

5000W Transient Voltage Suppressor 5.0SMDJ Series

PRIMARY CHARACTERISTICS	
V_{BR} unidirectional	6.8 V to 540 V
V_{BR} bidirectional	6.8 V to 220 V
V_{WM} unidirectional	5.8 V to 459 V
V_{WM} bidirectional	5.8 V to 185 V
P_{PPM}	1500 W
P_D	6.5 W
I_{FSM} (unidirectional only)	200 A
T_J max.	175 °C
Polarity	Unidirectional, bidirectional
Package	1.5KE



FEATURES

- Glass passivated chip junction
- Available in unidirectional and bidirectional
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Solder dip 275°C max.10 s, per JESD 22-B106

APPLICATIONS

- Consumer, computer,
- Industrial, automotive and telecommunication
- Inductive load switching and lighting on ICs, MOSFET, signal lines.

MAXIMUM RATED VALUES (at $T_J = 25\text{ °C}$, unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 μ s waveform (1) (fig. 1)	PPPM	1500	W
Peak pulse current with a 10/1000 μ s waveform (1)	IPPM	See next table	A
Power dissipation on infinite heatsink at $T_L = 75\text{ °C}$ (fig. 5)	PD	6.5	W
Peak forward surge current 8.3 ms single half sine-wave unidirectional only (2)	IFSM	200	A
Maximum instantaneous forward voltage at 100 A for unidirectional only (3)	VF	3.5/5.0	V
Operating junction and storage temperature range	T_J , T_{STG}	-55 to +175	°C

Notes

- (1) Non-repetitive current pulse, per fig. 3 and derated above $T_A = 25\text{ °C}$ per fig. 2
 (2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
 (3) $V_F = 3.5\text{ V}$ for 1.5KE220A and below; $V_F = 5.0\text{ V}$ for 1.5KE250A and above.

ELECTRICAL CHARACTERISTICS (at T_J = 25°C unless otherwise specified)

