

TVS Diode – 3KP Series

Features

- Plastic package, excellent insulation strength.
- Glass passivated chip junction in P600 package.
- Excellent voltage clamping capability.
- Low Zener impedance.
- 3000W 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°C/10 sec.
- MSL: JEDEC-J-STD-020, Level 1

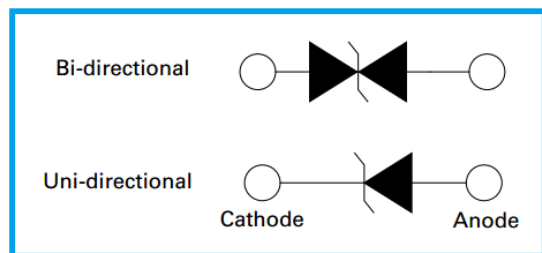


Applications

- I/O interface, V_{CC} bus
- Telecom
- Industrial and consumer electronic applications.
- Relay and electromagnetic valve surge absorption.

Agency Approval

- UL certification pending



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

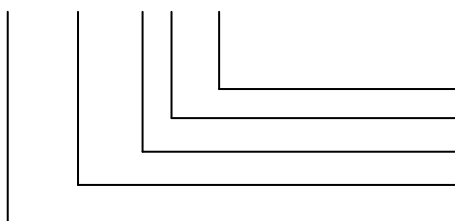
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 μ s waveform (Note 1, Fig.1).	P _{PPM}	Min 3000	Watt
Peak Pulse Current of 10/1000 μ s waveform (Note 1, Fig.3).	I _{PPM}	See Table	Amp
Steady State Power Dissipation at TL = 75°C, Lead lengths 0.375", (9.5mm) (Fig.5).	P _{M(AV)}	7.0	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

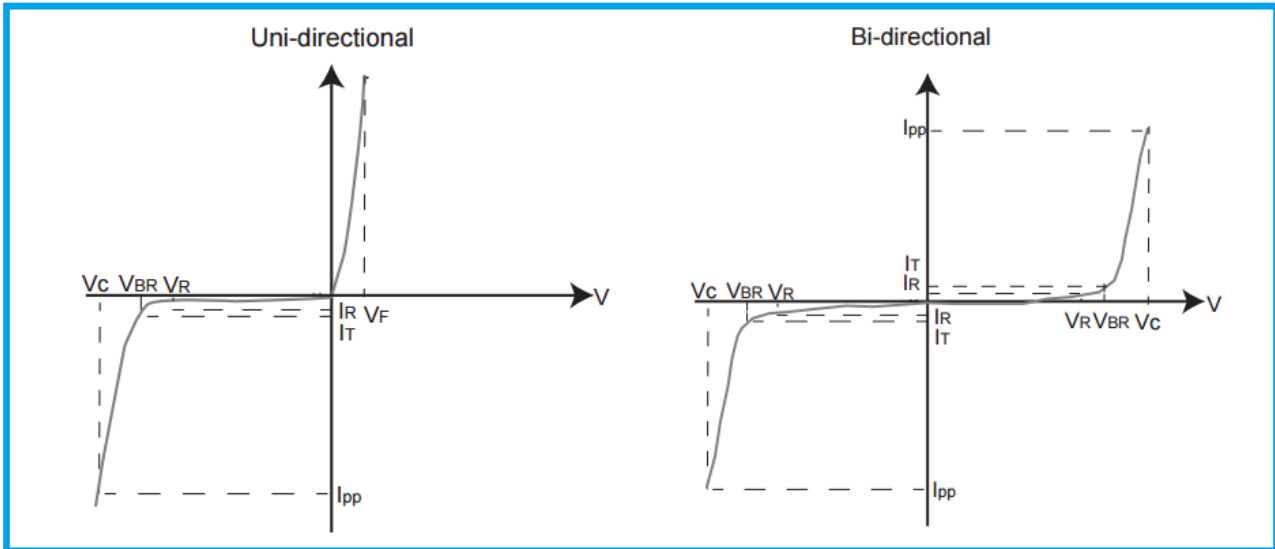
3KP □□□ C A - □



Packaging Code (T: Tape & Reel; B: Bulk)
V_{BR} Voltage tolerance (A: 5%; Blank: 10%)
C: Bi-directional; Blank: Uni-directional
Typical Breakdown Voltage
3KP Series (3000W)

