

Surface Mount Transient Voltage Suppressors

8KP Series 8000W Transient Voltage Suppressor

Description

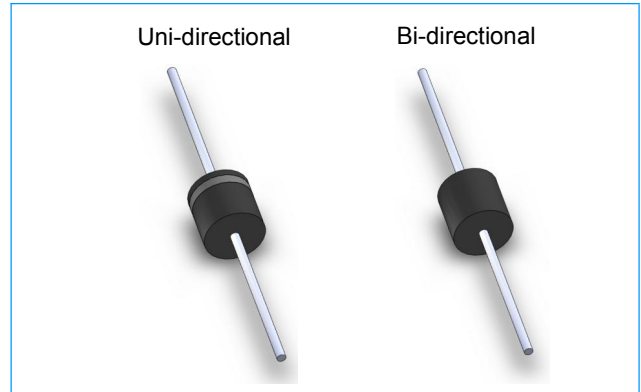
The 8KP series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Features

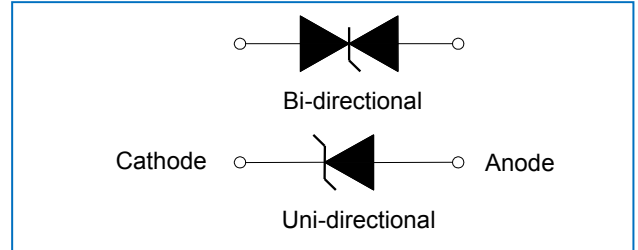
- ◆ Glass passivated chip
- ◆ 8000W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- ◆ Low leakage
- ◆ Uni and Bidirectional unit
- ◆ Excellent clamping capability
- ◆ Very fast response time
- ◆ RoHS compliant

Applications

TVS devices are ideal for the protection of I/O interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.



Functional Diagram



Mechanical Data

- ◆ Case: Molded plastic
- ◆ Epoxy: UL 94V-0 rate flame retardant
- ◆ Lead: Solderable per MIL-STD-202, method 208 guaranteed
- ◆ Polarity: Color band denotes cathode end except Bipolar
- ◆ Mounting position: Any

Electrical Characteristics(@25C Unless otherwise Specified)

Parameter	Symbol	Value	Units
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PPM}	8000	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PP}	See Next Table	W
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	8.0	V
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I_{FSM}	500	A
Operating junction temperature range	T_j	-55 to +150	$^\circ\text{C}$

Note:

(1) Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.1

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

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Part Number		Reverse Stand-Off Voltage $V_{RWM}(V)$	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_{RWM} (μA)
Uni	Bi		MIN	MAX				
8KP22A	8KP22CA	22	24.4	26.9	5	35.5	225	5
8KP24A	8KP24CA	24	26.7	29.5	5	38.9	206	5
8KP30A	8KP30CA	30	33.3	36.8	5	48.4	165	5
8KP33A	8KP33CA	33	36.7	40.6	5	53.3	150	5
8KP36A	8KP36CA	36	40	44.2	5	58.1	138	5
8KP40A	8KP40CA	40	44.4	49.1	5	64.5	124	5
8KP43A	8KP43CA	43	47.8	52.8	5	69.4	115	5

Note:

(1) Add suffix 'CA' after part number to specify Bi-directional devices ; (2) Suffix 'A' denotes 5% tolerance device.

