

Features

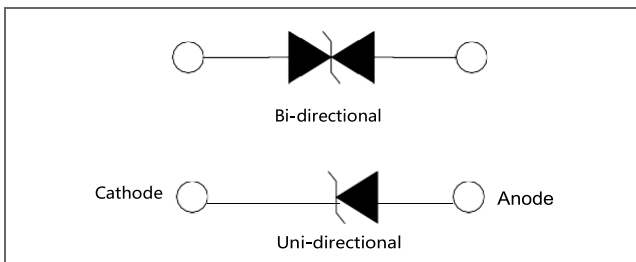
- 1500W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- IEC61000-4-2 +/-30kV both contact and air
- IEC61000-4-4 50A(5/50nS)



Applications

TVS components are ideal for the protection of I/O interfaces, VCC bus and other vulnerable circuits used in telecom, computer, industrial ICT equipment and consumer electronic applications.

Function Diagram




Maximum Ratings and Thermal Characteristics (T _A =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T _A =25°C by 10/1000μs Waveform (Fig.3)-- single die	P _{PPM}	1500	W
Peak Pulse Power Dissipation at T _A =25°C by 10/1000μs Waveform (Fig.2)-- stack die	P _{PPM}	2000	W
Power Dissipation on Infinite Heat Sink at T _L =50°C	P _D	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I _{FSM}	200	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only(Note 2)	V _F	3.5/5	V
Operating Temperature Range	T _J	-55 to 150	°C

AGENCY	AGENCY FILE NUMBER
	Pending

Notes:

1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
2. 3.5V for single die, 5V for stack die

Characteristics (T = 25°C unless otherwise noted)

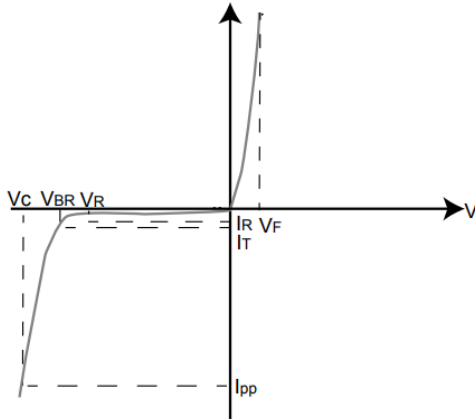
Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V _R (Volts)	Breakdown Voltage V _{BR} (Volts) @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{nn} (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _R (μA)	Agency Approval 
			MIN	MAX					
1.5KE6.8A	1.5KE6.8CA	5.80	6.45	7.14	10	10.5	144.8	1000	
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	9.50	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	
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	105.00	1	137.0	11.1	1	
1.5KE110A	1.5KE110CA	94.00	105.00	116.00	1	152.0	10.0	1	
1.5KE120A	1.5KE120CA	102.00	114.00	126.00	1	165.0	9.2	1	
1.5KE130A	1.5KE130CA	111.00	124.00	137.00	1	179.0	8.5	1	
1.5KE150A	1.5KE150CA	128.00	143.00	158.00	1	207.0	7.3	1	
1.5KE160A	1.5KE160CA	136.00	152.00	168.00	1	219.0	6.9	1	
1.5KE170A	1.5KE170CA	145.00	162.00	179.00	1	234.0	6.5	1	
1.5KE180A	1.5KE180CA	154.00	171.00	189.00	1	246.0	6.2	1	
1.5KE200A	1.5KE200CA	171.00	190.00	210.00	1	274.0	5.5	1	
1.5KE220A	1.5KE220CA	185.00	209.00	231.00	1	328.0	4.6	1	
1.5KE250A	-	214.00	237.00	263.00	1	344.0	4.4	1	
-	1.5KE250CA*	214.00	237.00	263.00	1	344.0	5.9	1	
1.5KE300A*	1.5KE300CA*	256.00	285.00	315.00	1	414.0	4.9	1	
1.5KE320A*	1.5KE320CA*	273.00	304.00	336.00	1	441.0	4.6	1	
1.5KE350A*	1.5KE350CA*	300.00	332.00	368.00	1	482.0	4.2	1	
1.5KE400A*	1.5KE400CA*	342.00	380.00	420.00	1	548.0	3.7	1	
1.5KE440A*	1.5KE440CA*	376.00	418.00	462.00	1	602.0	3.1	1	
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 stacked-die parts, use * to label the part number.

