

Surface Mount Transient Voltage Suppressors

6KP Series 15 To 43V 6600W

Description

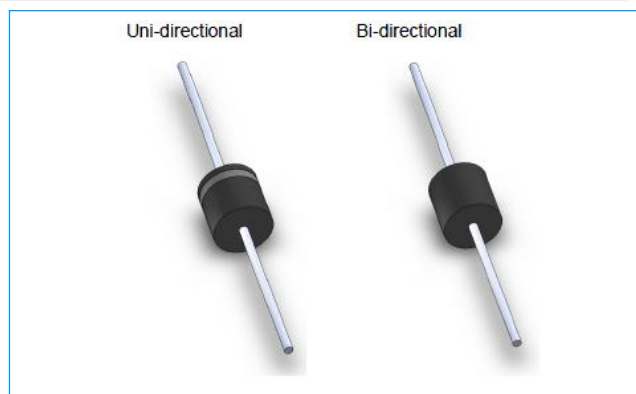
The 6KP series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 15 volts to 43 volts. They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.

Features

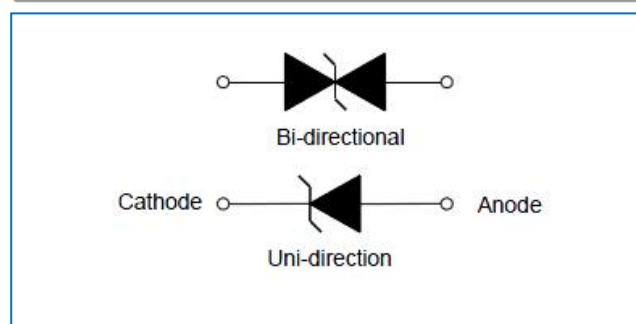
- ◆ JEDEC R-6/P-600 Molded Plastic.
- ◆ Glass passivated chip junction in R-6/P600 package.
- ◆ 6600 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- ◆ Low leakage
- ◆ Excellent clamping capability
- ◆ Very fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ◆ RoHS compliant

Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application



Functional Diagram



Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Units
Peak power dissipation with a 10/1000us waveform	P_{PPM}	6600	W
Power Dissipation on Infinite Heat Sink at $T_L=75^\circ\text{C}$	P_D	8.0	W
Peak pulse current with a 10/1000us waveform	I_{PP}	See Next Table	A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to +150	$^\circ\text{C}$
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	500	A

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number		Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR}		Test Current I_T (mA)	Maximum Reverse Leakage Current I_R @ V_{RWM} (μ A)	Maximum Reverse Surge Current $I_{PP}^{(1)}$ (A)	Maximum Clamping Voltage V_C @ I_{PP} (V)
Uni	Bi		min(V)	max(V)				
6KP15A	6KP15CA	15.0	16.70	18.50	5.0	5	270.5	24.4
6KP16A	6KP16CA	16.0	17.80	19.70	5.0	5	253.8	26.0
6KP18A	6KP18CA	18.0	20.00	22.10	5.0	5	226.0	29.2
6KP20A	6KP20CA	20.0	22.20	24.50	5.0	5	203.7	32.4
6KP22A	6KP22CA	22.0	24.40	26.90	5.0	5	186.0	35.5
6KP24A	6KP24CA	24.0	26.70	29.50	5.0	5	169.6	38.9
6KP26A	6KP26CA	26.0	28.90	31.90	5.0	5	156.8	42.1
6KP28A	6KP28CA	28.0	31.10	34.40	5.0	5	145.4	45.4
6KP30A	6KP30CA	30.0	33.30	36.80	5.0	5	136.3	48.4
6KP33A	6KP33CA	33.0	36.70	40.60	5.0	5	123.8	53.3
6KP36A	6KP36CA	36.0	40.00	44.20	5.0	5	113.6	58.1
6KP40A	6KP40CA	40.0	44.40	49.10	5.0	5	102.3	64.5
6KP43A	6KP43CA	43.0	47.80	52.80	5.0	5	95.1	69.4

Note:(1)Surge waveform: 10/1000 μ s

Ratings and Characteristics Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - Pulse Waveform

