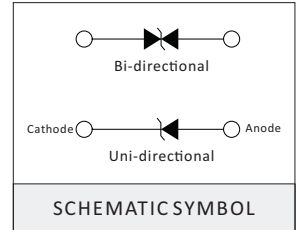
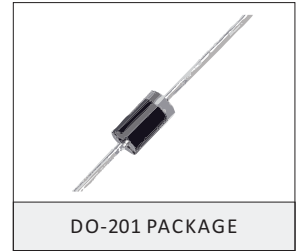


## DESCRIPTION

The 1.5KE series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

## FEATURES

- > Plastic package.
- > Glass passivated chip junction in DO-201 Package
- > 1500W peak pulse power capability on 10/1000 $\mu$ s waveform.
- > Excellent clamping capability.
- > Low incremental surge resistance.
- > Fast response time: typically less than 1.0ps from 0 Volts to BV min.
- > Typical IR less than 1  $\mu$  A above 12V
- > High temperature soldering guaranteed: 265°C/10 seconds/.375", (9.5mm) lead length, 5lbs., (2.3kg) tension.



## MECHANICAL DATA

- > Case: JEDEC DO-201 Molded Plastic.
- > Terminals: Axial leads, solderable per MIL-STD-750, Method 2026.
- > Polarity: Color band denoted cathode except bidirectional.
- > Mounting Position: Any.

## APPLICATIONS

TVS devices are ideal for the protection of I/O Interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

## MAXIMUM RATINGS AND CHARACTERISTICS Ratings at 25 C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000us waveform (Note1).	P <sub>PPM</sub>	1500	Watts
Peak Pulse Current of on 10/1000us waveform(Note1).	I <sub>PPM</sub>	See Table	Amps
Steady State Power Dissipation on Infinite Heat Sink at T <sub>A</sub> =50°C	P <sub>M(AV)</sub>	6.5	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 2).	I <sub>FSM</sub>	200	Amps

**NOTES:**

1. Non-repetitive current pulse, T<sub>A</sub> = 25°C.
2. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

## THERMAL CONSIDERATIONS

Symbol	Parameter	Value	Unit
T <sub>J</sub>	Operating Junction Temperature	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C
R <sub>θJA</sub>	Junction to Ambient on printed circuit	75	°C/W



Part Number		Reverse Stand-off Voltage	Breakdown Voltage Min.@IT	Breakdown Voltage Max.@IT	Test Current	Maximum Clamping Voltage @IPP	Peak Pulse Current	Reverse Leakage @VRWM
UNT-POLAR	BI-POLAR	VRWM(V)	VBR (V)	VBR (V)	IT(mA)	Vc(V)	IPP(A)	IR(uA)
1.5KE6.8A	1.5KE6.8CA	5.8	6.45	7.14	10	10.5	144.8	1000
1.5KE7.5A	1.5KE7.5CA	6.4	7.13	7.88	10	11.3	134.5	500
1.5KE8.2A	1.5KE8.2CA	7.02	7.79	8.61	10	12.1	125.6	200
1.5KE9.1A	1.5KE9.1CA	7.78	8.65	9.5	1	13.4	113.4	50
1.5KE10A	1.5KE10CA	8.55	9.5	10.5	1	14.5	104.8	10
1.5KE11A	1.5KE11CA	9.4	10.5	11.6	1	15.6	97.4	5
1.5KE12A	1.5KE12CA	10.2	11.4	12.6	1	16.7	91	5
1.5KE13A	1.5KE13CA	11.1	12.4	13.7	1	18.2	83.5	1
1.5KE15A	1.5KE15CA	12.8	14.3	15.8	1	21.2	71.7	1
1.5KE16A	1.5KE16CA	13.6	15.2	16.8	1	22.5	67.6	1
1.5KE18A	1.5KE18CA	15.3	17.1	18.9	1	25.2	60.3	1
1.5KE20A	1.5KE20CA	17.1	19	21	1	27.7	54.9	1
1.5KE22A	1.5KE22CA	18.8	20.9	23.1	1	30.6	49.7	1
1.5KE24A	1.5KE24CA	20.5	22.8	25.2	1	33.2	45.8	1
1.5KE27A	1.5KE27CA	23.1	25.7	28.4	1	37.5	40.5	1
1.5KE30A	1.5KE30CA	25.6	28.5	31.5	1	41.4	36.7	1
1.5KE33A	1.5KE33CA	28.2	31.4	34.7	1	45.7	33.3	1
1.5KE36A	1.5KE36CA	30.8	34.2	37.8	1	49.9	30.5	1
1.5KE39A	1.5KE39CA	33.3	37.1	41	1	53.9	28.2	1
1.5KE43A	1.5KE43CA	36.8	40.9	45.2	1	59.3	25.6	1
1.5KE47A	1.5KE47CA	40.2	44.7	49.4	1	64.8	23.5	1
1.5KE51A	1.5KE51CA	43.6	48.5	53.6	1	70.1	21.7	1
1.5KE56A	1.5KE56CA	47.8	53.2	58.8	1	77	19.7	1
1.5KE62A	1.5KE62CA	53	58.9	65.1	1	85	17.9	1
1.5KE68A	1.5KE68CA	58.1	64.6	71.4	1	92	16.5	1
1.5KE75A	1.5KE75CA	64.1	71.3	78.8	1	103	14.8	1
1.5KE82A	1.5KE82CA	70.1	77.9	86.1	1	113	13.5	1
1.5KE91A	1.5KE91CA	77.8	86.5	95.5	1	125	12.2	1
1.5KE100A	1.5KE100CA	85.5	95	105	1	137	11.1	1
1.5KE110A	1.5KE110CA	94	105	116	1	152	10	1
1.5KE120A	1.5KE120CA	102	114	126	1	165	9.2	1
1.5KE130A	1.5KE130CA	111	124	137	1	179	8.5	1
1.5KE150A	1.5KE150CA	128	143	158	1	207	7.3	1
1.5KE160A	1.5KE160CA	136	152	168	1	219	6.9	1