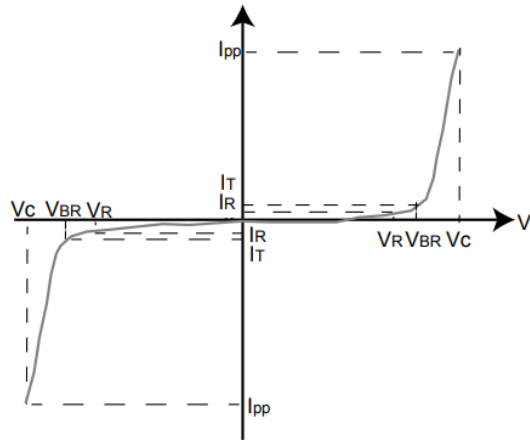


I-V Curve Characteristics

Uni-directional



Bi-directional



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

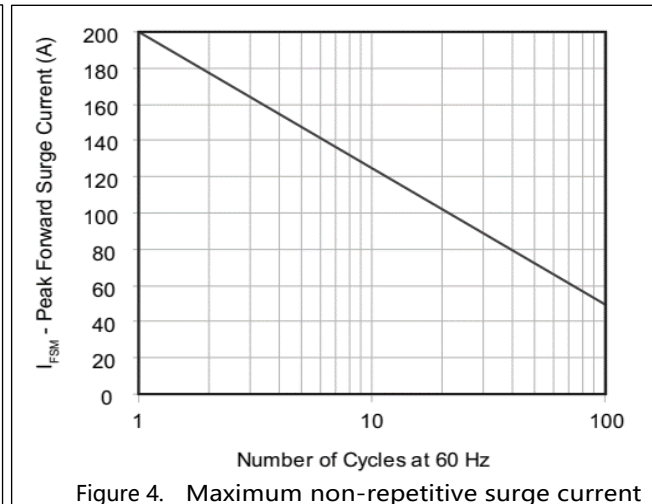
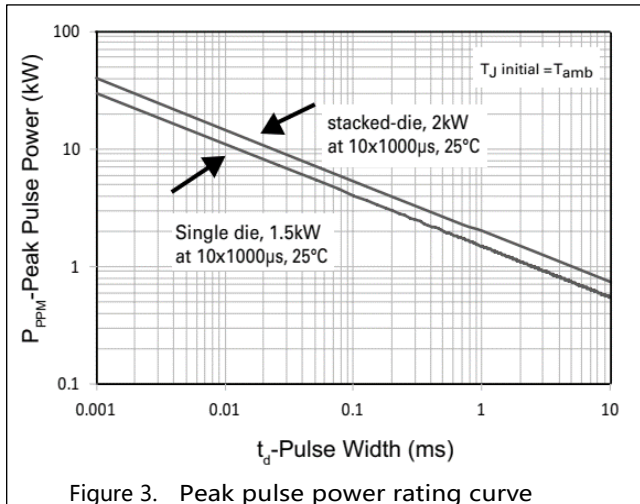
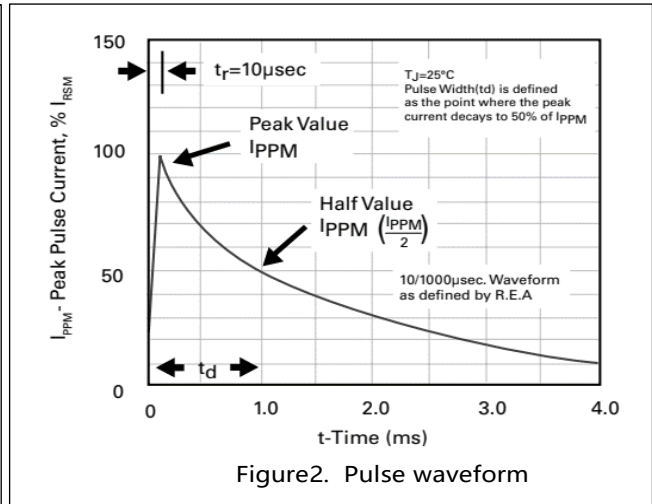
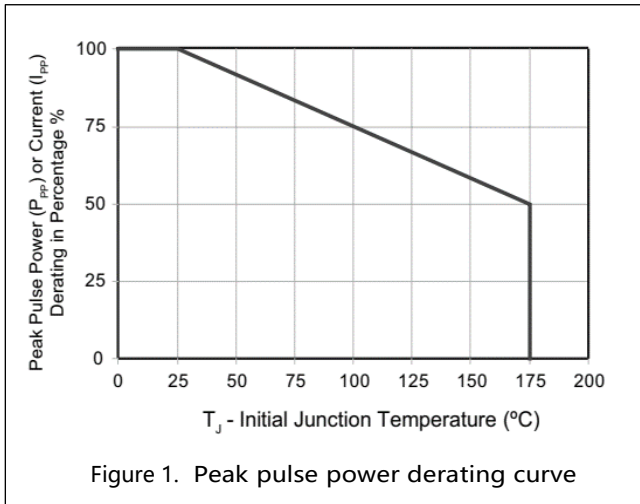
V_{BR} Breakdown Voltage -- Maximum voltage that flows through the TVS at a specified test current (I_T)