JEDEC® TYPE NUMBER	GENERAL SEMICONDUCTOR PART NUMBER	BREAKDOWN		TEST	STAND-OFF	MAXIMUM	MAXIMUM	MAXIMUM	MAXIMUM
		VOLTAGE V _{BR}		CURRENT	VOLTAGE	REVERSE	PEAK	CLAMPING	TEMPERATURE
		AT I _T (1)		I _T	V _{WM}	LEAKAGE	PULSE	VOLTAGE	COEFFICIENT
		(V)		(mA)	(V)	AT V _{WM}	CURRENT	AT I _{PPM}	OF V _{BR} (%/°C)
		MIN.	MAX.			ID (4) (μA)	I _{PPM} (2)(A)	V _C (V)	
1N6267A	(+) 1.5KE6.8A/CA	6.45	7.14	10	5.80	1000	143	10.5	0.057
1N6268A	(+) 1.5KE7.5A/CA	7.13	7.88	10	6.40	500	133	11.3	0.061
1N6269A	(+) 1.5KE8.2A/CA	7.79	8.61	10	7.02	200	124	12.1	0.065
1N6270A	(+) 1.5KE9.1A/CA	8.65	9.55	1.0	7.78	50	112	13.4	0.068
1N6271A	(+) 1.5KE10A/CA	9.50	10.5	1.0	8.55	10	103	14.5	0.073
1N6272A	(+) 1.5KE11A/CA	10.5	11.6	1.0	9.40	5.0	96.2	15.6	0.075
1N6273A	(+) 1.5KE12A/CA	11.4	12.6	1.0	10.2	5.0	89.8	16.7	0.078
1N6274A	(+) 1.5KE13A/CA	12.4	13.7	1.0	11.1	5.0	82.4	18.2	0.081
1N6275A	(+) 1.5KE15A/CA	14.3	15.8	1.0	12.8	1.0	70.8	21.2	0.084
1N6276A	(+) 1.5KE16A/CA	15.2	16.8	1.0	13.6	1.0	66.7	22.5	0.086
1N6277A	(+) 1.5KE18A/CA	17.1	18.9	1.0	15.3	1.0	59.5	25.2	0.089
1N6278A	(+) 1.5KE20A/CA	19.0	21.0	1.0	17.1	1.0	54.2	27.7	0.090
1N6279A	(+) 1.5KE22A/CA	20.9	23.1	1.0	18.8	1.0	49.0	30.6	0.092
1N6280A	(+) 1.5KE24A/CA	22.8	25.2	1.0	20.5	1.0	45.2	33.2	0.094
1N6281A	(+) 1.5KE27A/CA	25.7	28.4	1.0	23.1	1.0	40.0	37.5	0.096
1N6282A	(+) 1.5KE30A/CA	28.5	31.5	1.0	25.6	1.0	36.2	41.4	0.097
1N6283A	(+) 1.5KE33A/CA	31.4	34.7	1.0	28.2	1.0	32.8	45.7	0.098
1N6284A	(+) 1.5KE36A/CA	34.2	37.8	1.0	30.8	1.0	30.1	49.9	0.099
1N6285A	(+) 1.5KE39A/CA	37.1	41.0	1.0	33.3	1.0	27.8	53.9	0.100
1N6286A	(+) 1.5KE43A/CA	40.9	45.2	1.0	36.8	1.0	25.3	59.3	0.101
1N6287A	(+) 1.5KE47A/CA	44.7	49.4	1.0	40.2	1.0	23.1	64.8	0.101
1N6288A	(+) 1.5KE51A/CA	48.5	53.6	1.0	43.6	1.0	21.4	70.1	0.102
1N6289A	(+) 1.5KE56A/CA	53.2	58.8	1.0	47.8	1.0	19.5	77.0	0.103
1N6290A	(+) 1.5KE62A/CA	58.9	65.1	1.0	53.0	1.0	17.6	85.0	0.104
1N6291A	(+) 1.5KE68A/CA	64.6	71.4	1.0	58.1	1.0	16.3	92.0	0.104
1N6292A	(+) 1.5KE75A/CA	71.3	78.8	1.0	64.1	1.0	14.6	104	0.105
1N6293A	(+) 1.5KE82A/CA	77.9	86.1	1.0	70.1	1.0	13.3	113	0.105
1N6294A	(+) 1.5KE91A/CA	86.5	95.5	1.0	77.8	1.0	12.0	125	0.106
1N6295A	(+) 1.5KE100A/CA	95.0	105	1.0	85.5	1.0	10.9	137	0.106
1N6296A	(+) 1.5KE110A/CA	105	116	1.0	94.0	1.0	9.9	152	0.107
1N6297A	(+) 1.5KE120A/CA	114	126	1.0	102	1.0	9.1	165	0.107
1N6298A	(+) 1.5KE130A/CA	124	137	1.0	111	1.0	8.4	179	0.107
1N6299A	(+) 1.5KE150A/CA	143	158	1.0	128	1.0	7.2	207	0.106
1N6300A	(+) 1.5KE160A/CA	152	168	1.0	136	1.0	6.8	219	0.108
1N6301A	(+) 1.5KE170A/CA	162	179	1.0	145	1.0	6.4	234	0.108
1N6302A	(+) 1.5KE180A/CA	171	189	1.0	154	1.0	6.1	246	0.108
1N6303A	(+) 1.5KE200A/CA	190	210	1.0	171	1.0	5.5	274	0.108
-	(+) 1.5KE220A/CA	209	231	1.0	185	1.0	4.6	328	0.108
-	1.5KE250A/CA	237	263	1.0	214	1.0	4.4	344	0.110
-	1.5KE300A/CA	285	315	1.0	256	1.0	3.6	414	0.110
-	1.5KE350A/CA	333	368	1.0	300	1.0	3.1	482	0.110
-	1.5KE400A/CA	380	420	1.0	342	1.0	2.7	548	0.110
-	1.5KE440A/CA	418	462	1.0	376	1.0	2.5	602	0.110
-	1.5KE480A/CA	456	504	1.0	408	1.0	2.28	658	0.110
-	1.5KE510A/CA	485	535	1.0	434	1.0	2.15	698	0.110
-	1.5KE540A/CA	513	567	1.0	459	1.0	2.03	740	0.110

Notes:

- (1) Pulse test: tp 50 ms
- (2) Surge current waveform per fig. 3 and derate per fig. 2
- (3) All terms and symbols are consistent with ANSI/IEEE CA62.35
- (4) For bidirectional types with VR 10 V and less the I_D limit is doubled
- (+) Underwriters laboratory recognition for the classification of protectors (QVGG2) under the UL standard for safety 497B and file number E136766 for both unidirectional and bidirectional devices

THERMAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to ambient	R JA	75	°C/ W
Typical thermal resistance, junction to lead	R JL	15.4	

