

TVS Diode – 15KPA Series

Features

- Plastic package, excellent insulation strength.
- Glass passivated chip junction in P600 package.
- Excellent voltage clamping capability.
- Low Zener impedance.
- 15000W 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 $^{\circ}$ C/10 sec.
- MSL: JEDEC-J-STD-020, Level 1

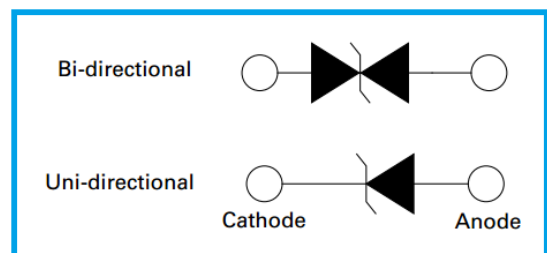


Applications

- 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 P600 molded plastic.
- Axial leaded, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except bidirectional.

Maximum Ratings and Thermal Characteristics

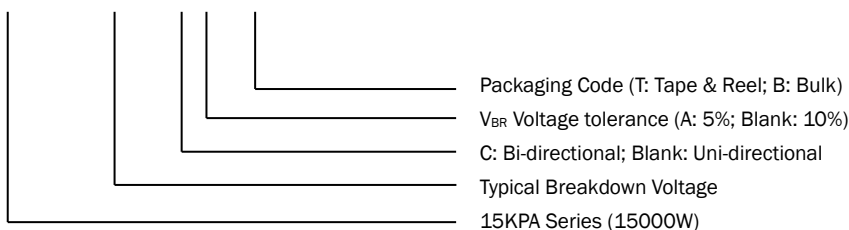
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 μ s waveform (Note 1, Fig.1).	P_{PPM}	Min 15000	Watt
Peak Pulse Current of 10/1000 μ s waveform (Note 1, Fig.3).	I_{PPM}	See Table	Amp
Steady State Power Dissipation at $T_L = 75^{\circ}$ C, Lead lengths 0.375", (9.5mm) (Fig.5).	$P_{M(AV)}$	8.0	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	I_{FSM}	400	Amp
Operating Junction and Storage Temperature Range.	T_J, T_{STG}	-55~175	$^{\circ}$ C

Note:

