

Electrical Characteristics (T_A=25°C unless otherwise noted)

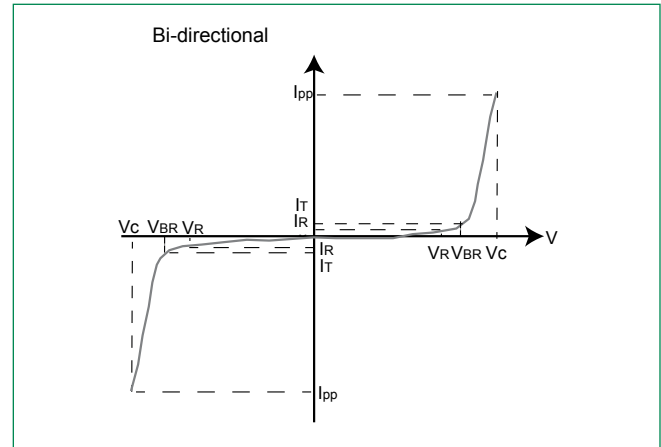
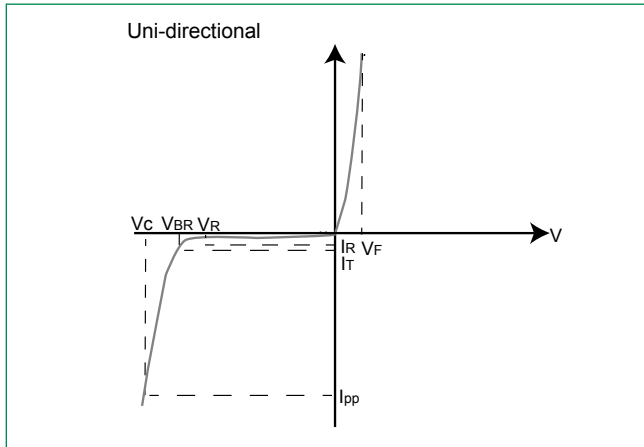
Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V _R (Volts)	Breakdown Voltage V _{BR} (Volts) @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{PP} (Volts)	Maximum Peak Pulse Current I _{PP} (A)	Maximum Reverse Leakage I _R @ V _R (μA)	Agency Approval 
			Min.	Max.					
1.5KE6.8A	1.5KE6.8CA	5.80	6.45	7.14	10	10.5	144.8	1000	X
1.5KE7.5A	1.5KE7.5CA	6.40	7.13	7.88	10	11.3	134.5	500	X
1.5KE8.2A	1.5KE8.2CA	7.02	7.79	8.61	10	12.1	125.6	200	X
1.5KE9.1A	1.5KE9.1CA	7.78	8.65	9.50	1	13.4	113.4	50	X
1.5KE10A	1.5KE10CA	8.55	9.50	10.50	1	14.5	104.8	10	X
1.5KE11A	1.5KE11CA	9.40	10.50	11.60	1	15.6	97.4	5	X
1.5KE12A	1.5KE12CA	10.20	11.40	12.60	1	16.7	91.0	5	X
1.5KE13A	1.5KE13CA	11.10	12.40	13.70	1	18.2	83.5	1	X
1.5KE15A	1.5KE15CA	12.80	14.30	15.80	1	21.2	71.7	1	X
1.5KE16A	1.5KE16CA	13.60	15.20	16.80	1	22.5	67.6	1	X
1.5KE18A	1.5KE18CA	15.30	17.10	18.90	1	25.2	60.3	1	X
1.5KE20A	1.5KE20CA	17.10	19.00	21.00	1	27.7	54.9	1	X
1.5KE22A	1.5KE22CA	18.80	20.90	23.10	1	30.6	49.7	1	X
1.5KE24A	1.5KE24CA	20.50	22.80	25.20	1	33.2	45.8	1	X
1.5KE27A	1.5KE27CA	23.10	25.70	28.40	1	37.5	40.5	1	X
1.5KE30A	1.5KE30CA	25.60	28.50	31.50	1	41.4	36.7	1	X
1.5KE33A	1.5KE33CA	28.20	31.40	34.70	1	45.7	33.3	1	X
1.5KE36A	1.5KE36CA	30.80	34.20	37.80	1	49.9	30.5	1	X
1.5KE39A	1.5KE39CA	33.30	37.10	41.00	1	53.9	28.2	1	X
1.5KE43A	1.5KE43CA	36.80	40.90	45.20	1	59.3	25.6	1	X
1.5KE47A	1.5KE47CA	40.20	44.70	49.40	1	64.8	23.5	1	X
1.5KE51A	1.5KE51CA	43.60	48.50	53.60	1	70.1	21.7	1	X
1.5KE56A	1.5KE56CA	47.80	53.20	58.80	1	77.0	19.7	1	X
