

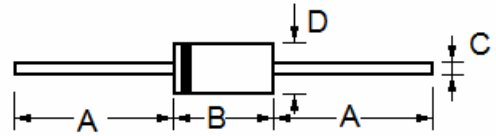


## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

### 1.5KE6.8 - 1.5KE180A

#### FEATURES

- Peak power dissipation 1500W @10 x 1000 us Pulse
- Excellent clamping capability.
- Fast response time: typically less than 1 ns.
- Typical IR less than 1uA above 10V.
- Plastic material has UL flammability classification 94V-O
- RoHS compliant in lead-free versions



DO-201

#### MECHANICAL CHARACTERISTICS

- CASE: JEDEC DO-201 Molded Plastic over glass passivated junction.
- Mounting Position: Any
- Polarity: by cathode band denotes uni-directional device.
- Terminal: Solder plated, solderable per MIL-STD-750, Method 2026

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	25.4	---	1.000	---
B	7.2	9.5	0.285	0.375
C	0.96	1.07	0.038	0.042
D	4.8	5.3	0.188	0.210

#### MAXIMUM RATINGS AND CHARACTERISTICS

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, 2, FIG.1)	$P_{PPM}$	Min 1500	W
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	$I_{PPM}$	See Table 1	Amps
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method) (Note 2. 3)	$I_{FSM}$	200	Amps
Operating Junction Temperature Range	$T_J$	-55 to 150	°C
Storage Temperature Range	$T_{STG}$	-55 to 150	°C

#### Notes

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^{\circ}\text{C}$  per Fig.2.
2. Mounted on  $5.0\text{mm}^2$  (0.03mm thick) Copper Pads to each terminal.
3. 8.3 ms single half sine-wave, or equivalent square wave, Duty cycle=4 pluses per minute maximum.



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ELECTRICAL SPECIFICATION  $T_A=25\text{ }^\circ\text{C}$

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @ $I_T$	Breakdown Voltage Max. @ $I_T$	Test Current	Maximum Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage @ $V_{RMW}$
(Uni)	(Bi)	$V_{RMW}(V)$	$V_{BR\ MIN}(V)$	$V_{BR\ MAX}(V)$	$I_T\ (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
1.5KE6.8	1.5KE6.8C	5.50	6.12	7.48	10	10.8	140.7	1000.0
1.5KE6.8A	1.5KE6.8CA	5.80	6.45	7.14	10	10.5	144.8	1000.0
1.5KE7.5	1.5KE7.5C	6.05	6.75	8.25	10	11.7	129.9	500.0
1.5KE7.5A	1.5KE7.5CA	6.40	7.13	7.88	10	11.3	134.5	500.0
1.5KE8.2	1.5KE8.2C	6.63	7.38	9.02	10	12.5	121.6	200.0
1.5KE8.2A	1.5KE8.2CA	7.02	7.79	8.61	10	12.1	125.6	200.0
1.5KE9.1	1.5KE9.1C	7.37	8.19	10.0	1.0	13.8	110.1	50.0
1.5KE9.1A	1.5KE9.1CA	7.78	8.65	9.55	1.0	13.4	113.4	50.0
1.5KE10	1.5KE10C	8.10	9.00	11.0	1.0	15.0	101.3	10.0
1.5KE10A	1.5KE10CA	8.55	9.50	10.5	1.0	14.5	104.8	10.0
1.5KE11	1.5KE11C	8.92	9.90	12.1	1.0	16.2	93.8	5.0
1.5KE11A	1.5KE11CA	9.40	10.5	11.6	1.0	15.6	97.4	5.0
1.5KE12	1.5KE12C	9.72	10.8	13.2	1.0	17.3	87.9	5.0
1.5KE12A	1.5KE12CA	10.2	11.4	12.6	1.0	16.7	91.0	5.0
1.5KE13	1.5KE13C	10.5	11.7	14.3	1.0	19.0	80.0	5.0
1.5KE13A	1.5KE13CA	11.1	12.4	13.7	1.0	18.2	83.5	5.0
1.5KE15	1.5KE15C	12.1	13.5	16.5	1.0	22.0	69.1	5.0
1.5KE15A	1.5KE15CA	12.8	14.3	15.8	1.0	21.2	71.7	5.0
1.5KE16	1.5KE16C	12.9	14.4	17.6	1.0	23.5	64.7	5.0
1.5KE16A	1.5KE16CA	13.6	15.2	16.8	1.0	22.5	67.6	5.0
1.5KE18	1.5KE18C	14.5	16.2	19.8	1.0	26.5	57.4	5.0
1.5KE18A	1.5KE18CA	15.3	17.1	18.9	1.0	25.2	60.3	5.0
1.5KE20	1.5KE20C	16.2	18.0	22.0	1.0	29.1	52.2	5.0
1.5KE20A	1.5KE20CA	17.1	19.0	21.0	1.0	27.7	54.9	5.0
1.5KE22	1.5KE22C	17.8	19.8	24.2	1.0	31.9	47.6	5.0
1.5KE22A	1.5KE22CA	18.8	20.9	23.1	1.0	30.6	49.7	5.0
1.5KE24	1.5KE24C	19.4	21.6	26.4	1.0	34.7	43.8	5.0
1.5KE24A	1.5KE24CA	20.5	22.8	25.2	1.0	33.2	45.8	5.0
1.5KE27	1.5KE27C	21.8	24.3	29.7	1.0	39.1	38.9	5.0
1.5KE27A	1.5KE27CA	23.1	25.7	28.4	1.0	37.5	40.5	5.0
1.5KE30	1.5KE30C	24.3	27.0	33.0	1.0	43.5	34.9	5.0
1.5KE30A	1.5KE30CA	25.6	28.5	31.5	1.0	41.4	36.7	5.0
1.5KE33	1.5KE33C	26.8	29.7	36.3	1.0	47.7	31.9	5.0
1.5KE33A	1.5KE33CA	28.2	31.4	34.7	1.0	45.7	33.3	5.0
1.5KE36	1.5KE36C	29.1	32.4	39.6	1.0	52.0	29.2	5.0
1.5KE36A	1.5KE36CA	30.8	34.2	37.8	1.0	49.9	30.5	5.0