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

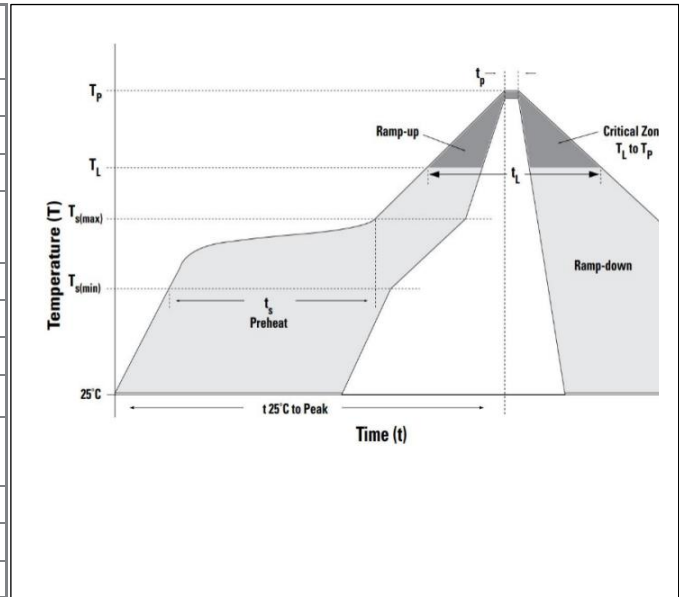
Ratings and Characteristic Curves (T = 25°C unless otherwise noted)



Soldering Parameters

Soldering profile

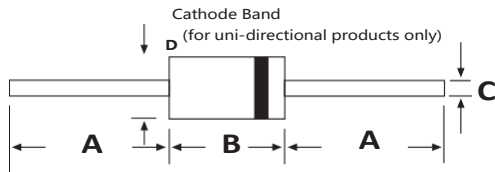
Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{S(min)}$)	150°C
	- Temperature Max ($T_{S(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 120 secs
Average ramp up rate (Liquidus Temp (T_A) to peak)		3°C/second max
$T_{S(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_A) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
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)

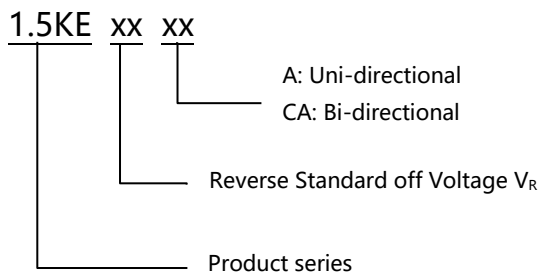
Peak Temperature:	265°C
Dipping Time:	10 seconds
Soldering:	1 time