1.5KE62A	1.5KE62CA	53.00	58.90	65.10	1	85.0	17.9	1	X
1.5KE68A	1.5KE68CA	58.10	64.60	71.40	1	92.0	16.5	1	X
1.5KE75A	1.5KE75CA	64.10	71.30	78.80	1	103.0	14.8	1	X
1.5KE82A	1.5KE82CA	70.10	77.90	86.10	1	113.0	13.5	1	X
1.5KE91A	1.5KE91CA	77.80	86.50	95.50	1	125.0	12.2	1	X
1.5KE100A	1.5KE100CA	85.50	95.00	105.00	1	137.0	11.1	1	X
1.5KE110A	1.5KE110CA	94.00	105.00	116.00	1	152.0	10.0	1	X
1.5KE120A	1.5KE120CA	102.00	114.00	126.00	1	165.0	9.2	1	X
1.5KE130A	1.5KE130CA	111.00	124.00	137.00	1	179.0	8.5	1	X
1.5KE150A	1.5KE150CA	128.00	143.00	158.00	1	207.0	7.3	1	X
1.5KE160A	1.5KE160CA	136.00	152.00	168.00	1	219.0	6.9	1	X
1.5KE170A	1.5KE170CA	145.00	162.00	179.00	1	234.0	6.5	1	X
1.5KE180A	1.5KE180CA	154.00	171.00	189.00	1	246.0	6.2	1	X
1.5KE200A	1.5KE200CA	171.00	190.00	210.00	1	274.0	5.5	1	X
1.5KE220A	1.5KE220CA	185.00	209.00	231.00	1	328.0	4.6	1	X
1.5KE250A	-	214.00	237.00	263.00	1	344.0	4.4	1	X
-	1.5KE250CA*	214.00	237.00	263.00	1	344.0	5.9	1	X
1.5KE300A*	1.5KE300CA*	256.00	285.00	315.00	1	414.0	4.9	1	X
1.5KE320A*	1.5KE320CA*	273.00	304.00	336.00	1	441.0	4.6	1	X
1.5KE350A*	1.5KE350CA*	300.00	332.00	368.00	1	482.0	4.2	1	X
1.5KE400A*	1.5KE400CA*	342.00	380.00	420.00	1	548.0	3.7	1	X
1.5KE440A*	1.5KE440CA*	376.00	418.00	462.00	1	602.0	3.1	1	X
1.5KE480A*	1.5KE480CA*	408.00	456.00	504.00	1	658.0	3.1	1	-
1.5KE510A*	1.5KE510CA*	434.00	485.00	535.00	1	698.0	2.9	1	-
1.5KE530A*	1.5KE530CA*	451.00	503.50	556.50	1	725.0	2.8	1	-
1.5KE540A*	1.5KE540CA*	460.00	513.00	567.00	1	740.0	2.8	1	-
1.5KE550A*	1.5KE550CA*	468.00	522.50	577.50	1	760.0	2.7	1	-
1.5KE600A*	1.5KE600CA*	512.00	570.00	630.00	1	828.0	2.5	1	-

