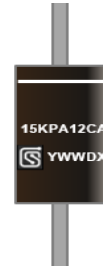


## Features

- 15000W 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)

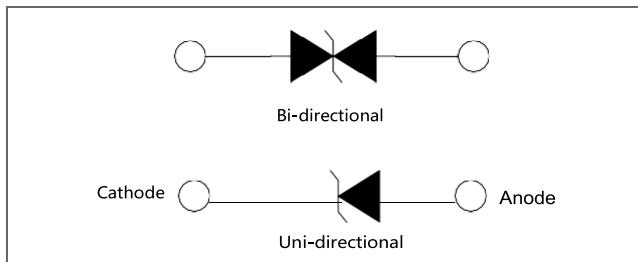
**RoHS**  
Compliant



## Applications

TVS devices are ideal for the transient voltage clamp protection of I/O Interfaces, DC power line bus and other circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

## Function Diagram




Maximum Ratings and Thermal Characteristics (T <sub>A</sub> =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T <sub>A</sub> =25°C by 10/1000µs Waveform (Fig.3)	P <sub>PPM</sub>	15000	W
Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =50°C	P <sub>D</sub>	8	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I <sub>FSM</sub>	400	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only(Note 2)	V <sub>F</sub>	3.5/5	V
Operating Temperature Range	T <sub>J</sub>	-55 to 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C

AGENCY	AGENCY FILE NUMBER
	Pending

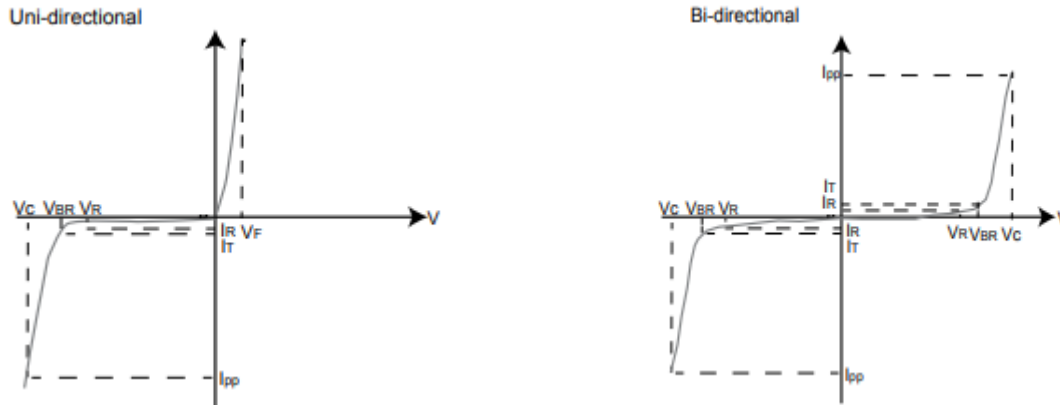
### Notes:

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)**

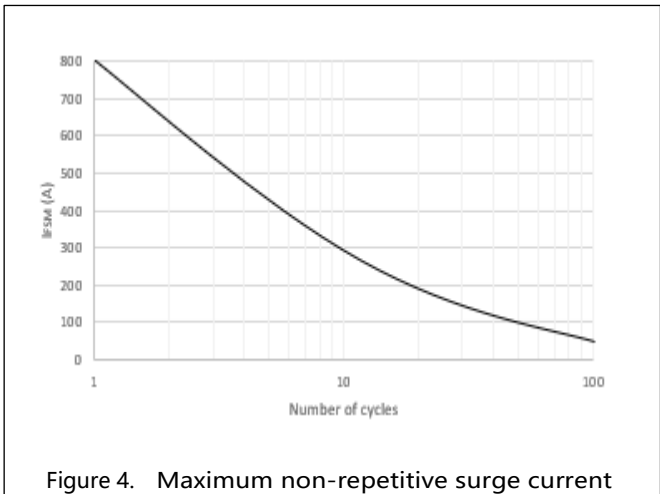
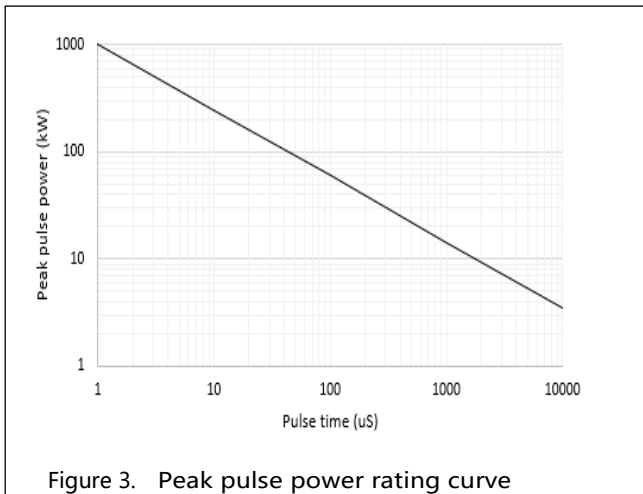
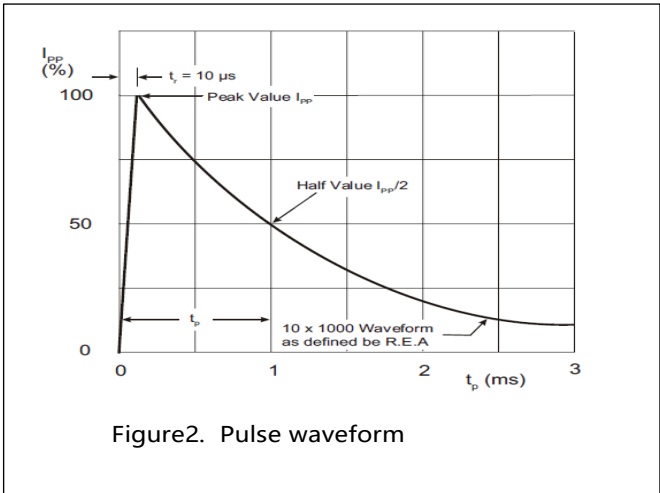
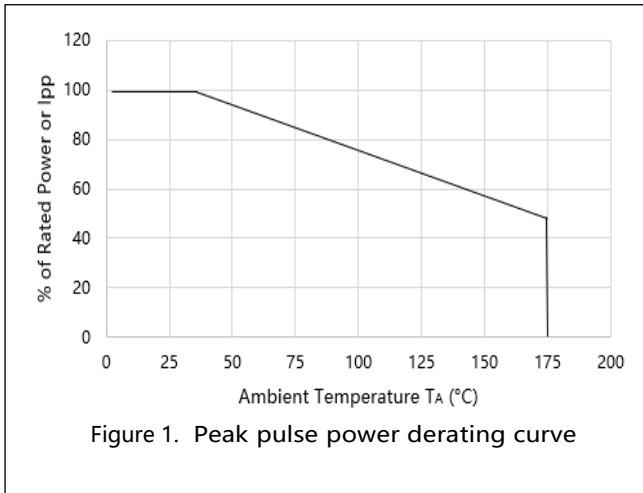
Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage $V_R$ (Volts)	Breakdown Voltage $V_{BR}$ (Volts) @ $I_T$		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C$ @ $I_{nn}$ (V)	Maximum Peak Pulse Current $I_{pp}$ (A)	Maximum Reverse Leakage $I_R$ @ $V_R$ ( $\mu$ A)	Agency Approval 
			MIN	MAX					
15KPA17A	15KPA17CA	17	18.99	20.79	50	29.3	515.4	5000	
15KPA18A	15KPA18CA	18	20.11	22.01	50	30.9	488.7	5000	
15KPA20A	15KPA20CA	20	22.34	24.46	20	34.3	440.2	1500	
15KPA22A	15KPA22CA	22	24.57	26.91	10	37.1	407.0	500	
15KPA24A	15KPA24CA	24	26.81	29.35	5	40.7	371.0	150	
15KPA26A	15KPA26CA	26	29.04	31.80	5	44.0	343.2	50	
15KPA28A	15KPA28CA	28	31.28	34.24	5	47.5	317.9	25	
15KPA30A	15KPA30CA	30	33.51	36.70	5	50.7	297.8	15	
15KPA33A	15KPA33CA	33	36.9	40.4	5	54.7	276.1	2	
15KPA36A	15KPA36CA	36	40.2	44.0	5	59.8	252.5	2	
15KPA40A	15KPA40CA	40	44.7	48.9	5	65.8	229.5	2	
15KPA43A	15KPA43CA	43	48.0	52.6	5	69.8	216.3	2	
15KPA45A	15KPA45CA	45	50.3	55.0	5	72.8	207.4	2	
15KPA48A	15KPA48CA	48	53.6	58.7	5	77.7	194.3	2	
15KPA51A	15KPA51CA	51	57.0	62.4	5	82.9	182.1	2	
15KPA54A	15KPA54CA	54	60.3	66.0	5	87.7	172.2	2	
15KPA58A	15KPA58CA	58	64.8	70.9	5	93.8	161.0	2	
15KPA60A	15KPA60CA	60	67.0	73.4	5	97.4	155.0	2	
15KPA64A	15KPA64CA	64	71.5	78.3	5	104.2	144.9	2	
15KPA70A	15KPA70CA	70	78.2	85.6	5	113.6	132.9	2	
15KPA75A	15KPA75CA	75	83.8	91.7	5	122.0	123.8	2	
15KPA78A	15KPA78CA	78	87.1	95.4	5	126.1	119.7	2	
15KPA85A	15KPA85CA	85	94.9	104.0	5	197.6	109.7	2	
15KPA90A	15KPA90CA	90	100.5	110.1	5	145.6	103.7	2	
15KPA100A	15KPA100CA	100	111.7	122.3	5	161.3	93.6	2	
15KPA110A	15KPA110CA	110	122.9	134.5	5	178.6	84.5	2	
15KPA120A	15KPA120CA	120	134.0	146.8	5	192.3	78.5	2	
15KPA130A	15KPA130CA	130	145.2	159.0	5	208.3	72.5	2	
15KPA150A	15KPA150CA	150	167.6	183.5	5	241.9	62.4	2	
15KPA160A	15KPA160CA	160	178.7	195.7	5	258.6	58.4	2	
15KPA170A	15KPA170CA	170	189.9	207.9	5	272.7	55.4	2	
15KPA180A	15KPA180CA	180	201.1	220.1	5	288.5	52.3	2	
15KPA200A	15KPA200CA	200	223.4	244.6	5	319.1	47.3	2	
15KPA220A	15KPA220CA	220	245.7	269.1	5	356.0	42.4	2	
15KPA240A	15KPA240CA	240	268.1	293.5	5	384.6	39.3	2	
15KPA260A	15KPA260CA	260	290.4	318.0	5	416.7	36.2	2	
15KPA280A	15KPA280CA	280	312.8	342.4	5	454.5	33.2	2	

