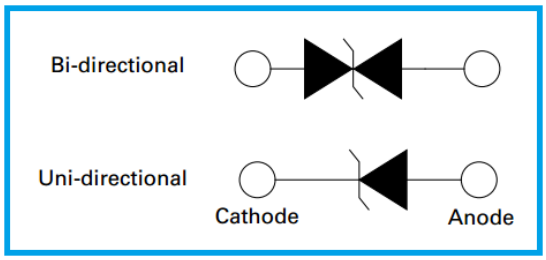
TVS Diode – 8KP Series

Features

- Plastic package, excellent insulation strength.
- Glass passivated chip junction in P600 package.
- Excellent voltage clamping capability.
- Low Zener impedance.
- 8000W peak pulse power capability on 10/1000μs waveform.
- Typical leakage current less than 5μA.
- 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 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.

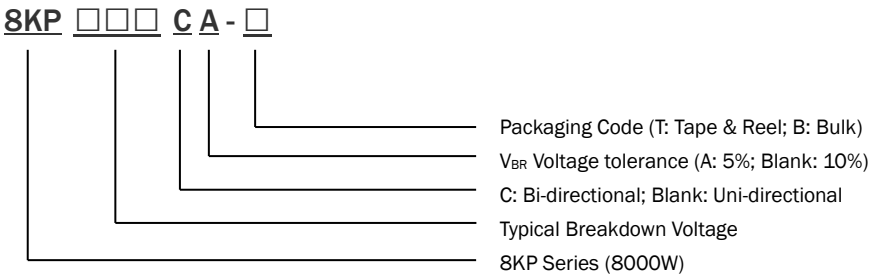
Maximum Ratings and Thermal Characteristics

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1, Fig.1).	P_{PPM}	Min 8000	Watt
Peak Pulse Current of 10/1000μs 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).	$P_{M(AV)}$	8.0	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	I_{FSM}	500	Amp
Operating Junction and Storage Temperature Range.	T_J, T_{STG}	-55~150	°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



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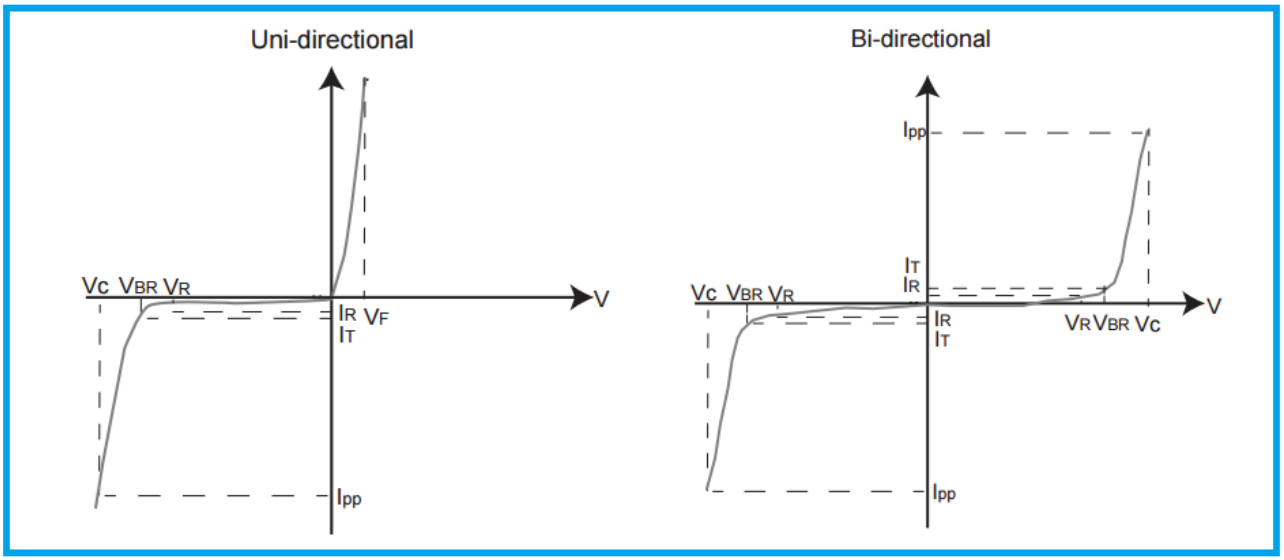
I-V Curve Characteristics



P_{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 (μA) @ V_R
Uni	Bi		Min.	Max.				
8KP24A	8KP24CA	24.0	26.7	29.5	1	38.9	206	5
8KP30A	8KP30CA	30.0	33.3	36.8	1	48.4	165	5
8KP33A	8KP33CA	33.0	36.7	40.6	1	53.3	150	5
8KP36A	8KP36CA	36.0	40.0	44.2	1	58.1	138	5
8KP40A	8KP40CA	40.0	44.4	49.1	1	64.5	124	5
8KP43A	8KP43CA	43.0	47.8	52.8	1	69.4	115	5