TYPICAL CHARACTERISTICS CURVES

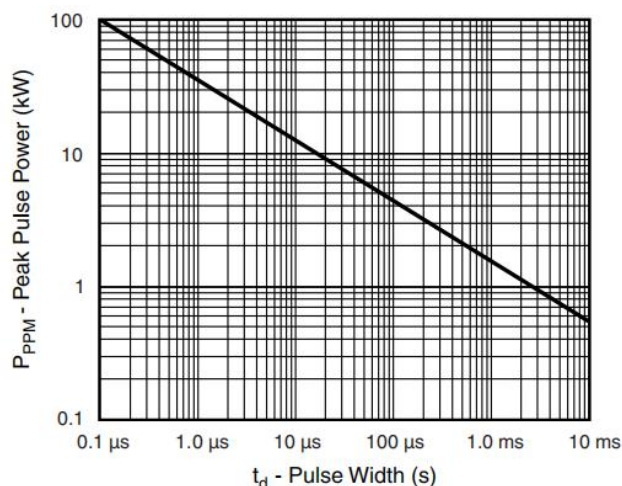


Fig. 1 - Peak Pulse Power Rating Curve

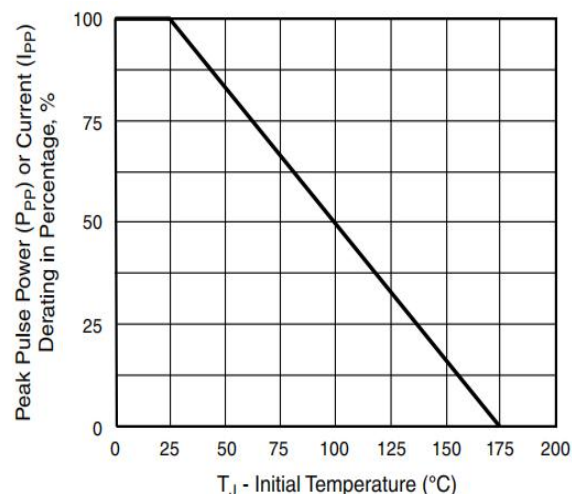


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

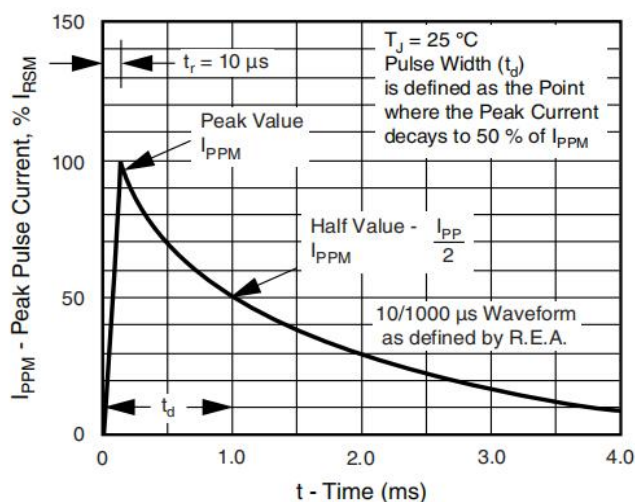


Fig. 3 - Pulse Waveform

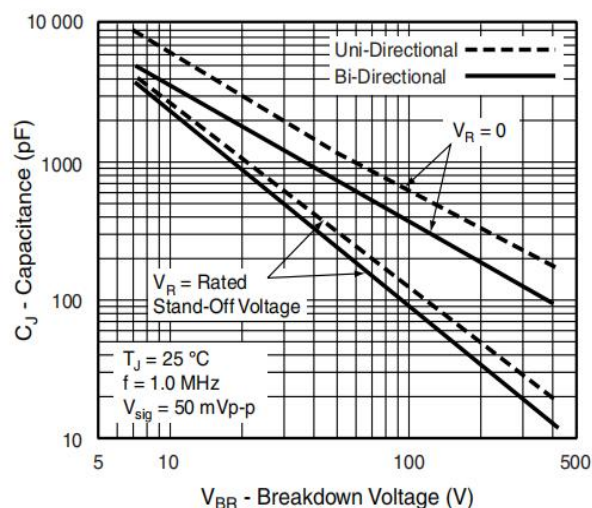


Fig. 4 - Typical Junction Capacitance