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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	UL
Uni	Bi		Min.	Max.					
3KP5.0A	3KP5.0CA	5.0	6.40	7.00	10	9.2	326.1	5000	Pending
3KP6.0A	3KP6.0CA	6.0	6.67	7.37	10	10.3	291.3	5000	Pending
3KP6.5A	3KP6.5CA	6.5	7.22	7.98	10	11.2	267.9	2000	Pending
3KP7.0A	3KP7.0CA	7.0	7.78	8.60	10	12.0	250.0	1000	Pending
3KP7.5A	3KP7.5CA	7.5	8.33	9.21	1	12.9	232.6	250	Pending
3KP8.0A	3KP8.0CA	8.0	8.89	9.83	1	13.6	220.6	150	Pending
3KP8.5A	3KP8.5CA	8.5	9.44	10.4	1	14.4	208.3	50	Pending
3KP9.0A	3KP9.0CA	9.0	10.0	11.1	1	15.4	194.8	20	Pending
3KP10A	3KP10CA	10.0	11.1	12.3	1	17.0	176.5	15	Pending
3KP11A	3KP11CA	11.0	12.2	13.5	1	18.2	164.8	2	Pending
3KP12A	3KP12CA	12.0	13.3	14.7	1	19.9	150.8	2	Pending
3KP13A	3KP13CA	13.0	14.4	15.9	1	21.5	139.5	2	Pending
3KP14A	3KP14CA	14.0	15.6	17.2	1	23.2	129.3	2	Pending
3KP15A	3KP15CA	15.0	16.7	18.5	1	24.4	123.0	2	Pending
3KP16A	3KP16CA	16.0	17.8	19.7	1	26.0	115.4	2	Pending
3KP17A	3KP17CA	17.0	18.9	20.9	1	27.6	108.7	2	Pending
3KP18A	3KP18CA	18.0	20.0	22.1	1	29.2	102.7	2	Pending
3KP20A	3KP20CA	20.0	22.2	24.5	1	32.4	92.6	2	Pending

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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	UL
Uni	Bi		Min.	Max.					
3KP22A	3KP22CA	22.0	24.4	26.9	1	35.5	84.5	2	Pending
3KP24A	3KP24CA	24.0	26.7	29.5	1	38.9	77.1	2	Pending
3KP26A	3KP26CA	26.0	28.9	31.9	1	42.1	71.3	2	Pending
3KP28A	3KP28CA	28.0	31.1	34.4	1	45.4	66.1	2	Pending
3KP30A	3KP30CA	30.0	33.3	36.8	1	48.4	62.0	2	Pending
3KP33A	3KP33CA	33.0	36.7	40.6	1	53.3	56.3	2	Pending
3KP36A	3KP36CA	36.0	40.0	44.2	1	58.1	51.6	2	Pending
3KP40A	3KP40CA	40.0	44.4	49.1	1	64.5	46.5	2	Pending
3KP43A	3KP43CA	43.0	47.8	52.8	1	69.4	43.2	2	Pending
3KP45A	3KP45CA	45.0	50.0	55.3	1	72.7	41.3	2	Pending
3KP48A	3KP48CA	48.0	53.3	58.9	1	77.4	38.8	2	Pending
3KP51A	3KP51CA	51.0	56.7	62.7	1	82.4	36.4	2	Pending
3KP54A	3KP54CA	54.0	60.0	66.3	1	87.1	34.4	2	Pending
3KP58A	3KP58CA	58.0	64.4	71.2	1	93.6	32.1	2	Pending
3KP60A	3KP60CA	60.0	66.7	73.7	1	96.8	31.0	2	Pending
3KP64A	3KP64CA	64.0	71.1	78.6	1	103.0	29.1	2	Pending
3KP70A	3KP70CA	70.0	77.8	86.0	1	113.0	26.5	2	Pending
3KP75A	3KP75CA	75.0	83.3	92.1	1	121.0	24.8	2	Pending
3KP78A	3KP78CA	78.0	86.7	95.8	1	126.0	23.8	2	Pending
3KP85A	3KP85CA	85.0	94.4	104.0	1	137.0	21.9	2	Pending
3KP90A	3KP90CA	90.0	100.0	111.0	1	146.0	20.5	2	Pending
3KP100A	3KP100CA	100.0	111.0	123.0	1	162.0	18.5	2	Pending
3KP110A	3KP110CA	110.0	122.0	135.0	1	177.0	16.9	2	Pending
3KP120A	3KP120CA	120.0	133.0	147.0	1	193.0	15.5	2	Pending
3KP130A	3KP130CA	130.0	144.0	159.0	1	209.0	14.4	2	Pending
3KP150A	3KP150CA	150.0	167.0	185.0	1	243.0	12.3	2	Pending
3KP160A	3KP160CA	160.0	178.0	197.0	1	259.0	11.6	2	Pending
3KP170A	3KP170CA	170.0	189.0	209.0	1	275.0	10.9	2	Pending
3KP180A	3KP180CA	180.0	201.0	222.0	1	292.0	10.3	2	Pending
3KP190A	3KP190CA	190.0	211.0	233.0	1	308.0	9.70	2	Pending
3KP200A	3KP200CA	200.0	224.0	247.0	1	324.0	9.30	2	Pending
3KP210A	3KP210CA	210.0	237.0	263.0	1	340.0	8.80	2	Pending
3KP220A	3KP220CA	220.0	246.0	272.0	1	356.0	8.40	2	Pending
3KP250A	3KP250CA	250.0	279.0	309.0	1	425.0	7.10	2	Pending
3KP300A	3KP300CA	300.0	335.0	371.0	1	486.0	6.15	2	Pending
3KP350A	3KP350CA	350.0	391.0	432.0	1	567.0	5.27	2	Pending
3KP400A	3KP400CA	400.0	447.0	494.0	1	658.0	4.55	2	Pending
3KP440A	3KP440CA	440.0	492.0	543.0	1	742.2	4.05	2	Pending