For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double



## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

### 1.5KE6.8 - 1.5KE180A

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I <sub>T</sub>	Breakdown Voltage Max. @ I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RMW</sub>
(Uni)	(Bi)	V <sub>RMW</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (uA)
1.5KE39	1.5KE39C	31.6	35.1	42.9	1.0	56.4	27.0	5.0
1.5KE39A	1.5KE39CA	33.3	37.1	41.0	1.0	53.9	28.2	5.0
1.5KE43	1.5KE43C	34.8	38.7	47.3	1.0	61.9	24.6	5.0
1.5KE43A	1.5KE43CA	36.8	40.9	45.2	1.0	59.3	25.6	5.0
1.5KE47	1.5KE47C	38.1	42.3	51.7	1.0	67.8	22.4	5.0
1.5KE47A	1.5KE47CA	40.2	44.7	49.4	1.0	64.8	23.5	5.0
1.5KE51	1.5KE51C	41.3	45.9	56.1	1.0	73.5	20.7	5.0
1.5KE51A	1.5KE51CA	43.6	48.5	53.6	1.0	70.1	21.7	5.0
1.5KE56	1.5KE56C	45.4	50.4	61.6	1.0	80.5	18.9	5.0
1.5KE56A	1.5KE56CA	47.8	53.2	58.8	1.0	77.0	19.7	5.0
1.5KE62	1.5KE62C	50.2	55.8	68.2	1.0	89.0	17.1	5.0
1.5KE62A	1.5KE62CA	53.0	58.9	65.1	1.0	85.0	17.9	5.0
1.5KE68	1.5KE68C	55.1	61.2	74.8	1.0	98.0	13.5	5.0
1.5KE68A	1.5KE68CA	58.1	64.6	71.4	1.0	92.0	16.5	5.0
1.5KE75	1.5KE75C	60.7	67.5	82.5	1.0	108	14.1	5.0
1.5KE75A	1.5KE75CA	64.1	71.3	78.8	1.0	103	14.8	5.0
1.5KE82	1.5KE82C	66.4	73.8	90.2	1.0	118	12.9	5.0
1.5KE82A	1.5KE82CA	70.1	77.9	86.1	1.0	113	13.5	5.0
1.5KE91	1.5KE91C	73.7	81.9	100	1.0	131	11.6	5.0
1.5KE91A	1.5KE91CA	77.8	86.5	95.5	1.0	125	12.2	5.0
1.5KE100	1.5KE100C	81.0	90.0	110	1.0	144	10.6	5.0
1.5KE100A	1.5KE100CA	85.5	95.0	105	1.0	137	11.1	5.0
1.5KE110	1.5KE110C	89.2	99.0	121	1.0	158	9.6	5.0
1.5KE110A	1.5KE110CA	94.0	105	116	1.0	152	10.0	5.0
1.5KE120	1.5KE120C	97.2	108	132	1.0	173	8.7	5.0
1.5KE120A	1.5KE120CA	102	114	126	1.0	165	9.2	5.0
1.5KE130	1.5KE130C	105	117	143	1.0	187	8.1	5.0
1.5KE130A	1.5KE130CA	111	124	137	1.0	179	8.5	5.0
1.5KE150	1.5KE150C	121	135	165	1.0	215	7.1	5.0
1.5KE150A	1.5KE150CA	128	143	158	1.0	207	7.3	5.0
1.5KE160	1.5KE160C	130	144	176	1.0	230	6.6	5.0
1.5KE160A	1.5KE160CA	136	152	168	1.0	219	6.9	5.0
1.5KE170	1.5KE170C	138	153	187	1.0	244	6.2	5.0
1.5KE170A	1.5KE170CA	145	162	179	1.0	234	6.5	5.0
1.5KE180	1.5KE180C	146	162	198	1.0	258	5.9	5.0
1.5KE180A	1.5KE180CA	154	171	189	1.0	246	6.2	5.0

