB	RX	WX	90	100	115.5	1	5	146	2.7

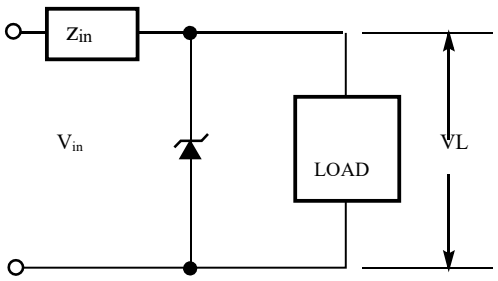
Electrical Characteristics (Tamb=25℃ Unless Otherwise Specified)

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)
ECTNCZB100VU	ECTNCZB100VB	RZ	WZ	100	111	128	1	5	162	2.5
ECTNCZB110VU	ECTNCZB110VB	SE	XE	110	122	140.5	1	5	177	2.3
ECTNCZB120VU	ECTNCZB120VB	SG	XG	120	133	153	1	5	193	2.1
ECTNCZB130VU	ECTNCZB130VB	SK	XK	130	144	165.5	1	5	209	1.9
ECTNCZB150VU	ECTNCZB150VB	SM	XM	150	167	192.5	1	5	243	1.6
ECTNCZB160VU	ECTNCZB160VB	SP	XP	160	178	205	1	5	259	1.5
ECTNCZB170VU	ECTNCZB170VB	SR	XR	170	189	217.5	1	5	275	1.5
ECTNCZB180VU	ECTNCZB180VB	ST	XT	180	200	230.4	1	5	290	1.4
ECTNCZB190VU	ECTNCZB190VB	SV	XV	190	211	243.2	1	5	306	1.3
ECTNCZB200VU	ECTNCZB200VB	SX	XX	200	222	256	1	5	322	1.2
ECTNCZB210VU	ECTNCZB210VB	SZ	XZ	210	233	268.8	1	5	339	1.2
ECTNCZB220VU	ECTNCZB220VB	ZE	YE	220	244	281.6	1	5	355	1.1
ECTNCZB250VU	ECTNCZB250VB	ZG	YG	250	278	309	1	5	403	1
ECTNCZB300VU	ECTNCZB300VB	ZK	YK	300	333	371	1	5	484	0.8
ECTNCZB350VU	ECTNCZB350VB	ZM	YM	350	389	432	1	5	565	0.7
ECTNCZB400VU	ECTNCZB400VB	ZP	YP	400	444	494	1	5	645	0.6
ECTNCZB440VU	ECTNCZB440VB	ZR	YR	440	489	543	1	5	710	0.6

