

TVS Diode – 1.5KE Series

Features

- Plastic package, excellent insulation strength
- Glass passivated chip junction in DO-201 package
- Excellent voltage clamping capability
- Low Zener impedance
- 1500W peak pulse power capability on 10/1000 μ s waveform
- Typical leakage current less than 1 μ A above 13V
- Very fast response time, typically less than 1.0ps from 0 volt to V_{BR} minimum
- High temperature soldering guaranteed: 265°C/10 sec
- MSL: JEDEC-J-STD-020, Level 1

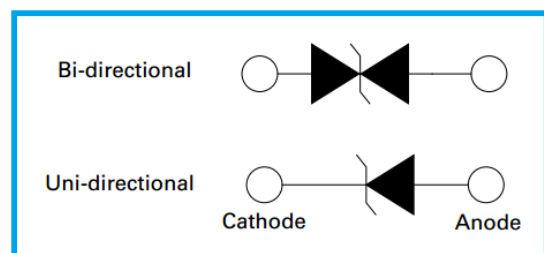


Applications

- I/O interface, V_{CC} bus
- Telecom
- Industrial and consumer electronic applications
- Relay and electromagnetic valve surge absorption

Agency Approval

- UL file no.: E474915



Mechanical and Physical Data

- Case: JEDEC DO-15 molded plastic
- Polarity: Color band denoted cathode except bidirectional
- Axial leaded, solderable per MIL-STD-750, Method 2026

Maximum Ratings and Thermal Characteristics

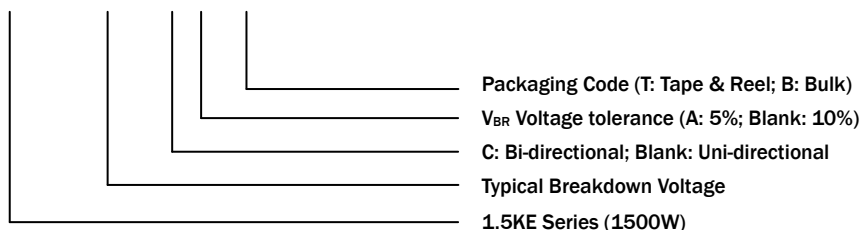
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 μ s waveform (Note 1, Fig.1).	P_{PPM}	Min 1500	Watt
Peak Pulse Current of 10/1000 μ s waveform (Note 1, Fig.3).	I_{PPM}	See Table	Amp
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$, Lead lengths 0.375", (9.5mm) (Fig.5).	$P_{M(AV)}$	6.5	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	I_{FSM}	300	Amp
Operating Junction and Storage Temperature Range.	T_J, T_{STG}	-55~175	$^\circ\text{C}$

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig.2.
2. 8.3ms single half sine wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