### 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 though 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

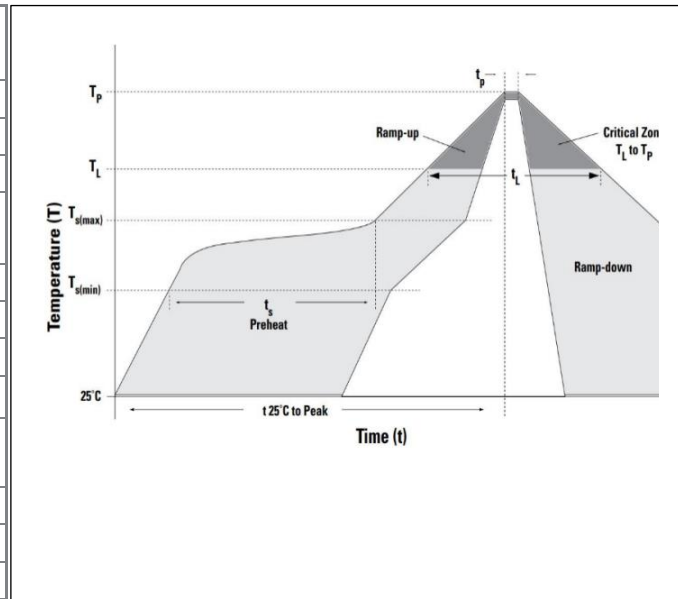
**Ratings and Characteristic Curves (T = 25°C unless otherwise noted)**