Dimensions

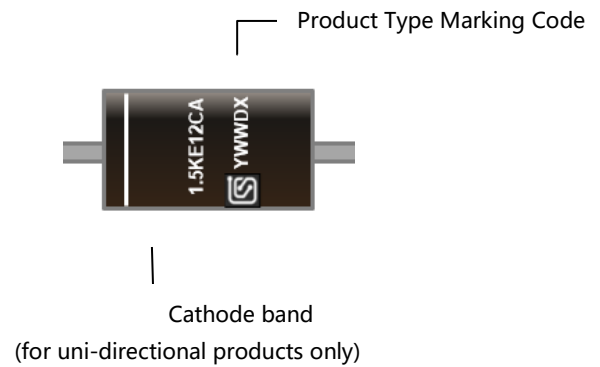


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.230	0.300	5.80	7.60
C	0.028	0.034	0.71	0.86
D	0.104	0.140	2.60	3.60

Part Numbering



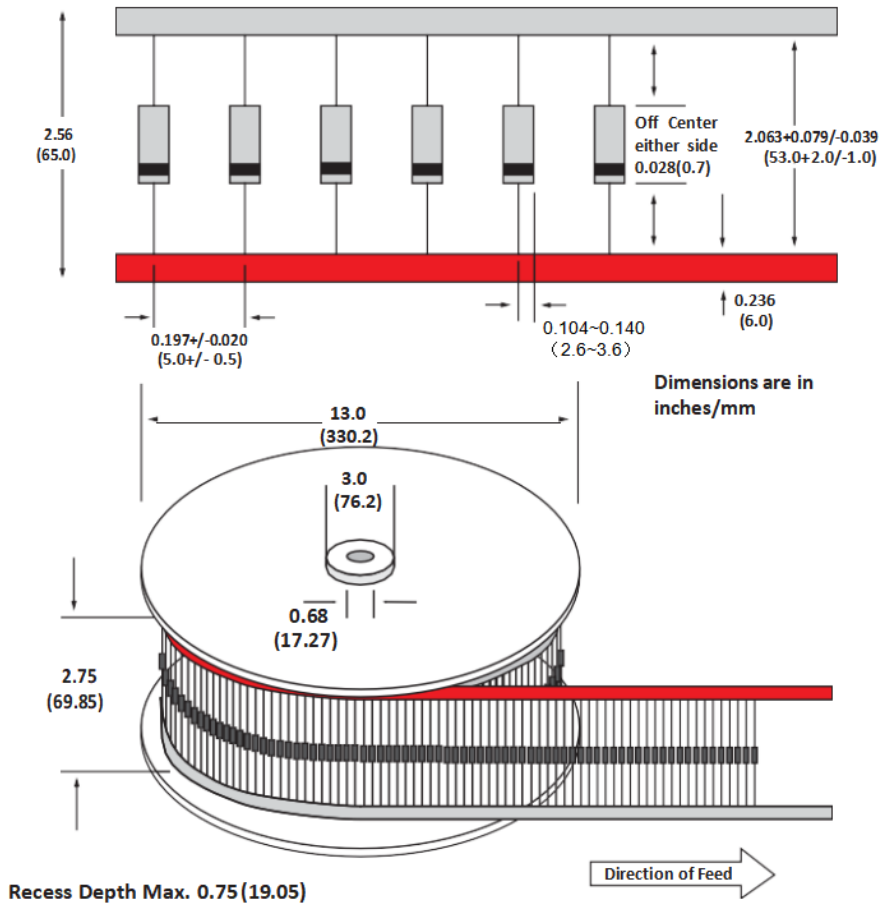
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
1.5KEXXX	DO-201	1200	Tape & Reel

Tape and Reel Specification



Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	14-July-2021

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