For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double



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(Uni)	(Bi)	V <sub>RMW</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (uA)
1.5KE200	1.5KE200C	162	180	220	1.0	287	5.3	5.0
1.5KE200A	1.5KE200CA	171	190	210	1.0	274	5.5	5.0
1.5KE220	1.5KE220C	175	198	242	1.0	344	4.4	5.0
1.5KE220A	1.5KE220CA	185	209	231	1.0	328	4.6	5.0
1.5KE250	1.5KE250C	202	225	275	1.0	360	4.2	5.0
1.5KE250A	1.5KE250CA	214	237	263	1.0	344	4.4	5.0
1.5KE300	1.5KE300C	243	270	330	1.0	430	3.5	5.0
1.5KE300A	1.5KE300CA	256	285	315	1.0	414	3.7	5.0
1.5KE350	1.5KE350C	284	315	385	1.0	504	3.0	5.0
1.5KE350A	1.5KE350CA	300	333	368	1.0	482	3.2	5.0
1.5KE400	1.5KE400C	324	360	440	1.0	574	2.6	5.0
1.5KE400A	1.5KE400CA	342	380	420	1.0	548	2.8	5.0
1.5KE440	1.5KE440C	356	396	484	1.0	631	2.4	5.0
1.5KE440A	1.5KE440CA	376	418	462	1.0	600	2.5	5.0

For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

# SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

## 1.5KE6.8 - 1.5KE180A

RATINGS AND CHARACTERISTIC CURVES  $T_A=25^\circ\text{C}$  UNLESS OTHERWISE NOTED

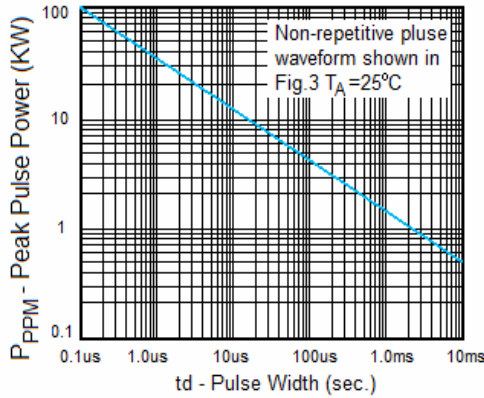


Fig. 1 Peak Pulse Power Rating

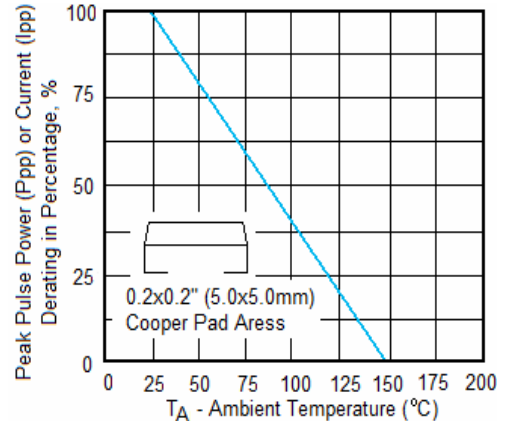


Fig. 2 Pulse Derating Curve

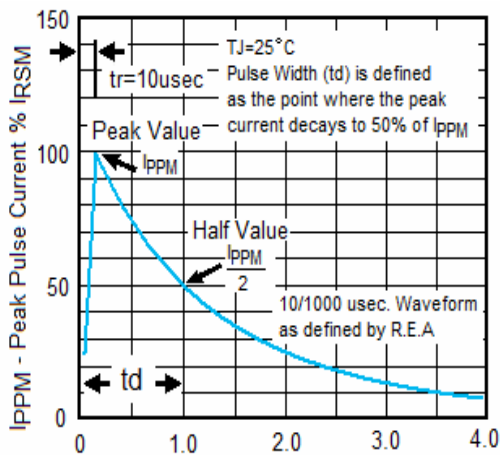


Fig. 3 Pulse Waveform

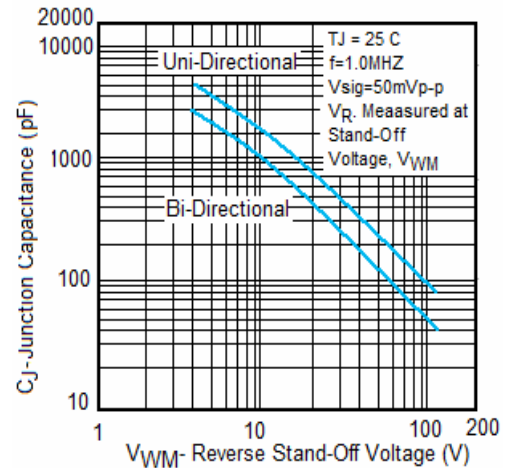


Fig. 4- Typical Junction Capacitance