

## 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

- Halogen free and RoHS compliant
- Low incremental surge resistance
- Excellent clamping capability
- 1500W peak pulse power capability at 10/1000 $\mu$ s waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- Typical IR less than 1 $\mu$ A above 12V devices
- High Temperature soldering guaranteed: 265 $^{\circ}$ C/10 seconds/.375", (9.5mm) lead length, 5lbs (2.3kg) tension
- Plastic package has underwriters laboratory flammability 94V-0
- Meets MSL level 1, per J-STD-020.
- IEC 61000-4-2 ESD 30kV(Air), 30kV (Contact)
- Unit Weight: 0.97g



## Applications

TVS components 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 (T<sub>A</sub>=25 $^{\circ}$ C)

Rating	Symbol	Value
Peak pulse power dissipation at 10/1000 $\mu$ s waveform (Note1, Fig.1)	P <sub>PPM</sub>	1500W
Peak pulse current of at 10/1000 $\mu$ s waveform (Note 1, Fig.3)	I <sub>PPM</sub>	See Table(A)
Steady state power dissipation at T <sub>L</sub> =75 $^{\circ}$ C (Fig.5)	P <sub>M(AV)</sub>	6.5W
Maximum Instantaneous Forward Voltage at 100A for Unidirectional Only	V <sub>F</sub>	3.5V/5.0V
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note2, Fig.6)	I <sub>FSM</sub>	200A
Operating junction and Storage Temperature Ranges	T <sub>J</sub> , T <sub>STG</sub>	-55 $^{\circ}$ C to +150 $^{\circ}$ C
Typical thermal resistance junction to lead	R <sub><math>\theta</math>JL</sub>	20 $^{\circ}$ C/W
Typical thermal resistance junction to ambient	R <sub><math>\theta</math>JA</sub>	75 $^{\circ}$ C/W

Notes:1. Non-repetitive current pulse, per Fig.3 and derating above T<sub>A</sub>=25 $^{\circ}$ C per Fig.2.

2. 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes maximum.

3. V<sub>F</sub> < 3.5V for single die parts and V<sub>F</sub> < 5.0V for stacked-die parts.

**Electrical Characteristics (T<sub>A</sub>=25°C)**

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @I <sub>T</sub>		Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>R</sub>
Uni.	Bi.	V <sub>R</sub> (V)	V <sub>B Min.</sub> (V)	V <sub>B Max.</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (μA)
1.5KE6.8A	1.5KE6.8CA	5.80	6.45	7.14	10	10.5	144.8	1000
1.5KE7.5A	1.5KE7.5CA	6.40	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	9.55	1	13.4	113.4	50
1.5KE10A	1.5KE10CA	8.55	9.50	10.50	1	14.5	104.8	10
1.5KE11A	1.5KE11CA	9.40	10.50	11.60	1	15.6	97.4	5
1.5KE12A	1.5KE12CA	10.20	11.40	12.60	1	16.7	91.0	5
1.5KE13A	1.5KE13CA	11.10	12.40	13.70	1	18.2	83.5	1
1.5KE15A	1.5KE15CA	12.80	14.30	15.80	1	21.2	71.7	1
1.5KE16A	1.5KE16CA	13.60	15.20	16.80	1	22.5	67.6	1
1.5KE18A	1.5KE18CA	15.30	17.10	18.90	1	25.2	60.3	1
1.5KE20A	1.5KE20CA	17.10	19.00	21.00	1	27.7	54.9	1
1.5KE22A	1.5KE22CA	18.80	20.90	23.10	1	30.6	49.7	1
1.5KE24A	1.5KE24CA	20.50	22.80	25.20	1	33.2	45.8	1
1.5KE27A	1.5KE27CA	23.10	25.70	28.40	1	37.5	40.5	1
1.5KE30A	1.5KE30CA	25.60	28.50	31.50	1	41.4	36.7	1
1.5KE33A	1.5KE33CA	28.20	31.40	34.70	1	45.7	33.3	1
1.5KE36A	1.5KE36CA	30.80	34.20	37.80	1	49.9	30.5	1
1.5KE39A	1.5KE39CA	33.30	37.10	41.00	1	53.9	28.2	1
1.5KE43A	1.5KE43CA	36.80	40.90	45.20	1	59.3	25.6	1
1.5KE47A	1.5KE47CA	40.20	44.70	49.40	1	64.8	23.5	1
1.5KE51A	1.5KE51CA	43.60	48.50	53.60	1	70.1	21.7	1
1.5KE56A	1.5KE56CA	47.80	53.20	58.80	1	77.0	19.7	1
1.5KE62A	1.5KE62CA	53.00	58.90	65.10	1	85.0	17.9	1
1.5KE68A	1.5KE68CA	58.10	64.60	71.40	1	92.0	16.5	1