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Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

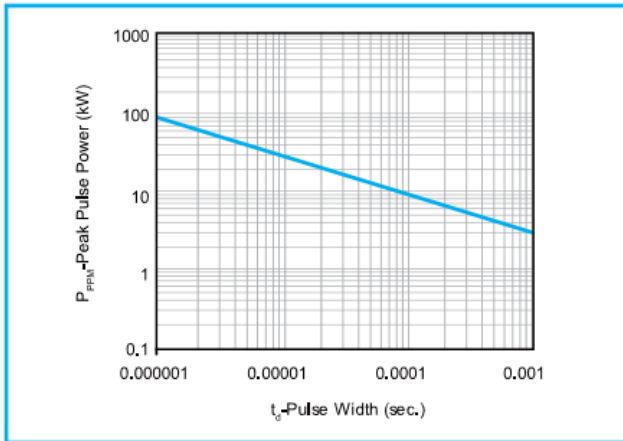


Fig 2 - Pulse Derating Curve

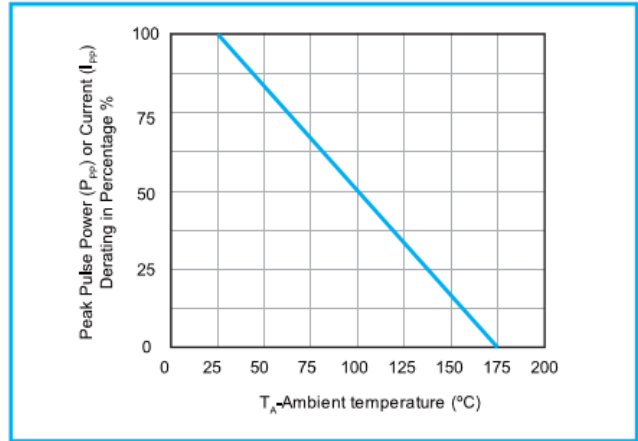


Fig 3 - Pulse Waveform

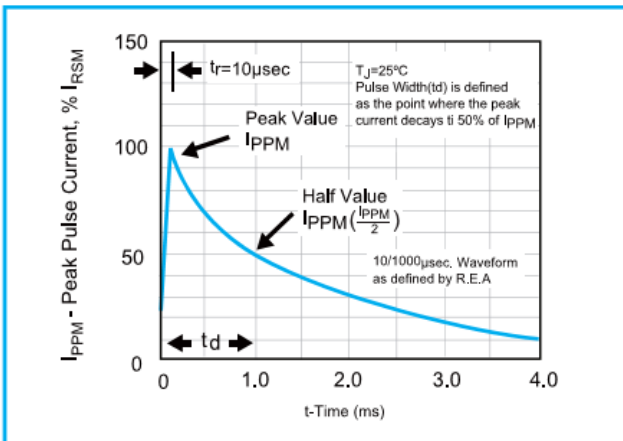


Fig 4 - Typical Junction Capacitance Uni-directional

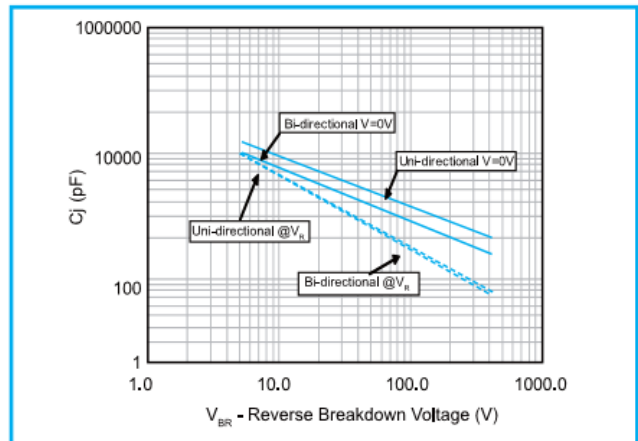


Fig 5 - Steady State Power Dissipation Derating Curve

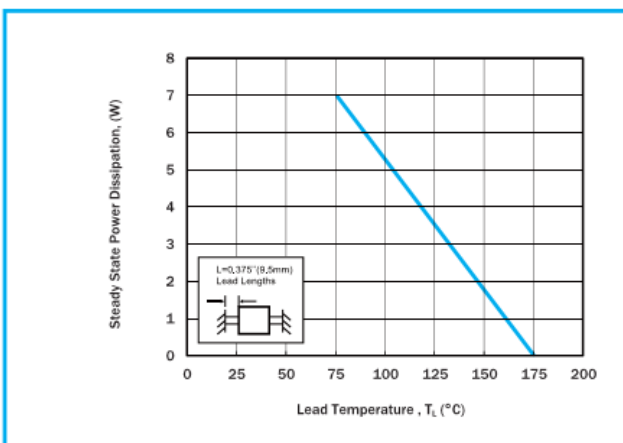
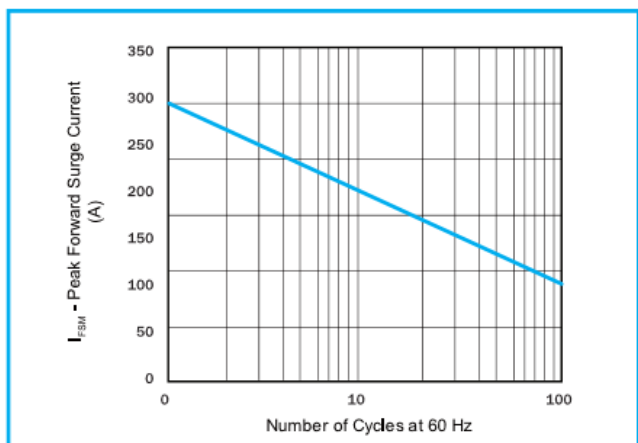