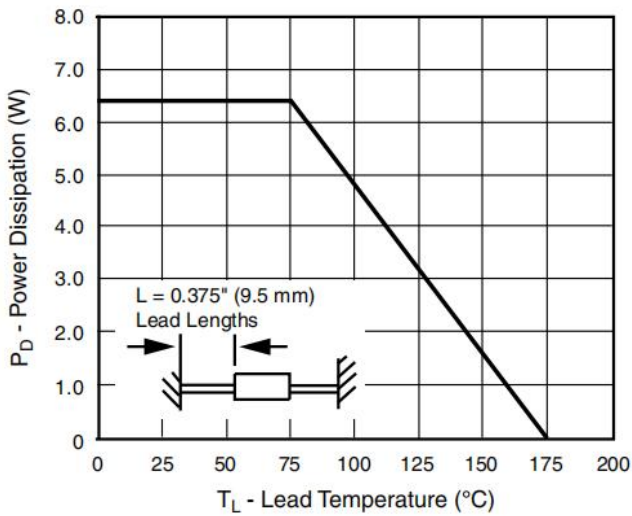


Fig. 5 - Power Derating Curve

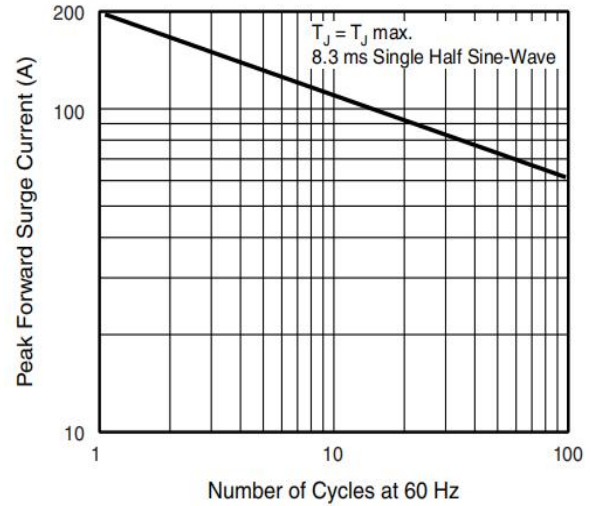


Fig. 6 - Maximum Non-Repetitive Forward Surge Current
Unidirectional only

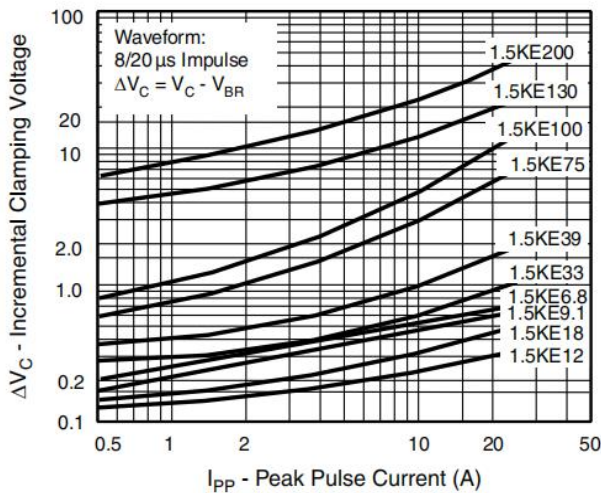


Fig. 7 - Incremental Clamping Voltage Curve (Unidirectional)

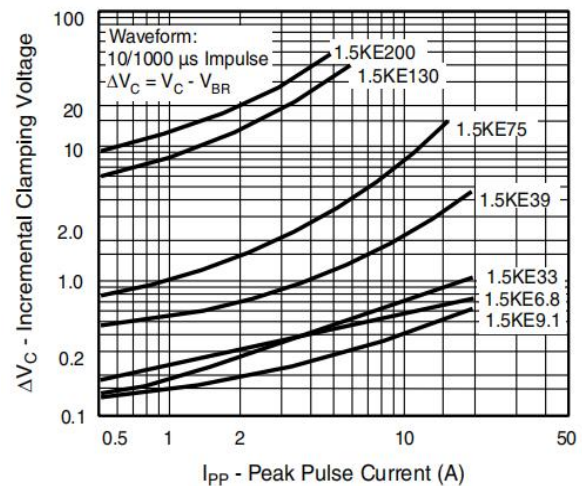


Fig. 8 - Incremental Clamping Voltage Curve (Unidirectional)