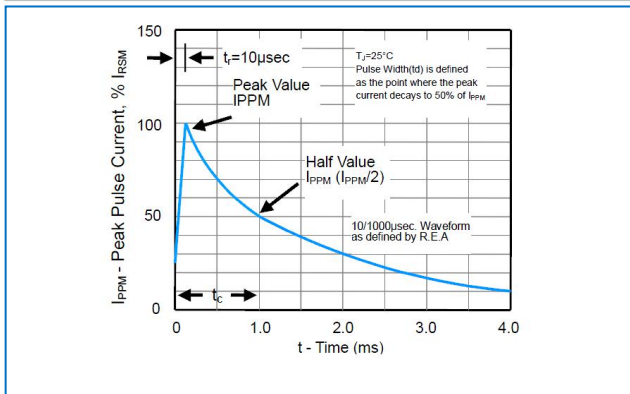


Figure 2 - Pulse Derating Curve

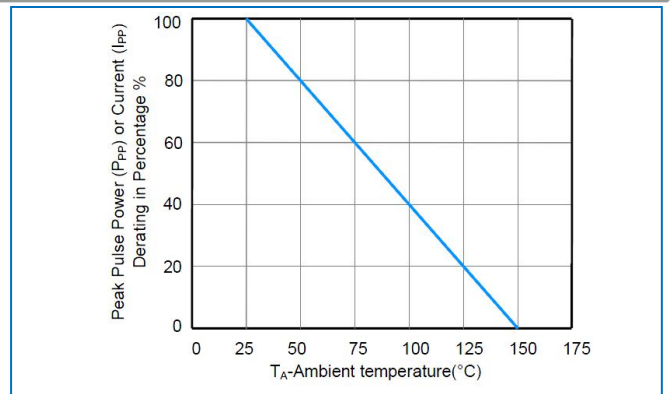


Figure 3 - I-V Curve Characteristics

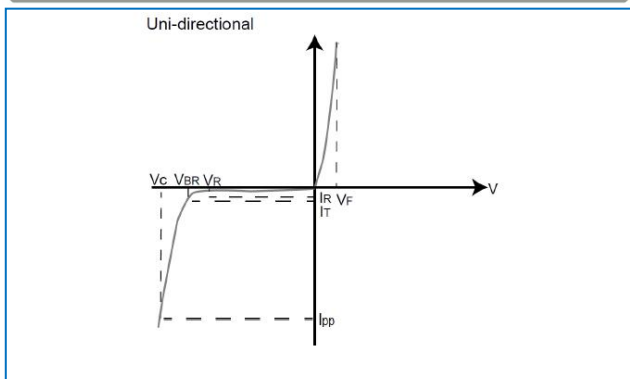
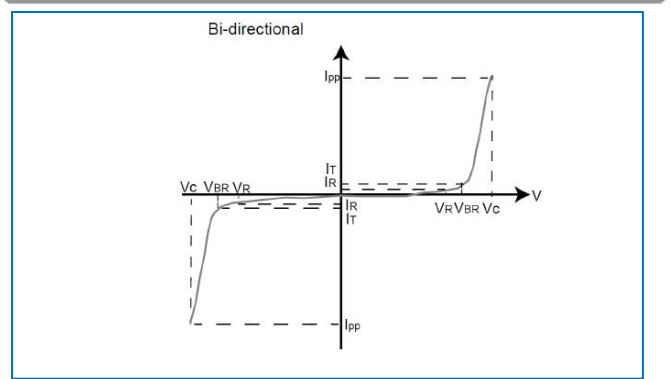


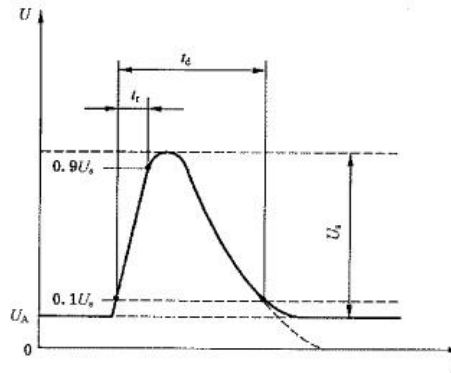
Figure 4 - I-V Curve Characteristics



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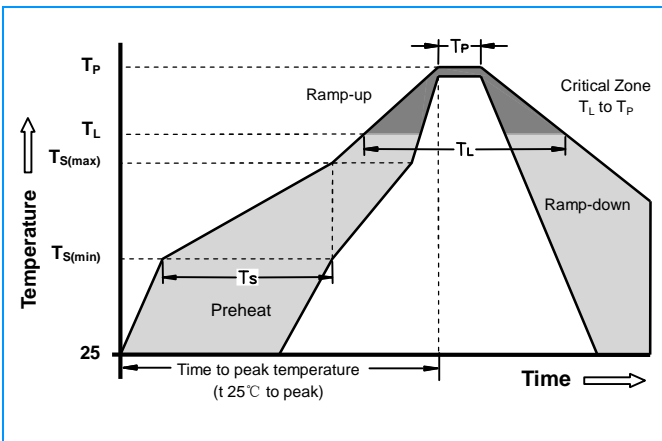
Load dump ratings are tested on PRIMA ISO7637-P5a



试验脉冲 5a

SYSTEM	TEST LEVEL	Us(V)	Td (ms)	Ri (Ω)	NUMBER OF PULSE
12V	IV	87	400	0.5	10 pulse
24V	IV	174	350	4	10 pulse

Soldering Parameters

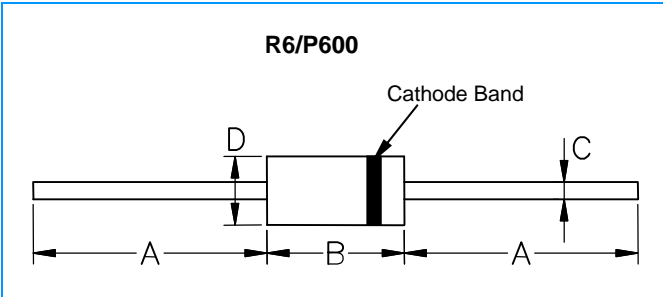


Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (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		260°C

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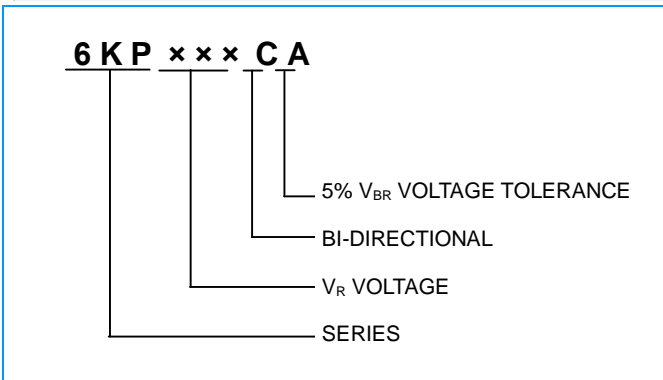
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Dimensions



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



Packaging

Part Number	Component Package	Quantity	Packaging Option
6KPXXXXX	R6/P600	250	Box

Packaging Dimensions Unit: Inches (Millimeters)