For bidirectional type having V_R of 10 volts and less, the I_R limit is double.

For parts without A, the V_{BR} is ± 10% and V_C is 5% higher than with A parts, the parts without A are currently available, but not recommended for new designs. The parts with A are preferred.

For stack-die parts, use * to label the part number.

I-V Curve Characteristics



P_{PPM} Peak Pulse Power Dissipation – Max 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

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

Figure 1 - TVS Transients Clamping Waveform

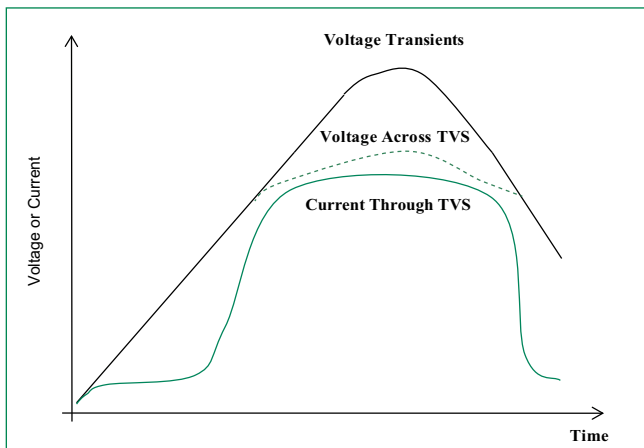
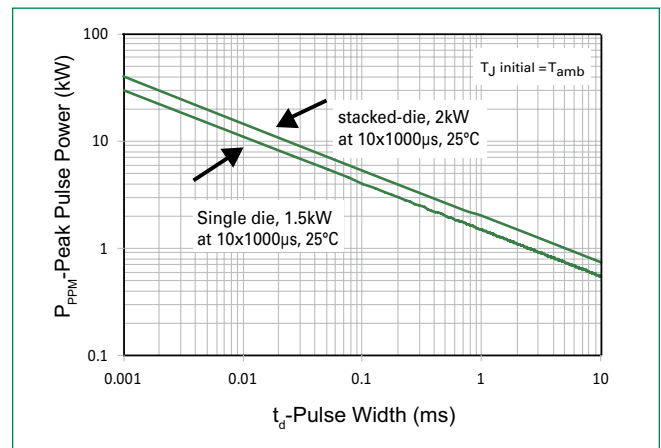


Figure 2 - Peak Pulse Power Rating



Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted) (Continued)

