

## Surface Mount Transient Voltage Suppressors

### 5KPS Series 15 To 43V 6600W

#### Description

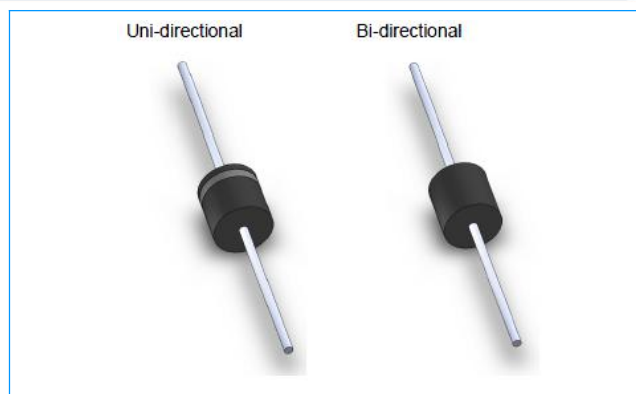
The 5KPS series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 15 volts to 43 volts. They provide a clamping voltage lower than the avalanche voltage. 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

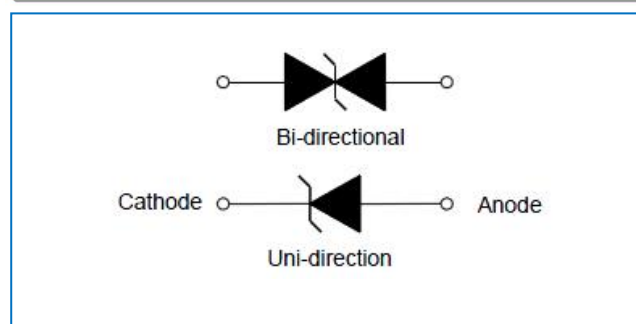
- ◆ JEDEC R-6/P-600 Molded Plastic.
- ◆ Glass passivated chip junction in R-6/P600 package.
- ◆ 6600 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- ◆ Low leakage
- ◆ Excellent clamping capability
- ◆ Very fast response time: typically less than 1.0ps from 0V to  $V_{BR}$  min.
- ◆ RoHS compliant
- ◆ Meet with ISO 7637-2,ISO 16750,etc

#### 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 $I_R$ @ $V_{RWM}$ ( $\mu$ A)	Maximum Reverse Surge Current $I_{PP}^{(1)}$ (A)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)
Uni	Bi		min(V)	max(V)				
5KP15AS	5KP15CAS	15.0	16.70	18.50	5.0	5	270.5	24.4
5KP16AS	5KP16CAS	16.0	17.80	19.70	5.0	5	253.8	26.0
5KP18AS	5KP18CAS	18.0	20.00	22.10	5.0	5	226.0	29.2
5KP20AS	5KP20CAS	20.0	22.20	24.50	5.0	5	203.7	32.4
5KP22AS	5KP22CAS	22.0	24.40	26.90	5.0	5	186.0	35.5
5KP24AS	5KP24CAS	24.0	26.70	29.50	5.0	5	169.6	38.9
5KP26AS	5KP26CAS	26.0	28.90	31.90	5.0	5	156.8	42.1
5KP28AS	5KP28CAS	28.0	31.10	34.40	5.0	5	145.4	45.4
5KP30AS	5KP30CAS	30.0	33.30	36.80	5.0	5	136.3	48.4
5KP33AS	5KP33CAS	33.0	36.70	40.60	5.0	5	123.8	53.3
5KP36AS	5KP36CAS	36.0	40.00	44.20	5.0	5	113.6	58.1
5KP40AS	5KP40CAS	40.0	44.40	49.10	5.0	5	102.3	64.5
5KP43AS	5KP43CAS	43.0	47.80	52.80	5.0	5	95.1	69.4

