

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 10/1000μs waveform
- Typical leakage current less than 1μA 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

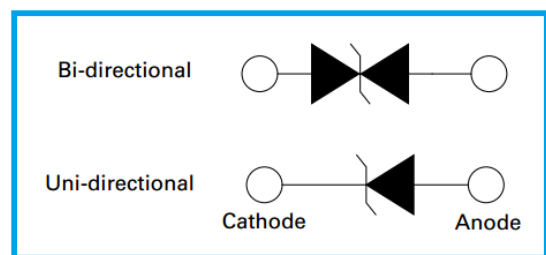


Applications

- 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
- Axial leaded, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except bidirectional

Maximum Ratings and Thermal Characteristics

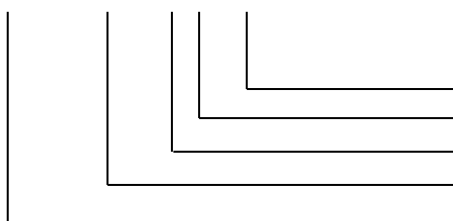
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1, Fig.1).	P _{PPM}	Min 1500	Watt
Peak Pulse Current of 10/1000μs waveform (Note 1, Fig.3).	I _{PPM}	See Table	Amp
Steady State Power Dissipation at T _L = 75°C, Lead lengths 0.375", (9.5mm) (Fig.5).	P _{M(AV)}	6.5	Watt
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	°C

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°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 □□□ **CA** - □



Packaging Code (T: Tape & Reel; B: Bulk)
V_{BR} Voltage tolerance (A: 5%; Blank: 10%)
C: Bi-directional; Blank: Uni-directional
Typical Breakdown Voltage
1.5KE Series (1500W)

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I-V Curve Characteristics



I_{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
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 (μ A) @ V_R
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
1.5KE150A	1.5KE150CA	128.0	143.0	158.0	1	207.0	7.3	1
1.5KE160A	1.5KE160CA	136.0	152.0	168.0	1	219.0	6.9	1
1.5KE170A	1.5KE170CA	145.0	162.0	179.0	1	234.0	6.5	1
1.5KE180A	1.5KE180CA	154.0	171.0	189.0	1	246.0	6.2	1
1.5KE200A	1.5KE200CA	171.0	190.0	210.0	1	274.0	5.5	1
1.5KE220A	1.5KE220CA	185.0	209.0	231.0	1	328.0	4.6	1
1.5KE250A	1.5KE250CA	214.0	237.0	263.0	1	344.0	4.4	1
1.5KE300A	1.5KE300CA	256.0	285.0	315.0	1	414.0	3.7	1
1.5KE350A	1.5KE350CA	300.0	332.0	368.0	1	482.0	3.2	1
1.5KE400A	1.5KE400CA	342.0	380.0	420.0	1	548.0	2.8	1
1.5KE440A	1.5KE440CA	376.0	418.0	462.0	1	602.0	2.5	1
1.5KE480A	1.5KE480CA	408.0	456.0	504.0	1	658.0	2.3	1
1.5KE510A	1.5KE510CA	434.0	485.0	535.0	1	698.0	2.1	1
1.5KE530A	1.5KE530CA	451.0	503.5	556.5	1	725.0	2.1	1
1.5KE540A	1.5KE540CA	459.0	513.0	567.0	1	740.0	2.0	1
1.5KE550A	1.5KE550CA	468.0	522.5	577.5	1	760.0	2.0	1
1.5KE600A	1.5KE600CA	510.0	570.0	630.0	1	828.0	1.8	1

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Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