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



Typical Protection Circuit



Typical electrical characterist applications

Rating and Characteristics Curves

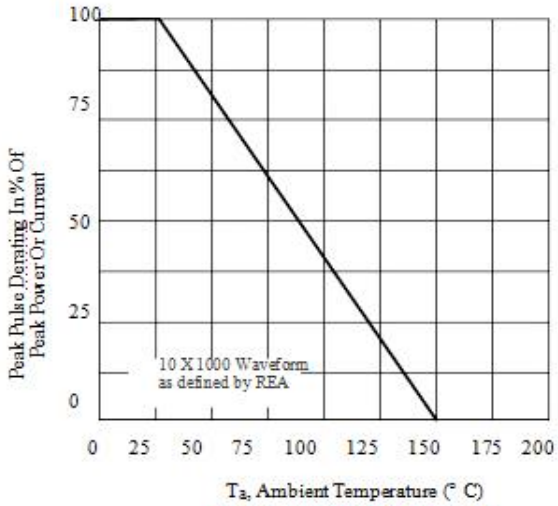


Fig. 1 Pulse Derating Curve

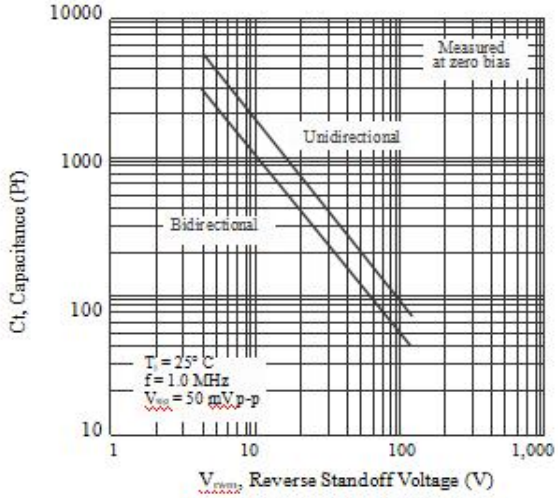


Fig. 2 Typical Total Capacitance

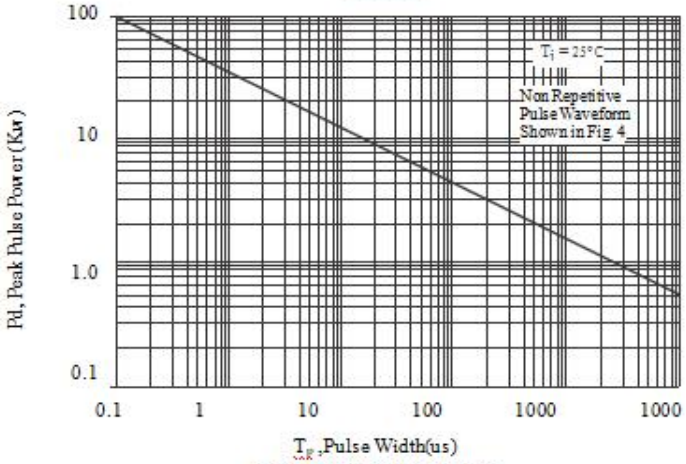


Fig.3 Pulse Rating Curve

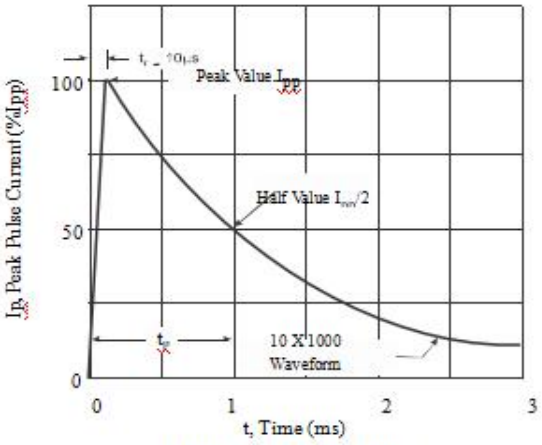


Fig. 4 Pulse Waveform

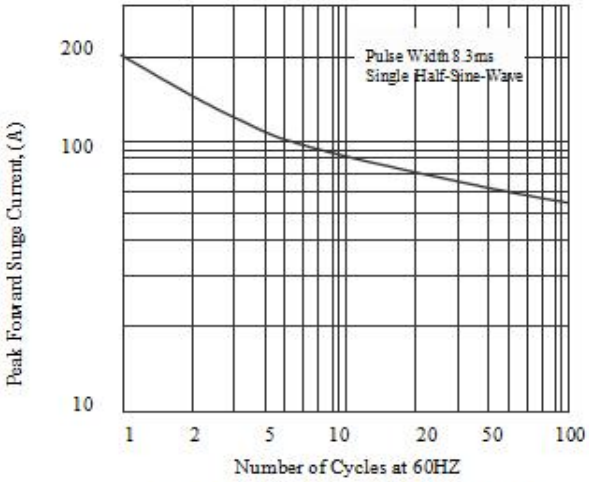


Fig. 5, Maximum Non-Repetitive Surge Current

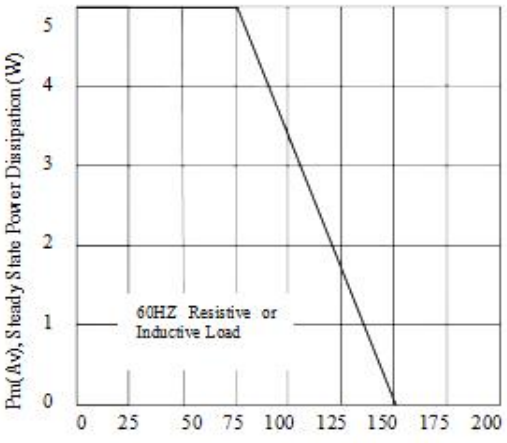
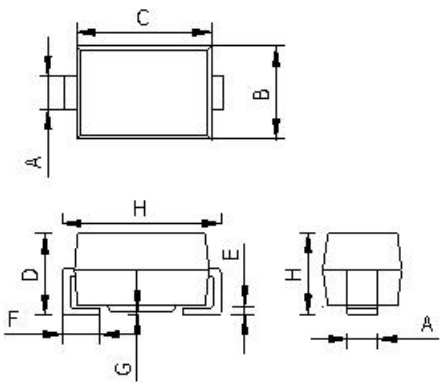


Fig. 6 Steady State Power Derating Curve

Package Information

Mechanical Data

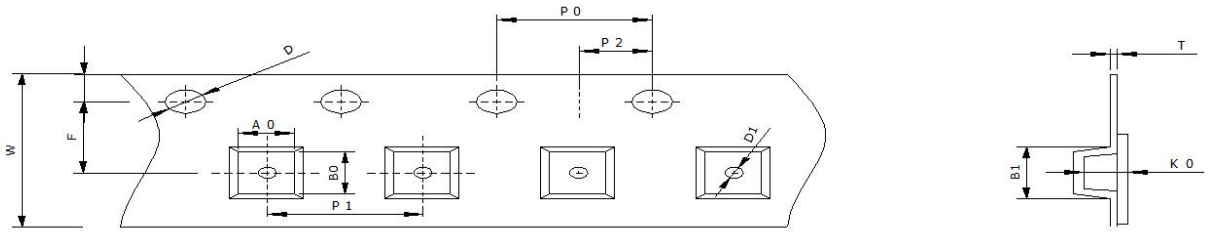
- Case: SMA
- Case Material: Molded Plastic. UL Flammability
- Classification Rating 94V-0
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Weight: 0.064 grams (approximate)



SMA

DIM	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	1.25	1.45	1.65	0.049	0.057	0.065
B	2.40	2.67	2.79	0.095	0.105	0.110
C	3.39	3.95	4.60	0.133	0.156	0.181
D	1.98	2.14	2.29	0.0779	0.084	0.090
E	0.150	0.200	0.310	0.006	0.009	0.012
F	0.76	1.14	1.52	0.030	0.045	0.060
G	-	-	0.203	-	-	0.008
H	4.80	5.11	5.28	0.194	0.201	0.208

SMA Reel Dim



A0	B0	B1	D	D1	E	F	K0	T	W	P0	P1	P2
2.7	5.3	5.5	1.5	1.0	1.75	3.5	2.5	0.50	12	4.0	4.0	2.0

Dimension is in mm

Leader and Trailer