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Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

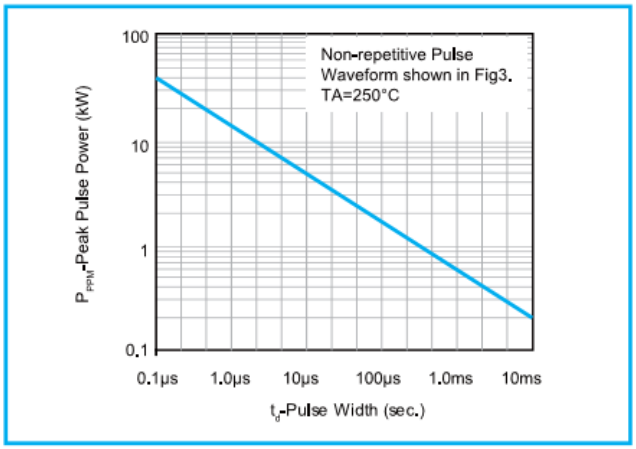


Fig 2 - Pulse Derating Curve

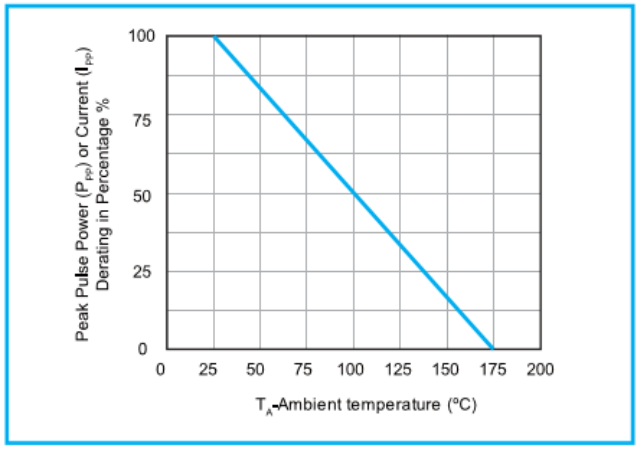


Fig 3 - Pulse Waveform

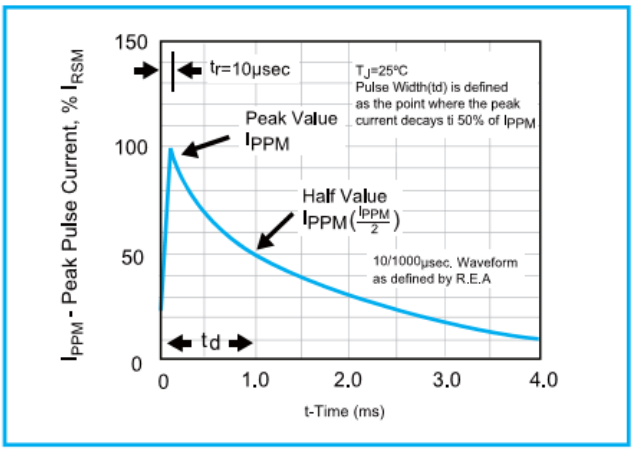


Fig 4 – Typical Junction Capacitance Uni-directional

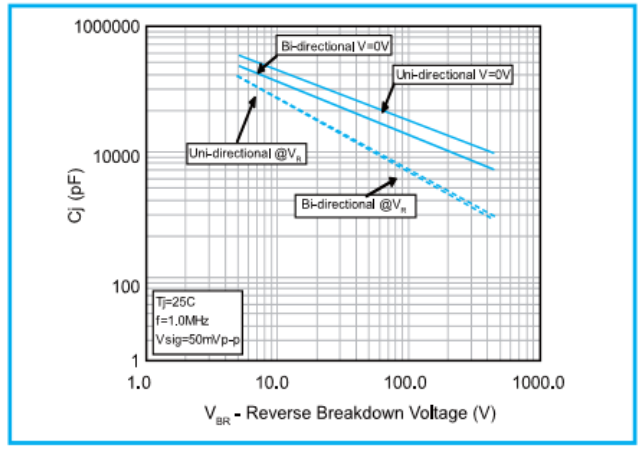


Fig 5 – Steady State Power Dissipation Derating Curve

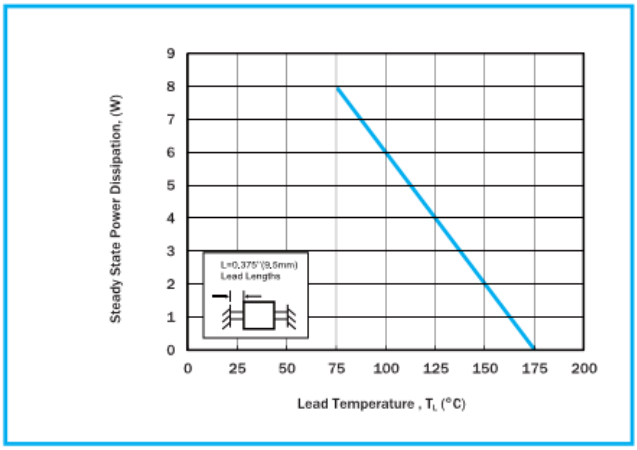
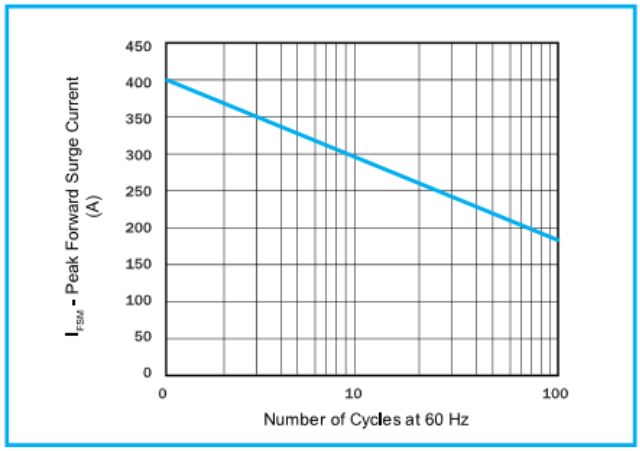


Fig 6 – Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)