Figure 3 - Peak Pulse Power Derating Curve

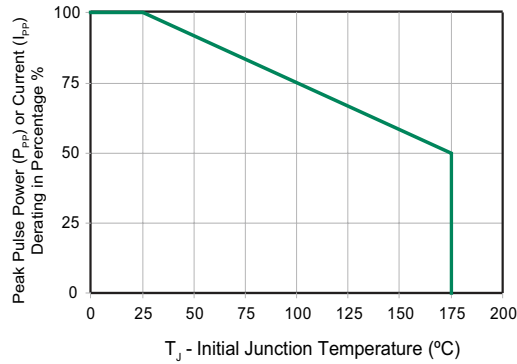


Figure 4 - Pulse Waveform

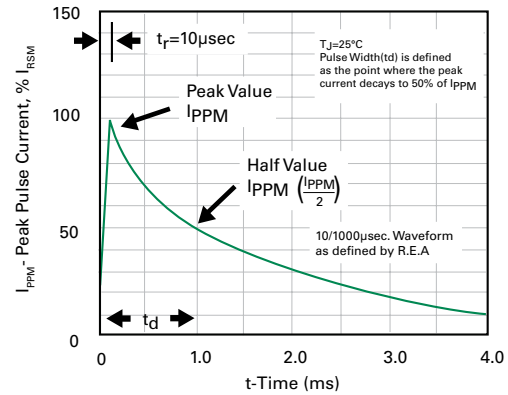


Figure 5 - Typical Junction Capacitance

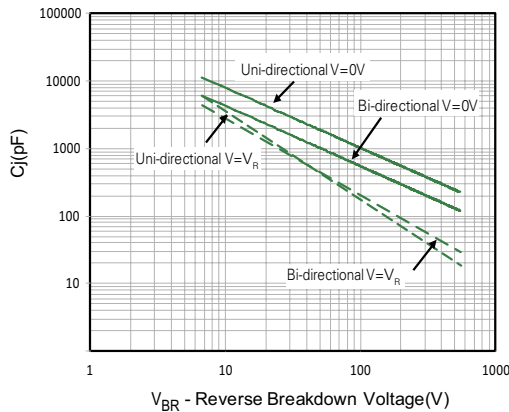


Figure 6 - Typical Transient Thermal Impedance

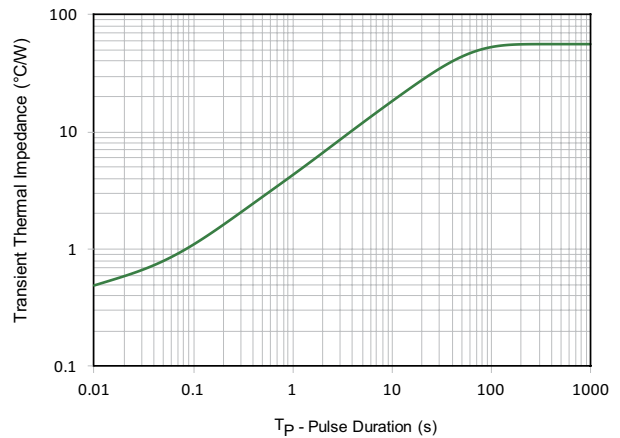


Figure 7 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

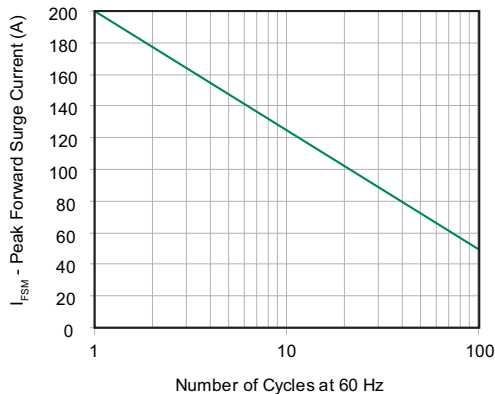
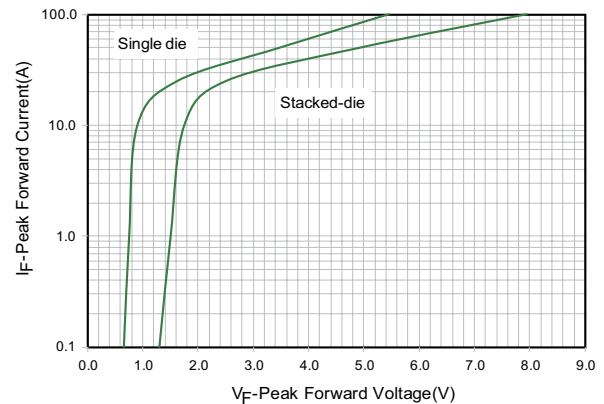
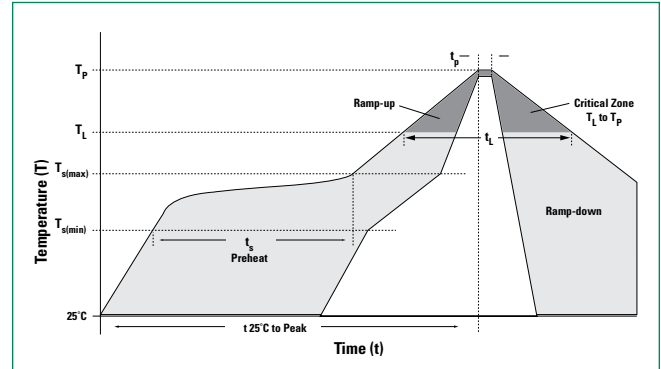


Figure 8 - Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)



Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 120 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		30 seconds max
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		260°C



Flow/Wave Soldering (Solder Dipping)

Peak Temperature :	265°C
Dipping Time :	10 seconds
Soldering :	1 time

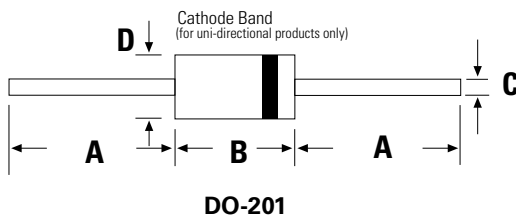
Physical Specifications

Weight	0.045oz., 1.2g
Case	JEDEC DO-201 molded plastic body over passivated junction.
Polarity	Color band denotes the cathode except Bipolar.
Terminal	Matte Tin axial leads, solderable per JESD22-B102.