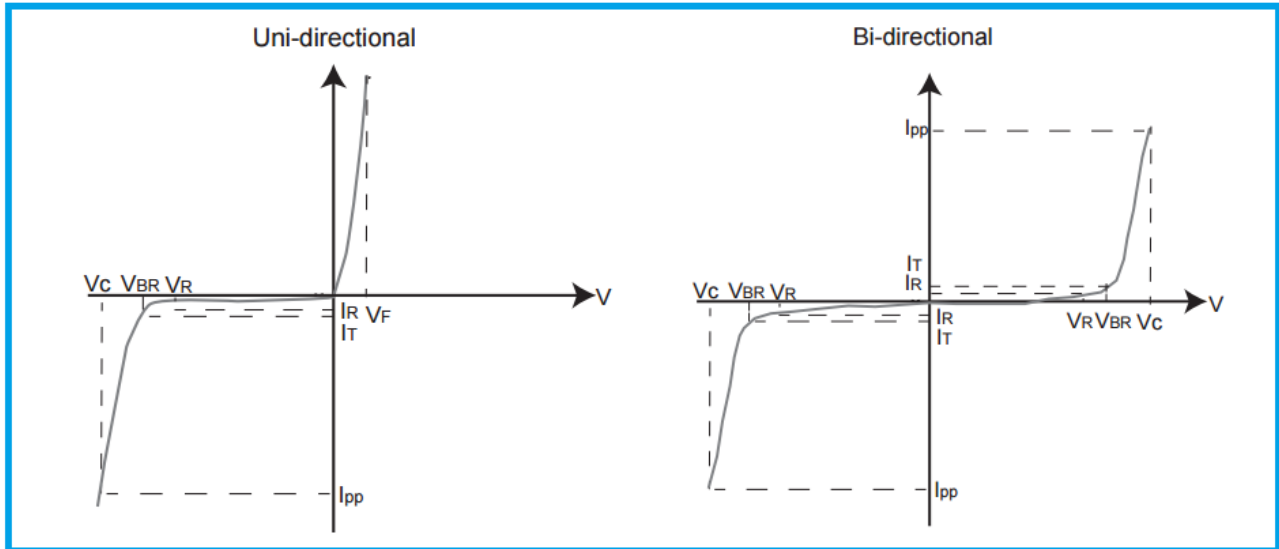
Part Number Code

1.5KE ☐☐☐ **C A** - ☐



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I-V Curve Characteristics



P_{PPM} Peak Pulse Power Dissipation – Maximum power dissipation

V_R Stand-off Voltage – Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage – Maximum voltage that flows through the TVS at a specified test current (I_T)

V_C Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (Peak Impulse Current)

I_R Reverse Leakage Current – Current measured at V_R

V_F Forward Voltage Drop for Uni-directional

Electrical Characteristics

Part Number		Reverse Stand Off Voltage V_R (V)	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) @ I_{PP}	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R (μ A) @ V_R	UL
Uni	Bi		Min.	Max.					
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	10.5	1	14.5	104.8	10	✓
1.5KE11A	1.5KE11CA	9.40	10.5	11.6	1	15.6	97.4	5	✓
1.5KE12A	1.5KE12CA	10.2	11.4	12.6	1	16.7	91.0	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	25.5	60.3	1	✓
1.5KE20A	1.5KE20CA	17.1	19.0	21.0	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	✓

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Part Number		Reverse Stand Off Voltage V_R (V)	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) @ I_{PP}	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R (μA) @ V_R	UL
Uni	Bi		Min.	Max.					
1.5KE39A	1.5KE39CA	33.3	37.1	41.0	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	77.0	19.7	1	✓
1.5KE62A	1.5KE62CA	53.0	58.9	65.1	1	85.0	17.9	1	✓
1.5KE68A	1.5KE68CA	58.1	64.6	71.4	1	92.0	16.5	1	✓
1.5KE75A	1.5KE75CA	64.1	71.3	78.8	1	103.0	14.8	1	✓
1.5KE82A	1.5KE82CA	70.1	77.9	86.1	1	113.0	13.5	1	✓
1.5KE91A	1.5KE91CA	77.8	86.5	95.5	1	125.0	12.2	1	✓
1.5KE100A	1.5KE100CA	85.5	95.0	105.0	1	137.0	11.1	1	✓
1.5KE110A	1.5KE110CA	94.0	105.0	116.0	1	152.0	10.0	1	✓
1.5KE120A	1.5KE120CA	102.0	114.0	126.0	1	165.0	9.2	1	✓
1.5KE130A	1.5KE130CA	111.0	124.0	137.0	1	179.0	8.5	1	Pending
1.5KE150A	1.5KE150CA	128.0	143.0	158.0	1	207.0	7.3	1	Pending
1.5KE160A	1.5KE160CA	136.0	152.0	168.0	1	219.0	6.9	1	Pending
1.5KE170A	1.5KE170CA	145.0	162.0	179.0	1	234.0	6.5	1	Pending
1.5KE180A	1.5KE180CA	154.0	171.0	189.0	1	246.0	6.2	1	Pending
1.5KE200A	1.5KE200CA	171.0	190.0	210.0	1	274.0	5.5	1	Pending
1.5KE220A	1.5KE220CA	185.0	209.0	231.0	1	328.0	4.6	1	Pending
1.5KE250A	1.5KE250CA	214.0	237.0	263.0	1	344.0	4.4	1	Pending
1.5KE300A	1.5KE300CA	256.0	285.0	315.0	1	414.0	3.7	1	Pending
1.5KE350A	1.5KE350CA	300.0	332.0	368.0	1	482.0	3.2	1	Pending
1.5KE400A	1.5KE400CA	342.0	380.0	420.0	1	548.0	2.8	1	Pending
1.5KE440A	1.5KE440CA	376.0	418.0	462.0	1	602.0	2.5	1	Pending
1.5KE480A	1.5KE480CA	408.0	456.0	504.0	1	658.0	2.3	1	Pending
1.5KE510A	1.5KE510CA	434.0	485.0	535.0	1	698.0	2.1	1	Pending
1.5KE530A	1.5KE530CA	451.0	503.5	556.5	1	725.0	2.1	1	Pending
1.5KE540A	1.5KE540CA	459.0	513.0	567.0	1	740.0	2.0	1	Pending
1.5KE550A	1.5KE550CA	495.0	522.5	577.5	1	760.0	2.0	1	Pending
1.5KE600A	1.5KE600CA	510.0	570.0	630.0	1	828.0	1.8	1	Pending