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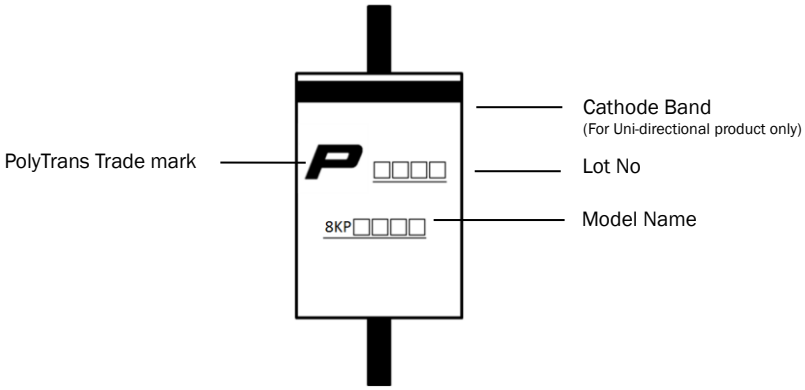
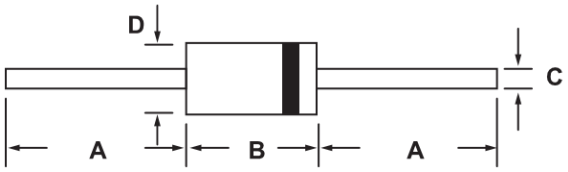
Marking Definitions



Physical Dimensions



P600

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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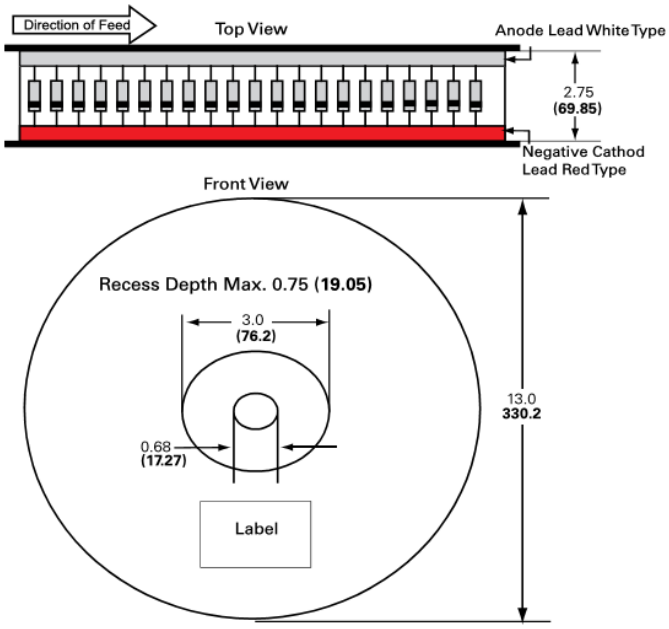
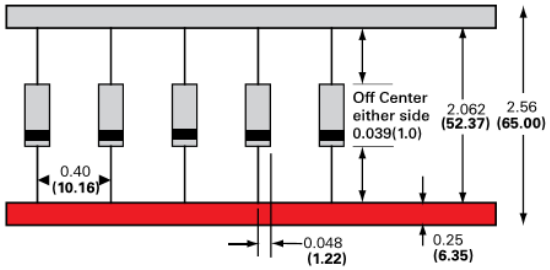
Packaging Information

Part Number	Packaging Code	Component Package	Quantity	Packaging Option	Packaging Specification
8KP Series	T	P600	800	Tape & Reel	EIA STD RS-296
8KP Series	B	P600	100	Bulk	-

Tape and Reel Specifications





Dimensions are in inches/mm