**Electrical Characteristics (TA=25°C)**

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @I <sub>T</sub>		Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>R</sub>
Uni.	Bi.	V <sub>R</sub> (V)	V <sub>B Min.</sub> (V)	V <sub>B Max.</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (μA)
1.5KE75A	1.5KE75CA	64.10	71.30	78.80	1	103.0	14.8	1
1.5KE82A	1.5KE82CA	70.10	77.90	86.10	1	113.0	13.5	1
1.5KE91A	1.5KE91CA	77.80	86.50	95.50	1	125.0	12.2	1
1.5KE100A	1.5KE100CA	85.50	95.00	105.0	1	137.0	11.1	1
1.5KE110A	1.5KE110CA	94.00	105.0	116.0	1	152.0	10.0	1
1.5KE120A	1.5KE120CA	102.00	114.00	126.0	1	165.0	9.2	1
1.5KE130A	1.5KE130CA	111.00	124.0	137.0	1	179.0	8.5	1
1.5KE150A	1.5KE150CA	128.00	143.0	158.0	1	207.0	7.3	1
1.5KE160A	1.5KE160CA	136.00	152.0	168.0	1	219.0	6.9	1
1.5KE170A	1.5KE170CA	145.00	162.0	179.0	1	234.0	6.5	1
1.5KE180A	1.5KE180CA	154.00	171.0	189.0	1	246.0	6.2	1
1.5KE200A	1.5KE200CA	171.00	190.0	210.0	1	274.0	5.5	1
1.5KE220A	1.5KE220CA	185.00	209.0	231.0	1	328.0	4.6	1
1.5KE250A	1.5KE250CA	214.00	237.0	263.0	1	344.0	4.4	1
1.5KE300A	1.5KE300CA	256.00	285.0	315.0	1	414.0	3.7	1
1.5KE350A	1.5KE350CA	300.00	332.0	368.0	1	482.0	3.2	1
1.5KE400A	1.5KE400CA	342.00	380.0	420.0	1	548.0	2.8	1
1.5KE440A	1.5KE440CA	376.00	418.0	462.0	1	602.0	2.5	1
1.5KE480A	1.5KE480CA	408.00	456.0	504.0	1	658.0	2.3	1
1.5KE510A	1.5KE510CA	434.00	485.0	535.0	1	698.0	2.1	1
1.5KE530A	1.5KE530CA	450.00	503.5	556.5	1	725.0	2.1	1
1.5KE540A	1.5KE540CA	459.00	513.0	567.0	1	740.0	2.0	1
1.5KE550A	1.5KE550CA	467.00	522.5	577.5	1	760.0	2.0	1
1.5KE600A	1.5KE600CA	510.0	575.2	628.4	1	828.0	1.8	1

**Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ )**

Figure 1. Peak Pulse Power Rating Curve

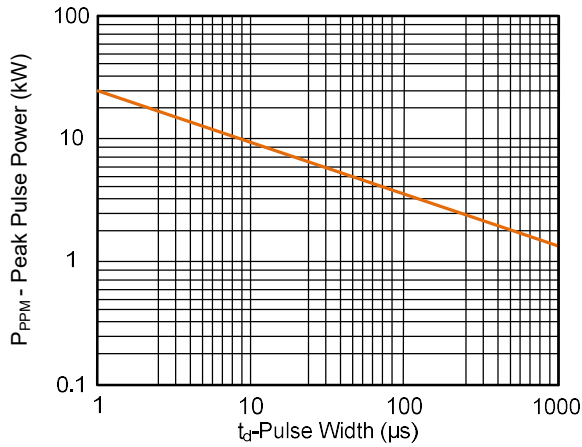


Figure 2. Pulse Derating Curve

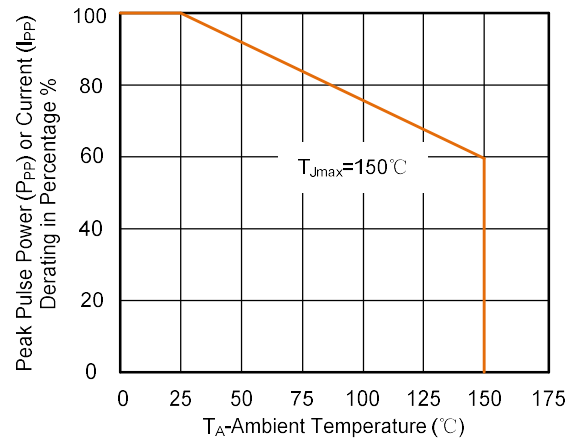


Figure 3. Pulse Waveform

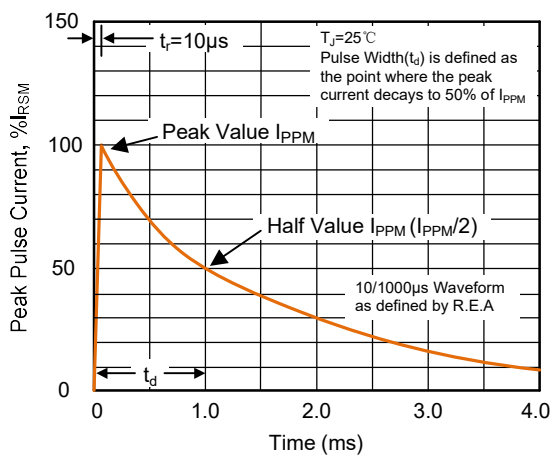


Figure 4. Typical Junction Capacitance

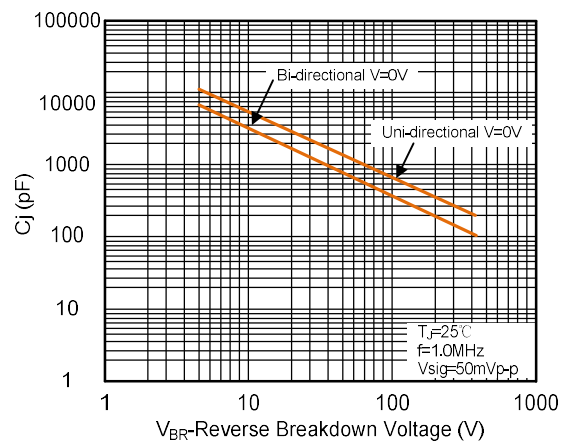


Figure 5. Steady State Power Dissipation Derating Curve

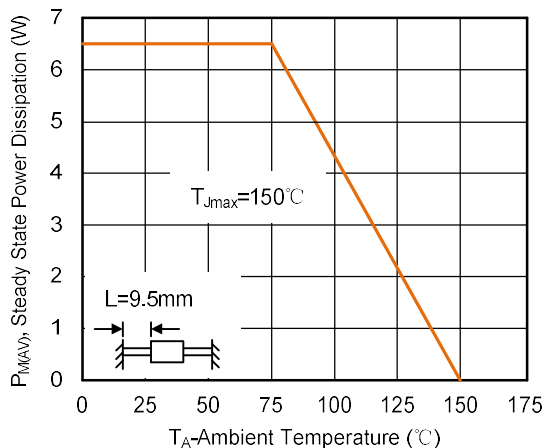
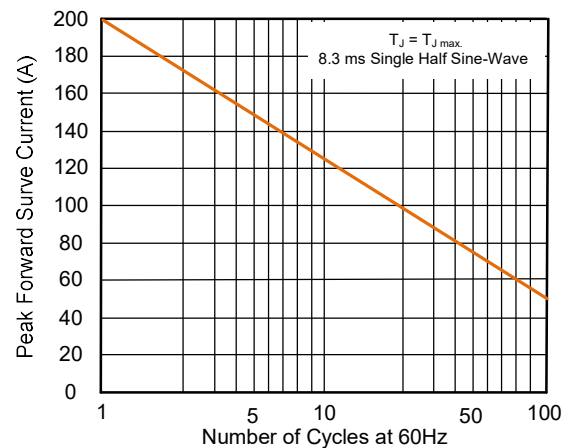
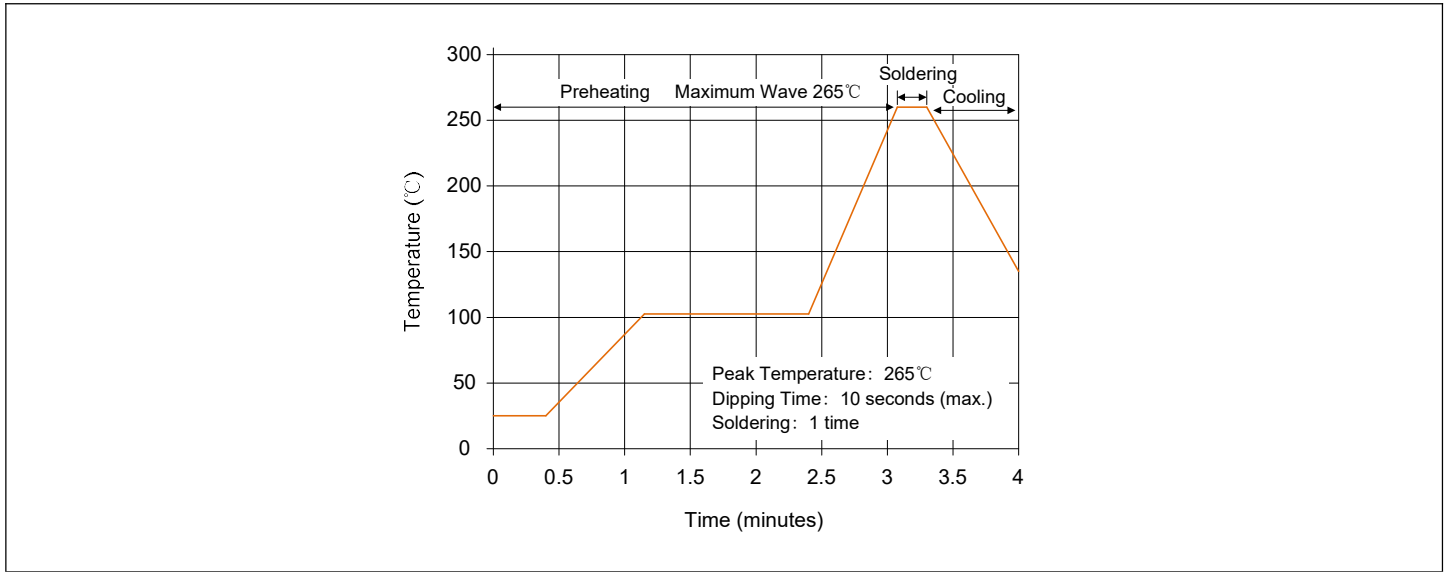