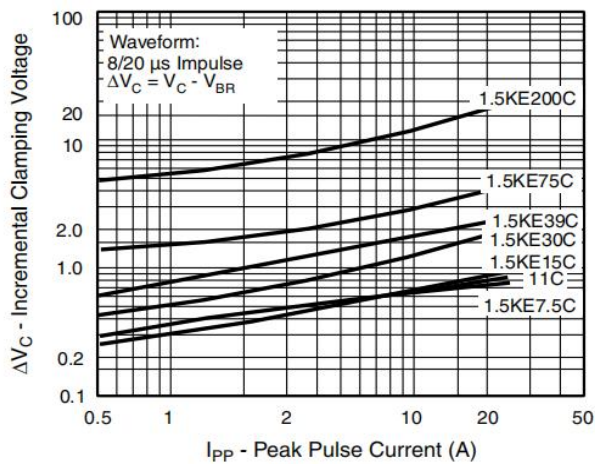


Fig. 9 - Incremental Clamping Voltage Curve (Bidirectional)

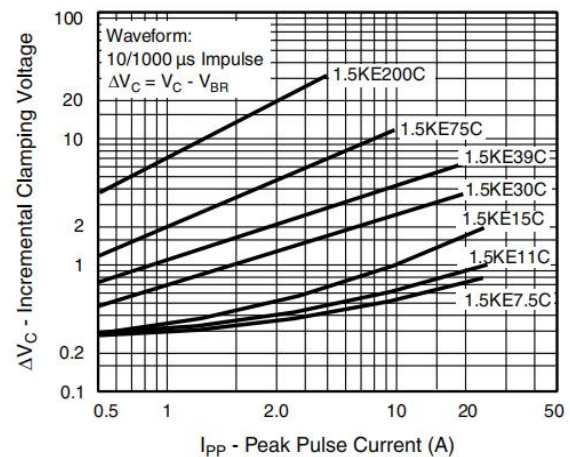


Fig. 10 - Incremental Clamping Voltage Curve (Bidirectional)

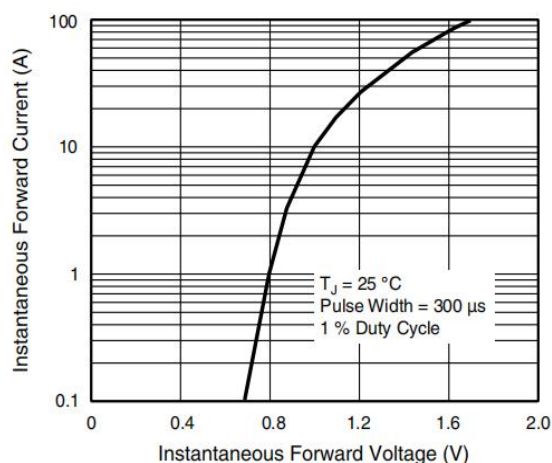


Fig. 11 - Instantaneous Forward Voltage Characteristics Curve

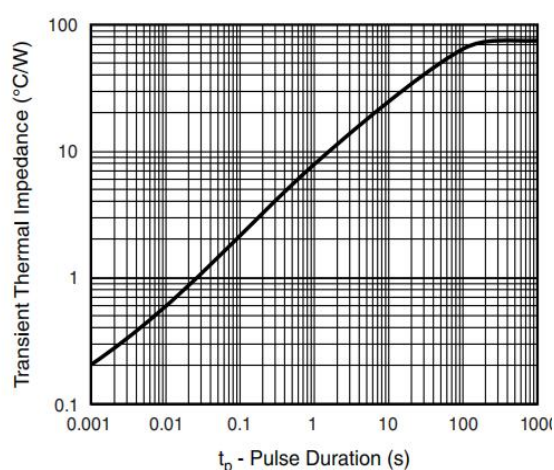
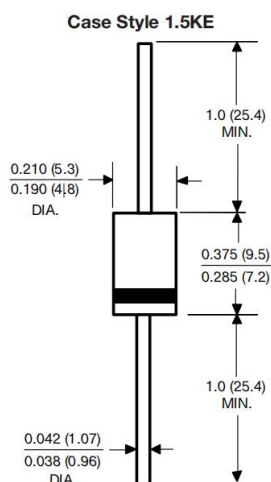


Fig. 12 - Typical Transient Thermal Impedance

PACKAGE OUTLINES



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