Part 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>RWM</sub>
UNT-POLAR	BI-POLAR	V <sub>RWM</sub> (V)	V <sub>BR</sub> (V)	V <sub>BR</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> ( $\mu$ A)
1.5KE170A	1.5KE170CA	145	162	179	1	234	6.5	1
1.5KE180A	1.5KE180CA	154	171	189	1	246	6.2	1
1.5KE200A	1.5KE200CA	171	190	210	1	274	5.5	1
1.5KE220A	1.5KE220CA	185	209	231	1	328	4.6	1
1.5KE250A	1.5KE250CA	214	237	263	1	344	4.4	1
1.5KE300A	1.5KE300CA	256	285	315	1	414	3.7	1
1.5KE350A	1.5KE350CA	300	332	368	1	482	3.2	1
1.5KE400A	1.5KE400CA	342	380	420	1	548	2.8	1
1.5KE440A	1.5KE440CA	376	418	462	1	602	2.5	1
1.5KE480A	1.5KE480CA	408	456	504	1	658	2.3	1
1.5KE510A	1.5KE510CA	434	485	535	1	698	2.1	1
1.5KE530A	1.5KE530CA	451	503	557	1	725	2.1	1
1.5KE540A	1.5KE540CA	459	513	567	1	740	2	1
1.5KE550A	1.5KE550CA	467	522	578	1	760	2	1
1.5KE600A	1.5KE600CA	510	570	630	1	828	1.8	1