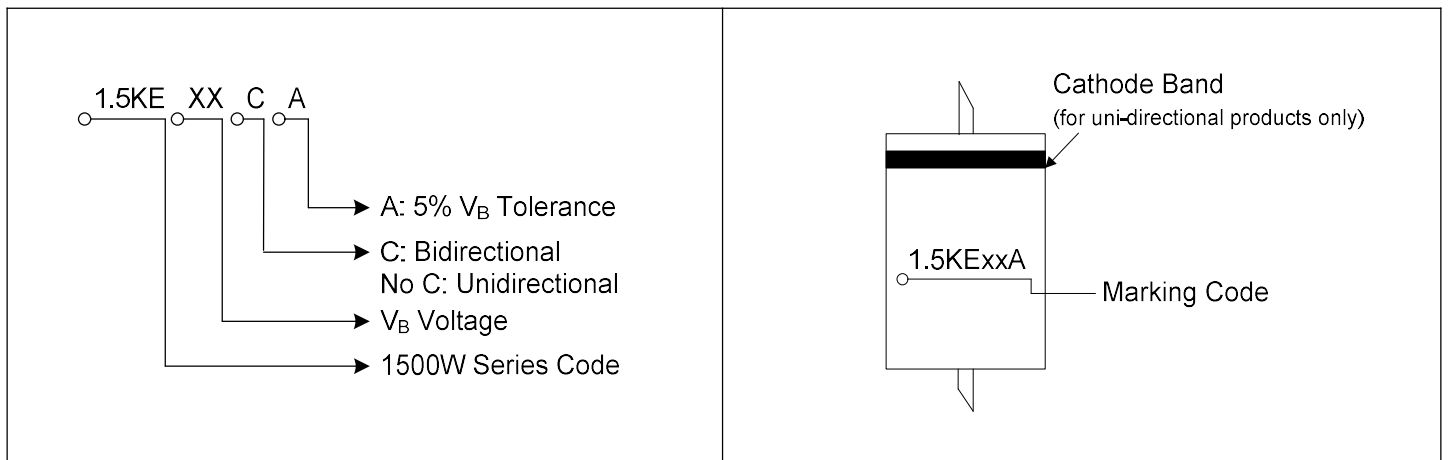
Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



### Wave Soldering



### Part Number Code and Marking Code



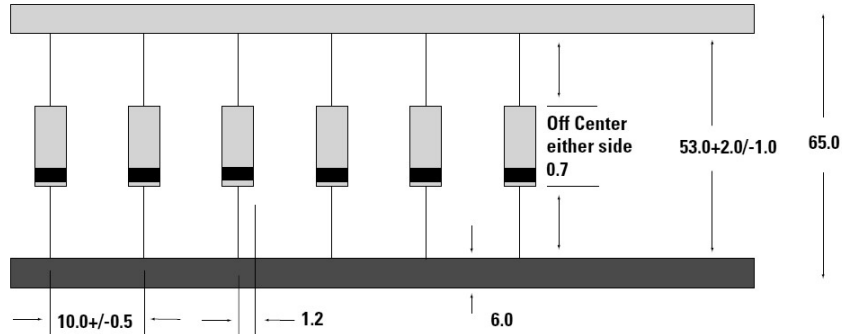
### Dimensions (DO-201)

The diagram shows the dimensions of the DO-201 package: A (lead length), B (lead width), C (lead thickness), and d (lead diameter). The Cathode Band is also indicated.

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	7.20	9.50	0.285	0.375
C	4.80	5.30	0.190	0.210
d	0.96	1.07	0.038	0.042

## Packaging Specification

Tape



Box



Quantity: 1000pcs/box

Reel



Quantity: 1200pcs/reel

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