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Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

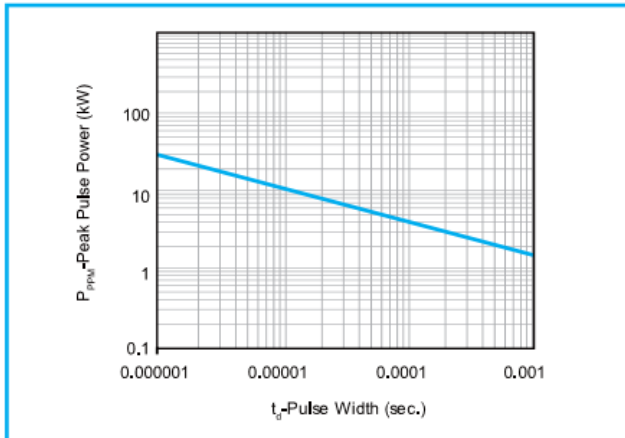


Fig 2 - Pulse Derating Curve

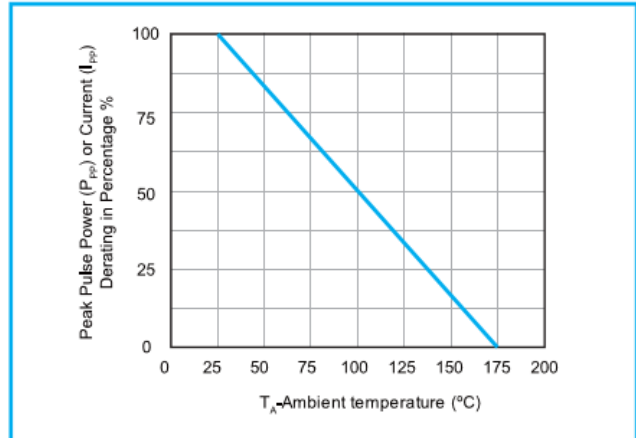


Fig 3 - Pulse Waveform

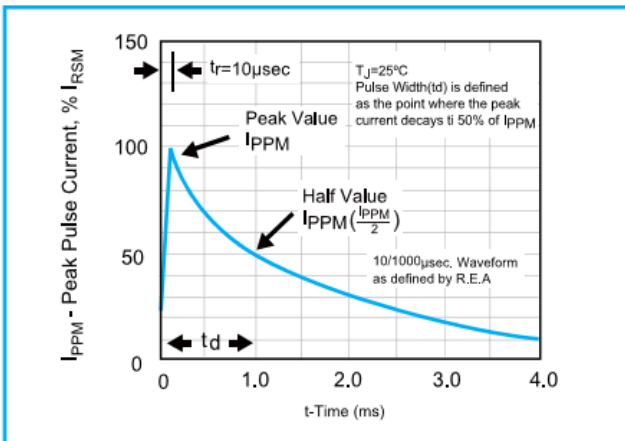


Fig 4 - Typical Junction Capacitance Uni-directional

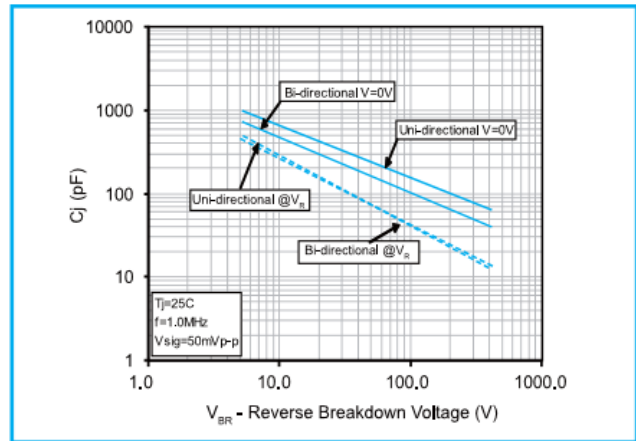


Fig 5 - Steady State Power Dissipation Derating Curve

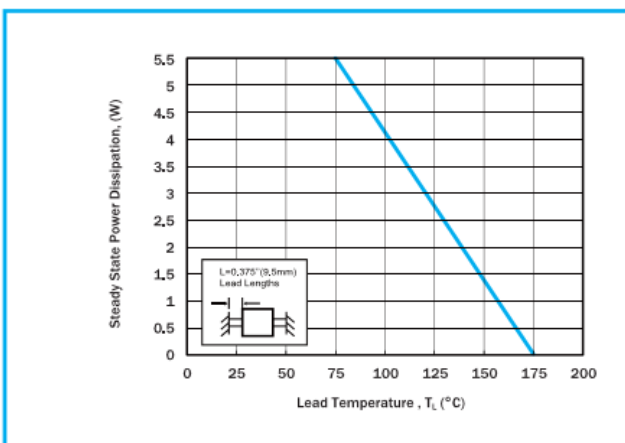
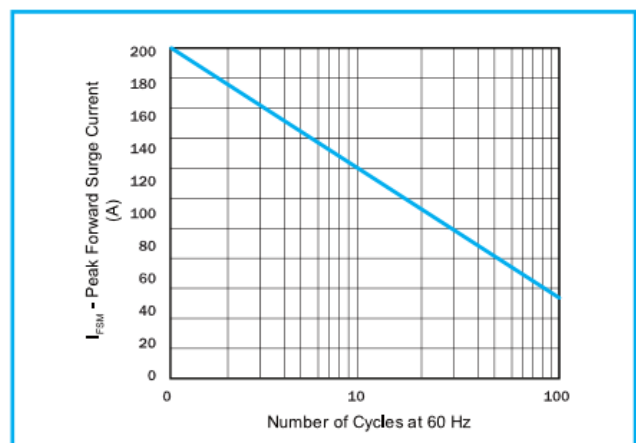
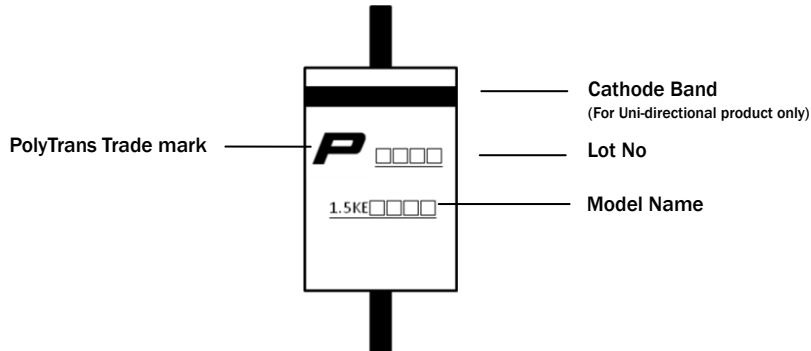


Fig 6 - Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

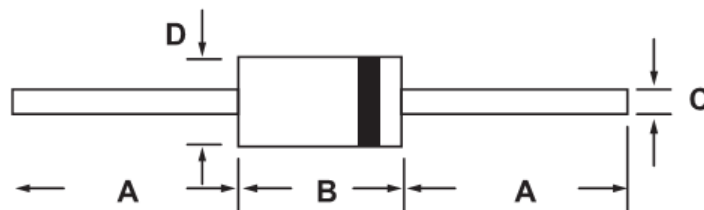


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Marking Definitions



Physical Dimensions



DO-201

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

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Packaging Information

Part Number	Packaging Code	Component Package	Quantity	Packaging Option	Packaging Specification
1.5KE Series	T	D0-201	1000	Tape & Reel	EIA STD RS-296
1.5KE Series	B	D0-201	500	Bulk	-

Tape and Reel Specifications