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

Figure 1-Peak Pulse Power Rating Curve

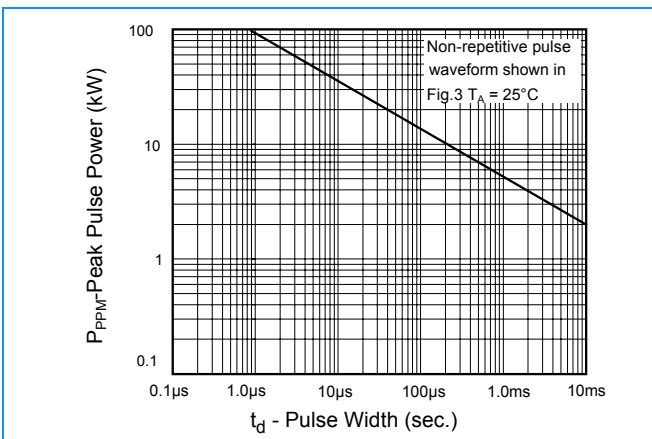


Figure 2-Pulse Derating Curve

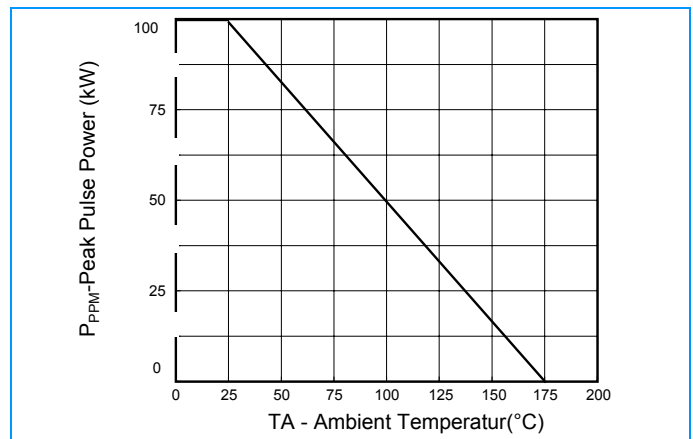


Figure 3-Pulse Waveform

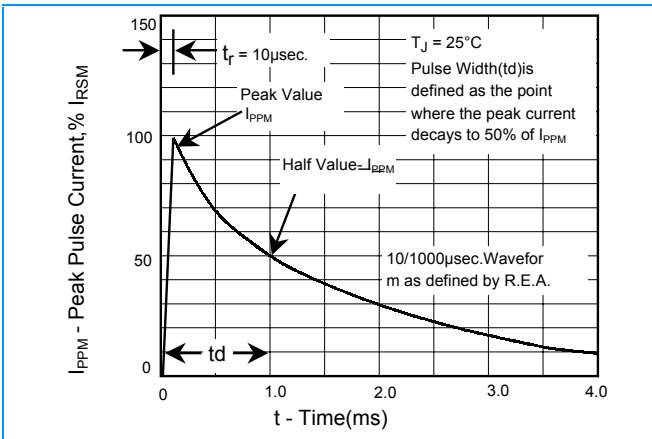
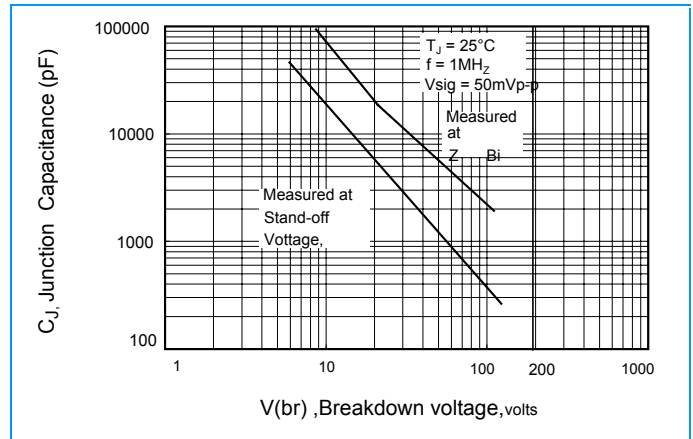


Figure 4-Typical Junction Capacitance



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Electrical Characteristics (@25°C Unless otherwise Specified)

Figure 5 - Steady State Power Derating Curve

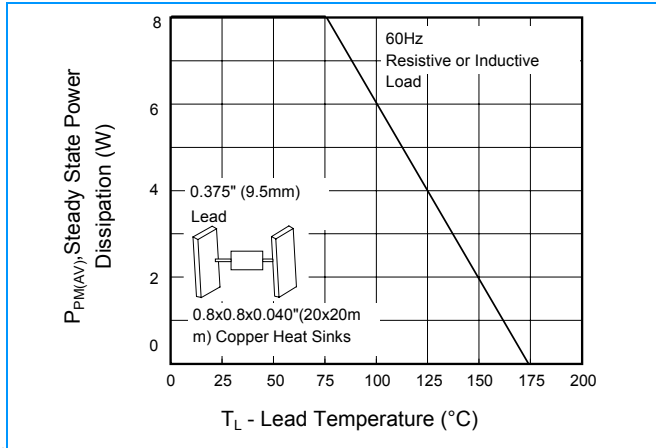
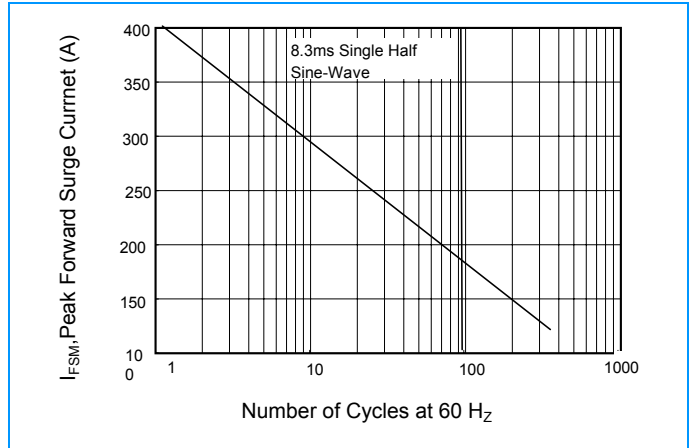
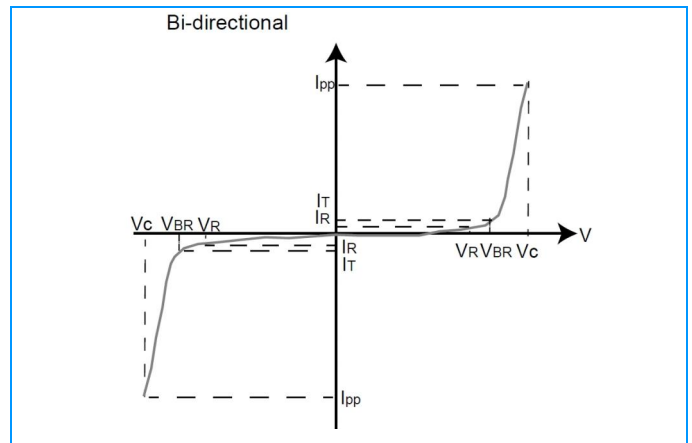
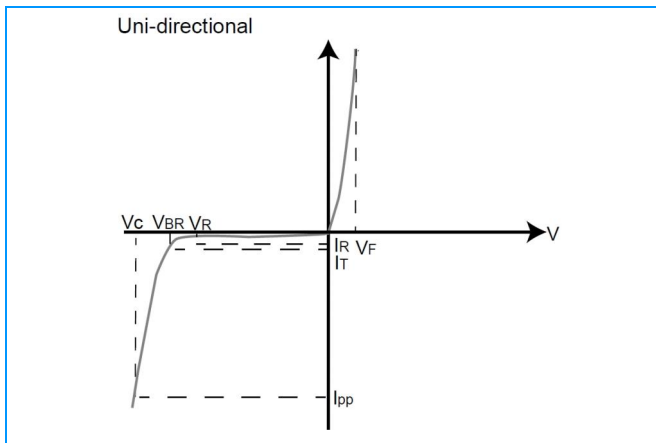