Soldering Parameters

Soldering profile

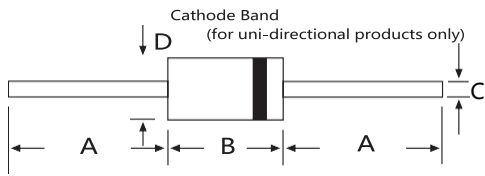
Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ( $T_{S(min)}$ )	150°C
	- Temperature Max ( $T_{S(max)}$ )	200°C
	- Time (min to max) ( $t_g$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_A$ ) to peak)		3°C/second max
$T_{S(max)}$ to $T_A$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_A$ ) (Liquidus)	217°C
	- Time (min to max) ( $t_g$ )	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)

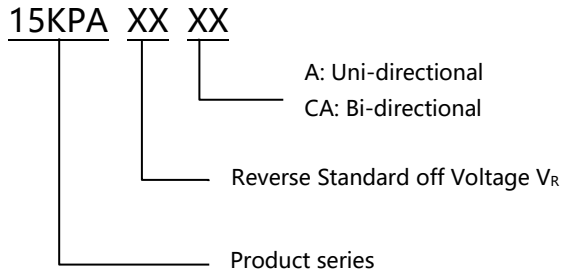
Peak Temperature:	265°C
Dipping Time:	10 seconds
Soldering:	1 time

Dimensions

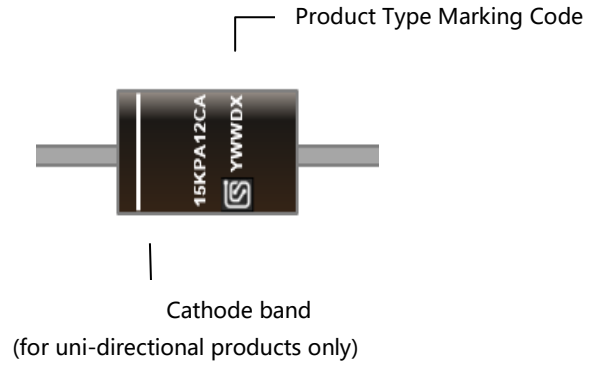


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.340	0.360	8.60	9.10
C	0.048	0.054	1.22	1.36
D	0.340	0.360	8.60	9.10

Part Numbering



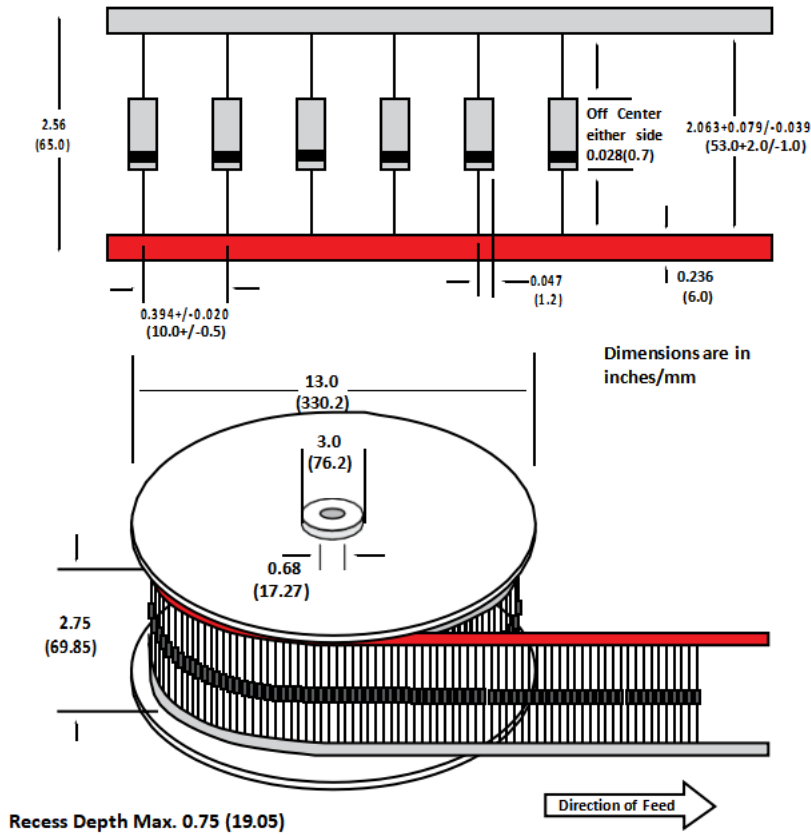
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
15KPAXXXX	P600	800	Tape & Reel
15KPAXXXX-B	P600	100	Bulk

### Tape and Reel Specification



### Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	15-Aug-2021



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