**RATINGS AND CHARACTERISTIC CURVES** (T<sub>A</sub>=25°C unless otherwise noted)

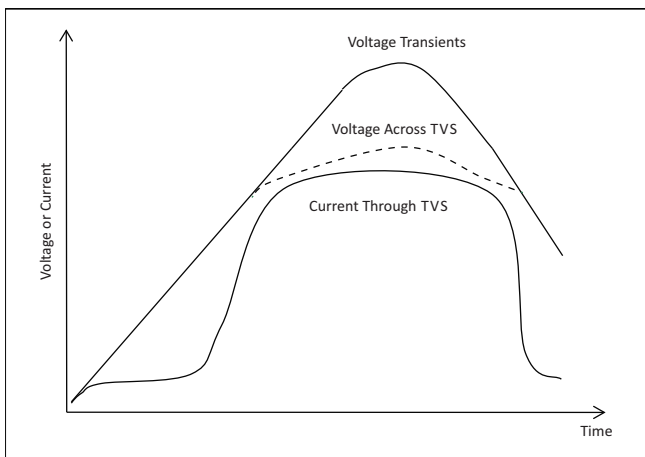


Figure 1 - TVS Transients Clamping Waveform

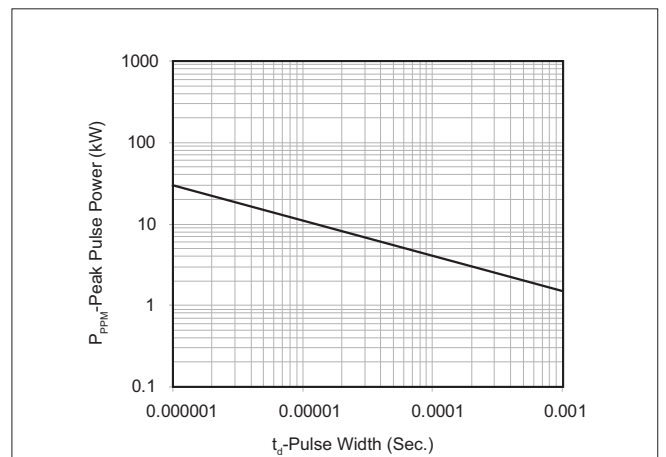


Figure 2 - Peak Pulse Power Rating Curve



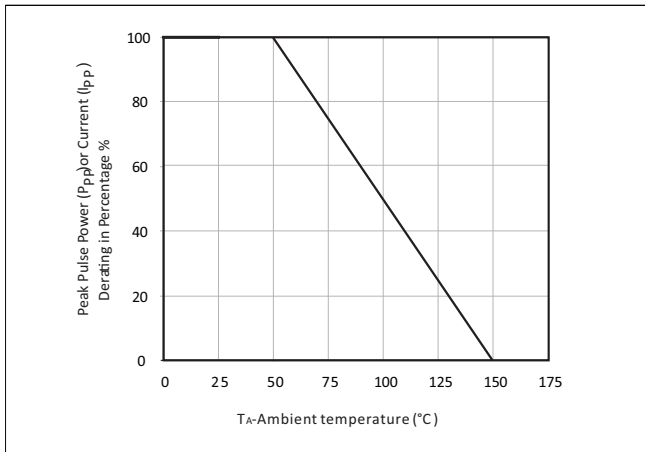


Figure 3 - Pulse Derating Curve

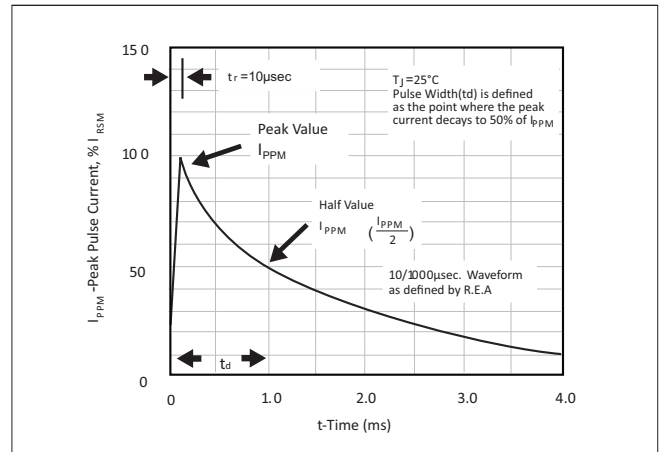


Figure 4 - Pulse Waveform

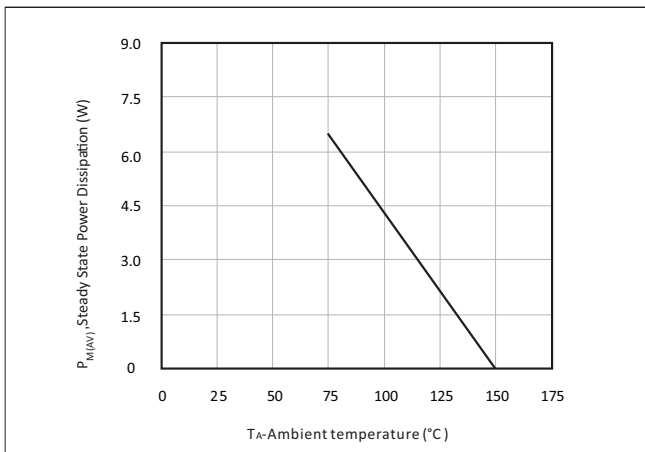


Figure 5 - Steady State Power Dissipation Derating Curve

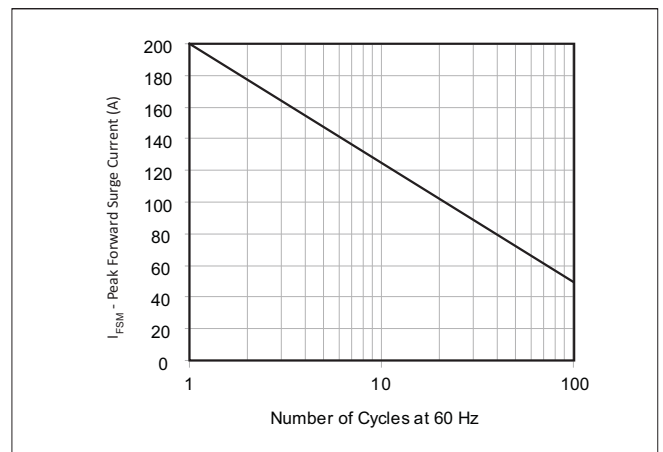
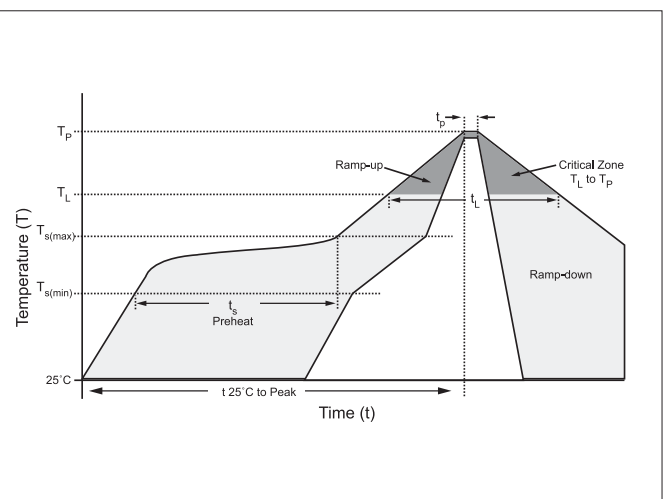


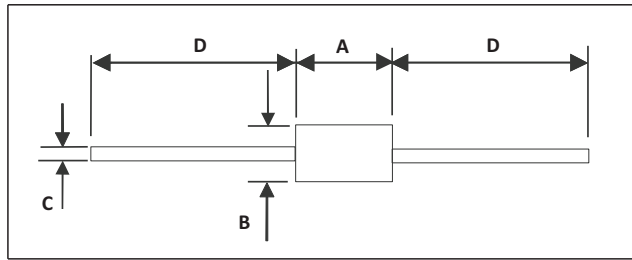
Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Min (Ts(min))	150°C
	Temperature Max (Ts(max))	200°C
	Time (min to max) (ts)	60 – 180 secs
Average ramp up rate (Liquidus Temp (TL) to peak)		3°C/second max
Ts(max) to TL - Ramp-up Rate		3°C/second max
Reflow	Temperature (TL) (Liquidus)	217°C
	Time (min to max) (ts)	60 – 150 seconds
Peak Temperature (TP)		260°C
Time within 5°C of actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (TP)		8 minutes Max.
Do not exceed		260°C



## DIMENSIONS

	Inches		Millimeters	
	Min	Max	Min	Max
A	0.285	0.375	7.200	9.500
B	0.190	0.210	4.800	5.300
C	0.038	0.042	0.960	1.070
D	1.000		25.400	

## ORDERING INFORMATION

Part Number	Component Package	BASE QUANTITY	PACKING OPTION
1.5KExx(C)A	DO-201	1000PCS	AMMO

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