Figure 6 - Maximum Non-Repetitive Surge Current



I-V Curve Characteristics



Physical Specifications

Weight	0.07 ounce, 2.1gram
Case	JEDEC R-6/P600 Molded Plastic over glass passivated junction
Polarity	Color band denotes cathode except Bipolar
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102D

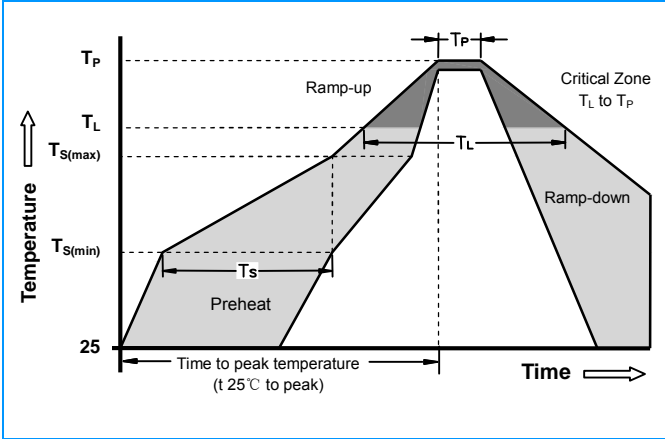
Environmental Specifications

Temperature Cycle	JESD22-A104
Pressure Cooker	JESD22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

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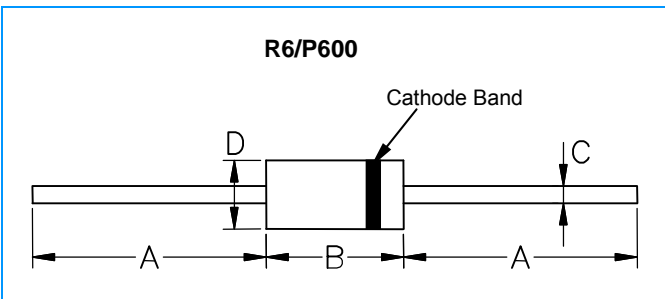
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Soldering Parameters



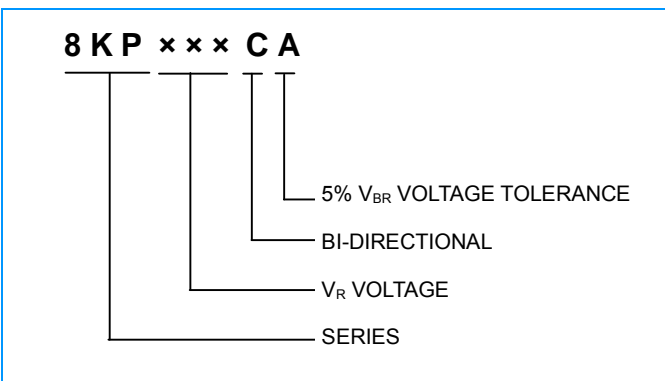
Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 - 180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (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		280°C

Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.340	0.360	8.64	9.14
C	0.048	0.052	1.22	1.32
D	0.340	0.360	8.64	9.14

Part Numbering



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Packaging

Part Number	Component Package	Quantity	Packaging Option
8KPXXXXX	R6/P600	250	Box

Packaging Dimensions Unit: Inches (Millimeters)