Environmental Specifications

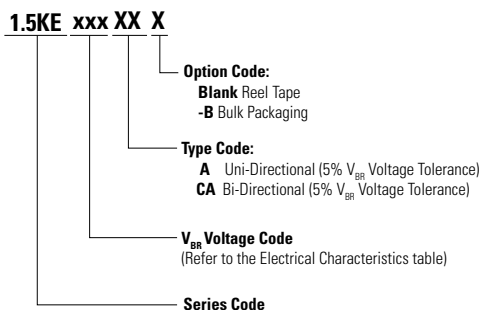
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Temperature Cycling	JESD22-A104
H3TRB	JESD22-A101
RSH	JESD22-B106

Dimensions

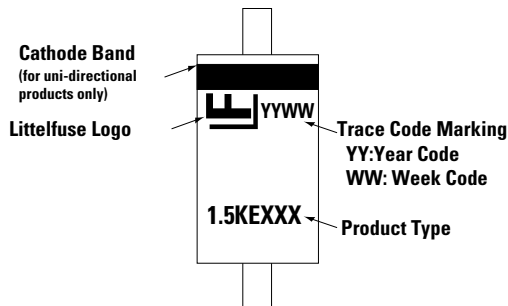


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.285	0.375	7.20	9.50
C	0.038	0.042	0.96	1.07
D	0.190	0.210	4.80	5.30

Part Numbering System



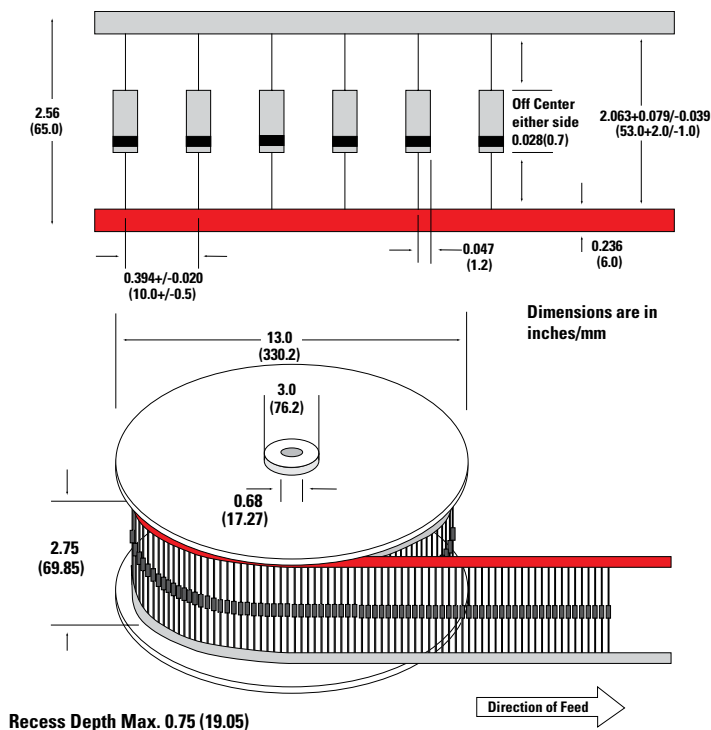
Part Marking System



Packaging

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
1.5KExxxXX	DO-201	1200	Tape & Reel	EIA STD RS-296
1.5KExxxXX-B	DO-201	500	BULK	Littelfuse Spec.

Tape and Reel Specification



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

© 2020 Littelfuse, Inc.
Specifications are subject to change without notice.
Revised: JC.10/30/20