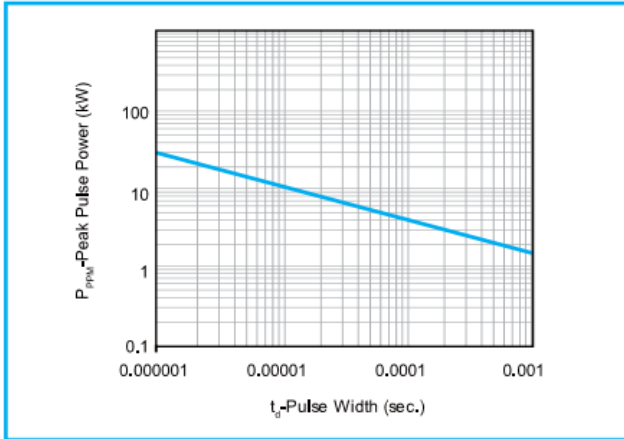


Fig 2 - Pulse Derating Curve

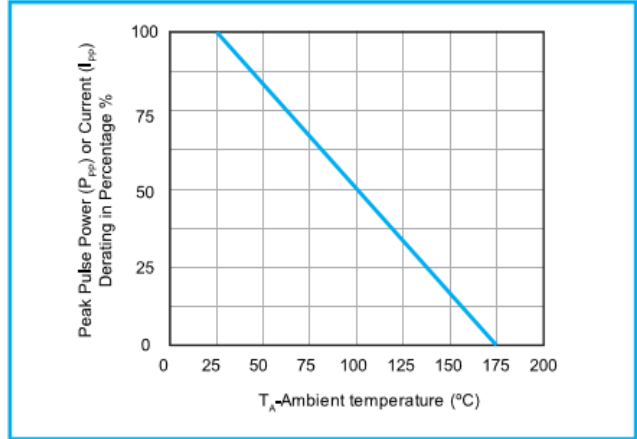


Fig 3 - Pulse Waveform

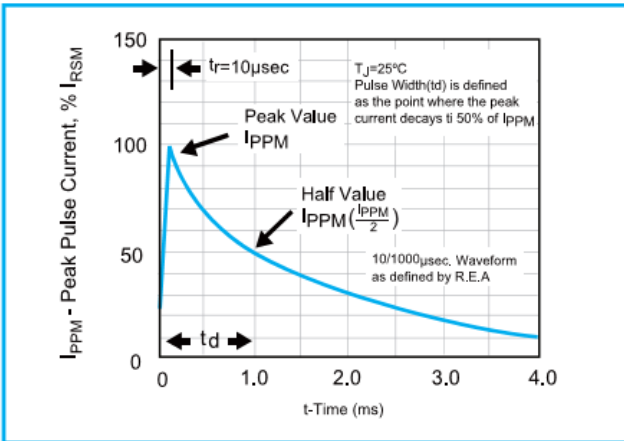


Fig 4 - Typical Junction Capacitance Uni-directional

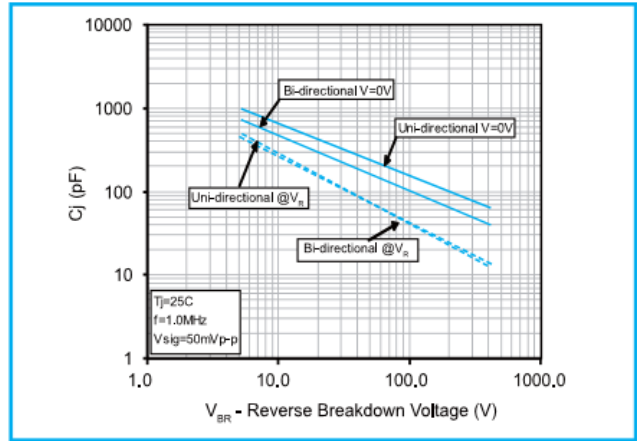


Fig 5 - Steady State Power Dissipation Derating Curve

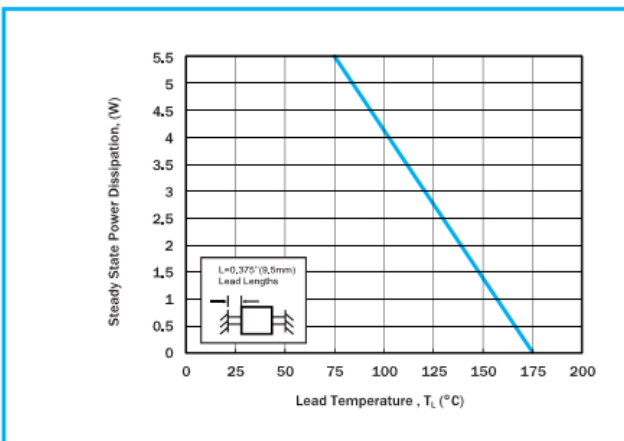
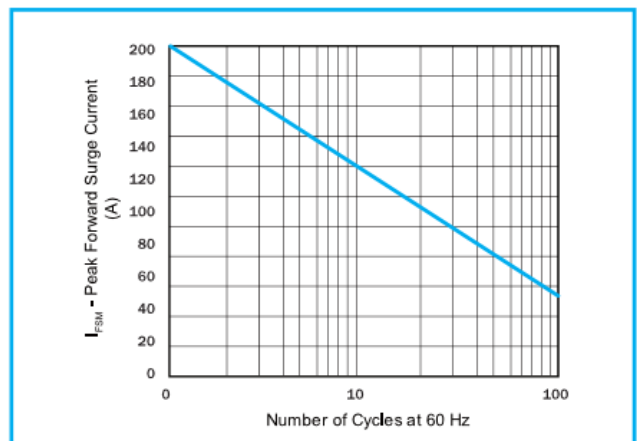
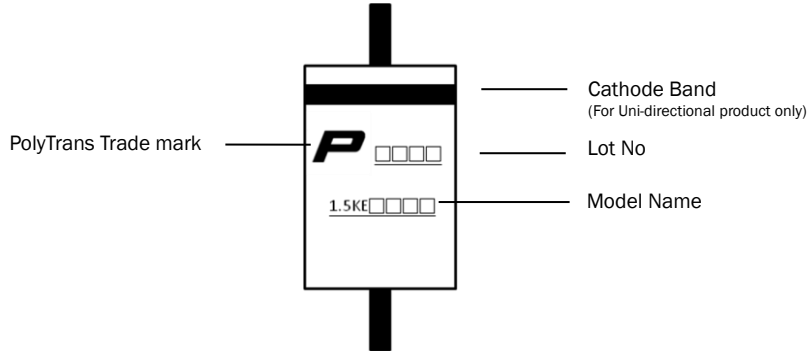


Fig 6 - Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

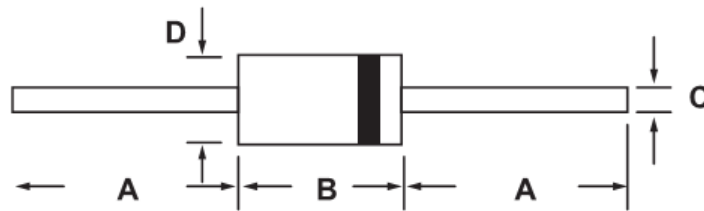


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Marking Definitions



Physical Dimensions



DO-201

Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	24.40	26.40	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	DO-201	1000	Tape & Reel	EIA STD RS-296
1.5KE Series	B	DO-201	500	Bulk	-

Tape and Reel Specifications