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

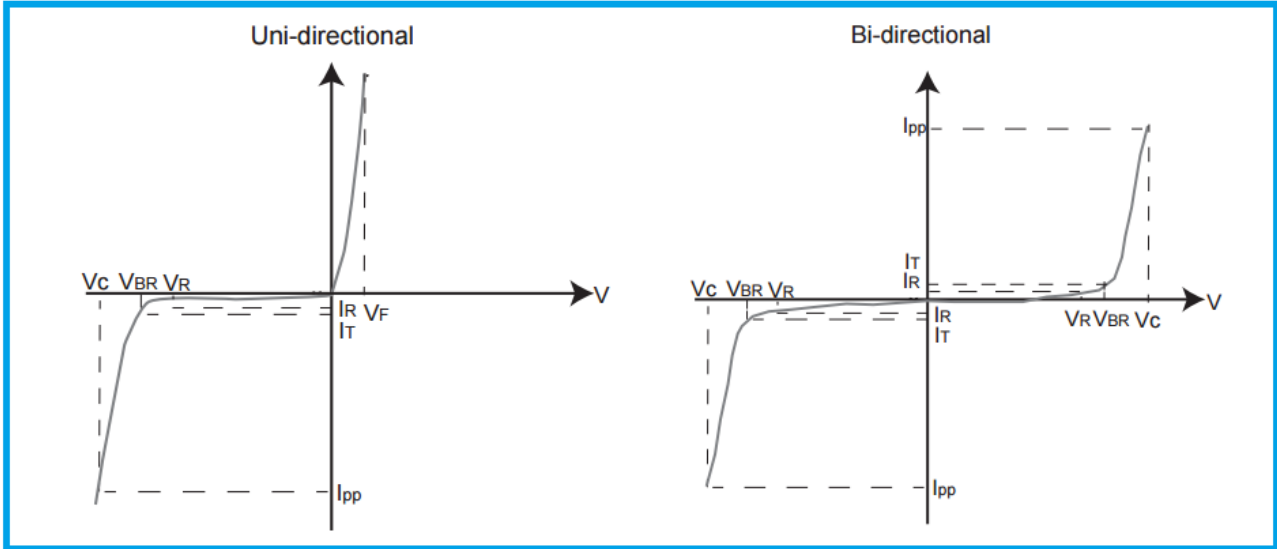
Part Number Code

15KPA □□□ **CA** - □



TVS Diode – 15KPA Series

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.				
15KPA17A	15KPA17CA	17.0	18.99	20.79	50	29.3	515.4	5000
15KPA18A	15KPA18CA	18.0	20.11	22.01	50	30.9	488.7	5000
15KPA20A	15KPA20CA	20.0	22.34	24.46	50	34.3	440.2	1500
15KPA22A	15KPA22CA	22.0	24.57	26.91	50	37.1	407.0	500
15KPA24A	15KPA24CA	24.0	26.81	29.35	5	40.7	371.0	150
15KPA26A	15KPA26CA	26.0	29.04	31.80	5	44.0	343.2	50
15KPA28A	15KPA28CA	28.0	31.28	34.24	5	47.5	317.9	25
15KPA30A	15KPA30CA	30.0	33.51	36.70	5	50.7	297.8	15
15KPA33A	15KPA33CA	33.0	36.90	40.40	5	54.7	276.1	2
15KPA36A	15KPA36CA	36.0	40.20	44.00	5	59.8	252.5	2
15KPA40A	15KPA40CA	40.0	44.70	48.90	5	65.8	229.5	2
15KPA43A	15KPA43CA	43.0	48.00	52.60	5	69.8	216.3	2
15KPA45A	15KPA45CA	45.0	50.30	55.00	5	72.8	207.4	2
15KPA48A	15KPA48CA	48.0	53.60	58.70	5	77.7	194.3	2
15KPA51A	15KPA51CA	51.0	57.00	62.40	5	82.9	182.1	2
15KPA54A	15KPA54CA	54.0	60.30	66.00	5	87.7	172.2	2
15KPA58A	15KPA58CA	58.0	64.80	70.90	5	93.8	161.0	2
15KPA60A	15KPA60CA	60.0	67.00	73.40	5	97.4	155.0	2



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Part Number		Reverse Stand Off Voltage V_R (V)	Breakdown Voltage V_{BR} (V) @ I_R		Test Current I_R (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.				
15KPA64A	15KPA64CA	64.0	71.50	78.30	5	104.2	144.9	2
15KPA70A	15KPA70CA	70.0	78.20	85.60	5	113.6	132.9	2
15KPA75A	15KPA75CA	75.0	83.80	91.70	5	122.0	123.8	2
15KPA78A	15KPA78CA	78.0	87.10	95.40	5	126.1	119.7	2
15KPA85A	15KPA85CA	85.0	94.90	104.0	5	137.6	109.7	2
15KPA90A	15KPA90CA	90.0	100.5	110.1	5	145.6	103.7	2
15KPA100A	15KPA100CA	100.0	111.7	122.3	5	161.3	93.6	2
15KPA110A	15KPA110CA	110.0	122.9	134.5	5	178.6	84.5	2
15KPA120A	15KPA120CA	120.0	134.0	146.8	5	192.3	78.5	2
15KPA130A	15KPA130CA	130.0	145.2	159.0	5	208.3	72.5	2
15KPA150A	15KPA150CA	150.0	167.6	183.5	5	241.9	62.4	2
15KPA160A	15KPA160CA	160.0	178.7	195.7	5	258.6	58.4	2
15KPA170A	15KPA170CA	170.0	189.9	207.9	5	272.7	55.4	2
15KPA180A	15KPA180CA	180.0	201.1	220.1	5	288.5	52.3	2
15KPA200A	15KPA200CA	200.0	223.4	244.6	5	319.1	47.3	2
15KPA220A	15KPA220CA	220.0	245.7	269.1	5	352.5	42.8	2
15KPA240A	15KPA240CA	240.0	268.1	293.5	5	384.6	39.3	2
15KPA260A	15KPA260CA	260.0	290.4	318.0	5	416.7	36.2	2
15KPA280A	15KPA280CA	280.0	312.8	342.4	5	454.5	33.2	2

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Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