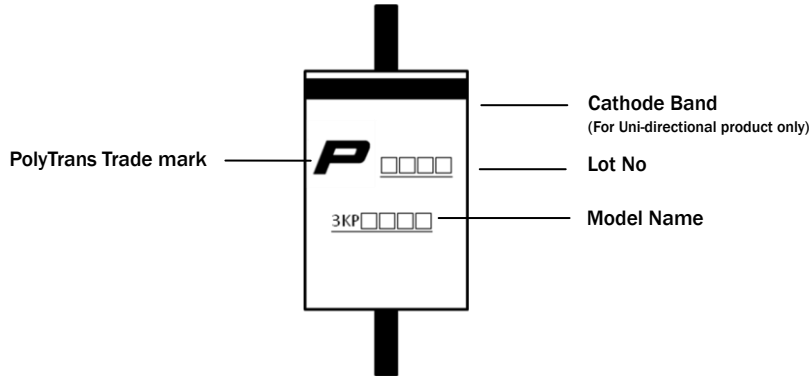


Fig 6 - Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

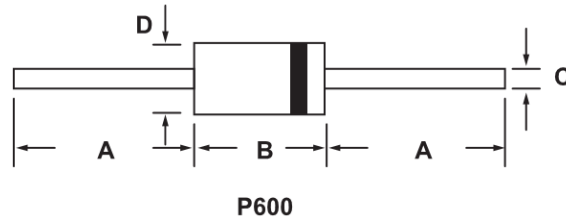


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Marking Definitions



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

TVS Diode – 3KP Series

Packaging Information

Part Number	Packaging Code	Component Package	Quantity	Packaging Option	Packaging Specification
3KP Series	T	P600	800	Tape & Reel	EIA STD RS-296
3KP Series	B	P600	100	Bulk	-

Tape and Reel Specifications