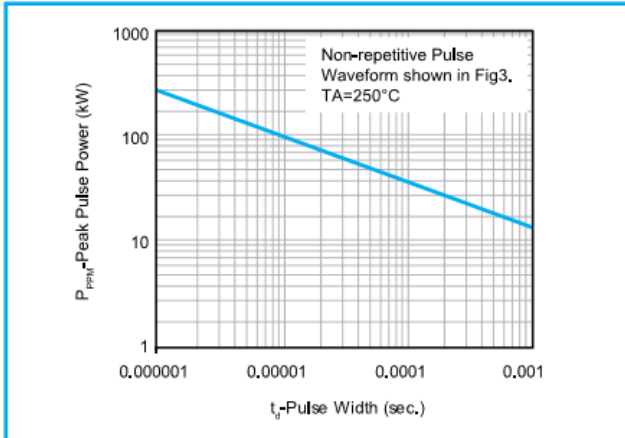


Fig 2 - Pulse Derating Curve

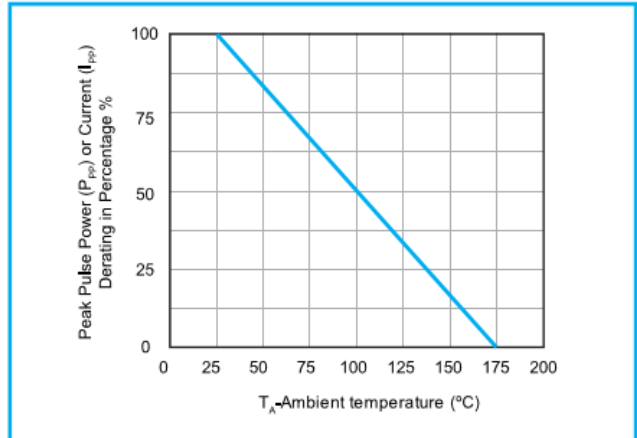


Fig 3 - Pulse Waveform

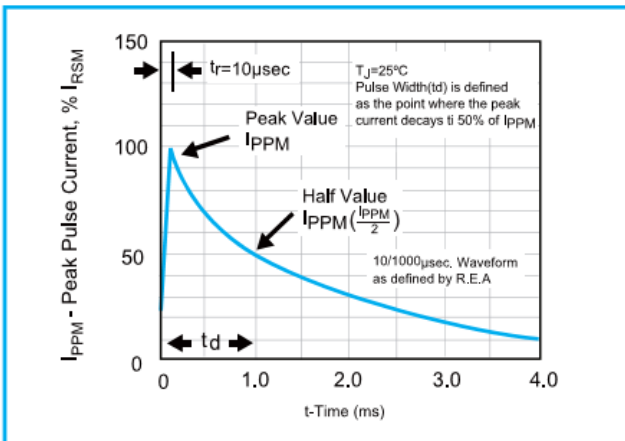


Fig 4 - Typical Junction Capacitance Uni-directional

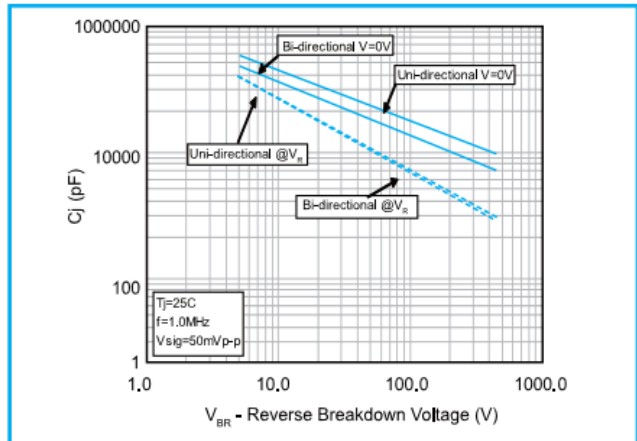


Fig 5 - Steady State Power Dissipation Derating Curve

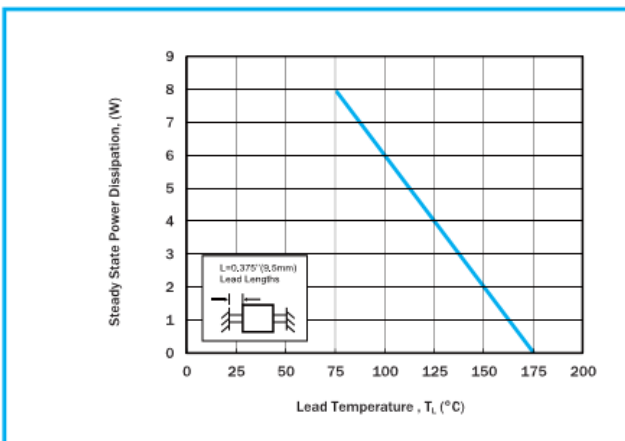
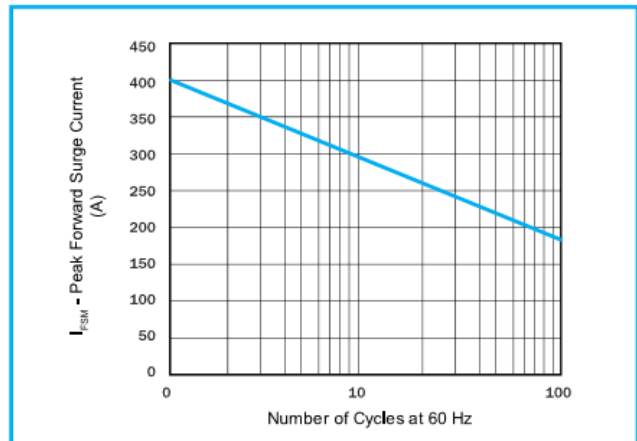
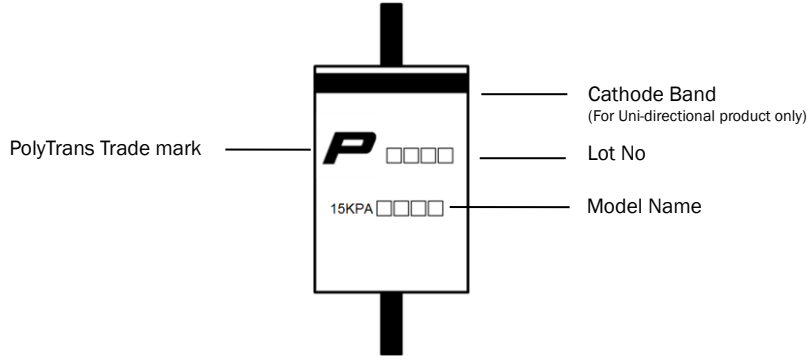


Fig 6 - Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

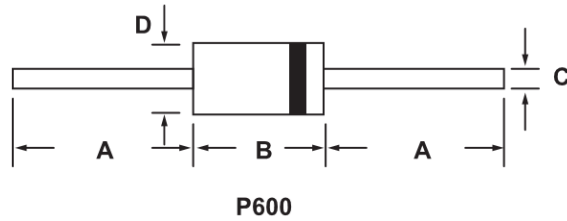


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Marking Definitions



Physical Dimensions



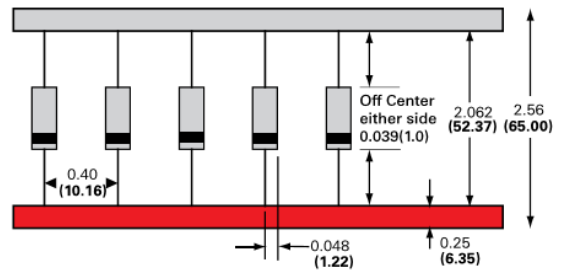
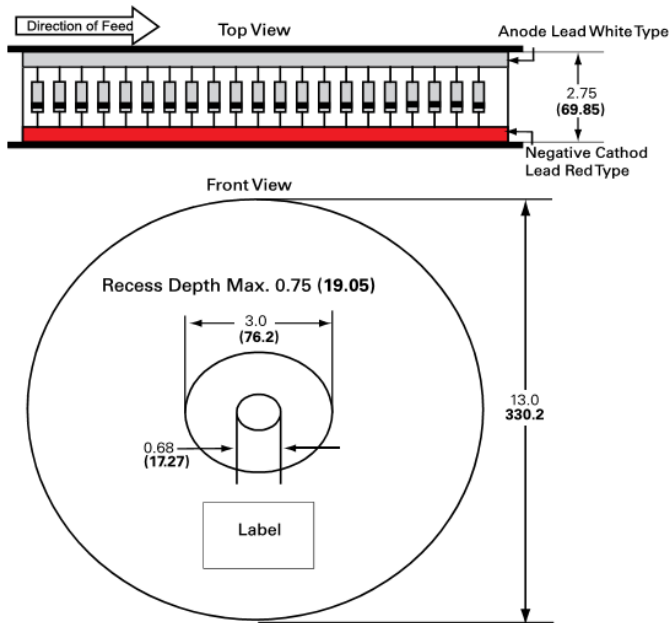
Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	25.40	-	1.000	-
B	8.60	9.10	0.340	0.360
C	1.22	1.32	0.048	0.052
D	8.60	9.10	0.340	0.360

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Packaging Information

Part Number	Packaging Code	Component Package	Quantity	Packaging Option	Packaging Specification
15KPA Series	T	P600	800	Tape & Reel	EIA STD RS-296
15KPA Series	B	P600	100	Bulk	-

Tape and Reel Specifications



Dimensions are in inches/mm