Note:(1)Surge waveform: 10/1000  $\mu$ s

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

Figure 1 - Pulse Waveform

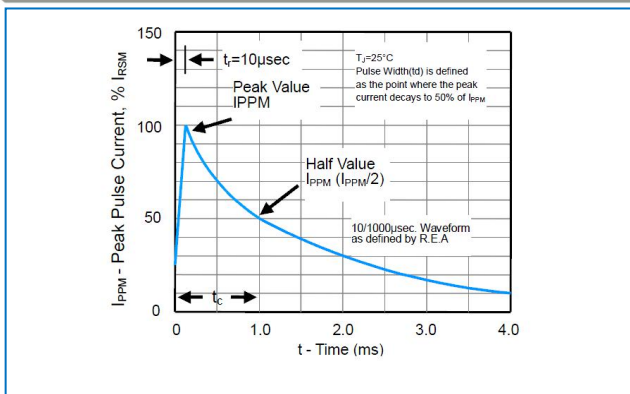


Figure 2 - Pulse Derating Curve

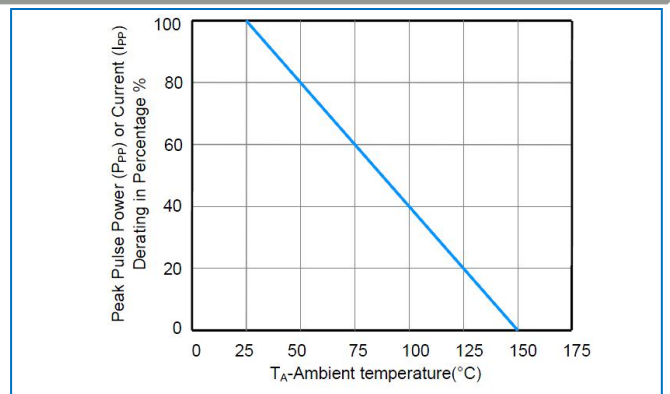


Figure 3 - I-V Curve Characteristics

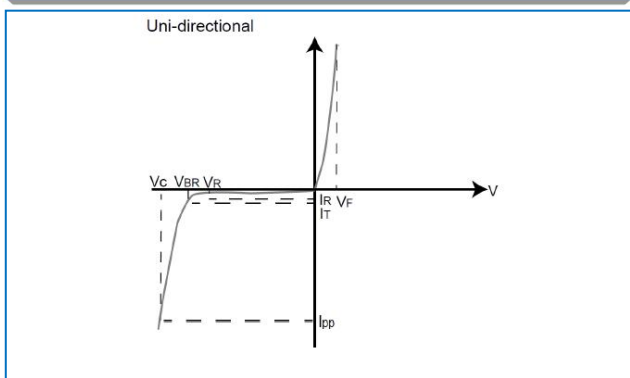
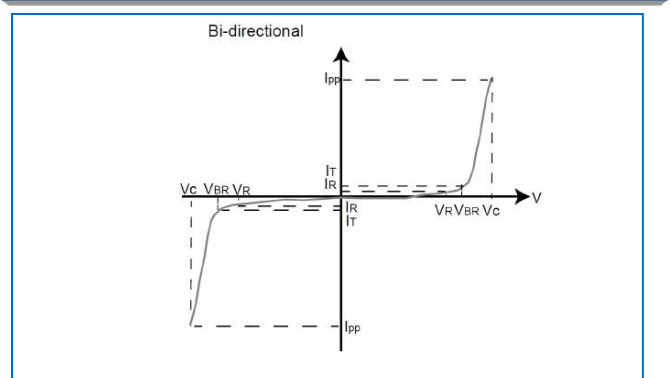


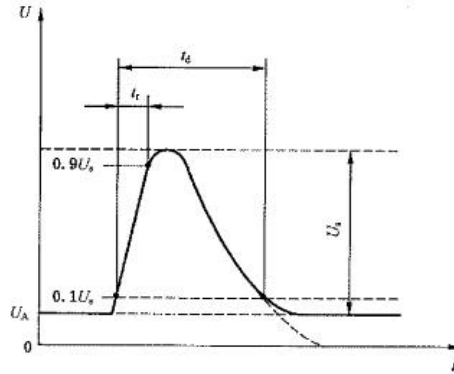
Figure 4 - I-V Curve Characteristics



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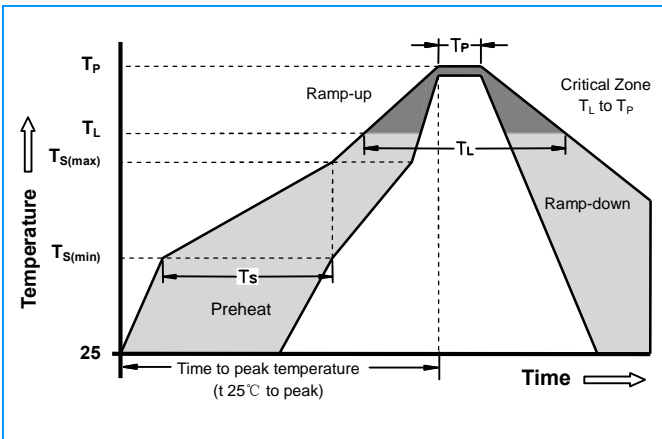
Load dump ratings are tested on PRIMA ISO7637-P5a



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

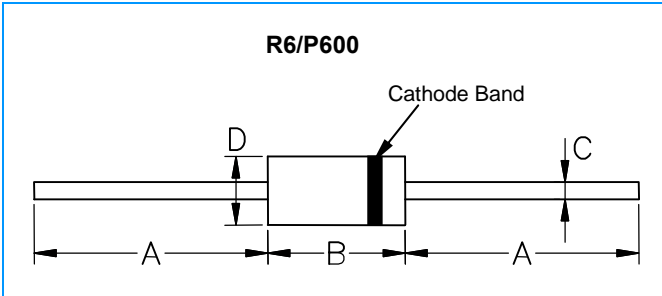


Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ( $T_{S(min)}$ )	150°C
	- Temperature Max ( $T_{S(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 - 180 Seconds
Average ramp up rate ( Liquidus Temp $T_L$ to peak)		3°C/second max
$T_{S(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow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

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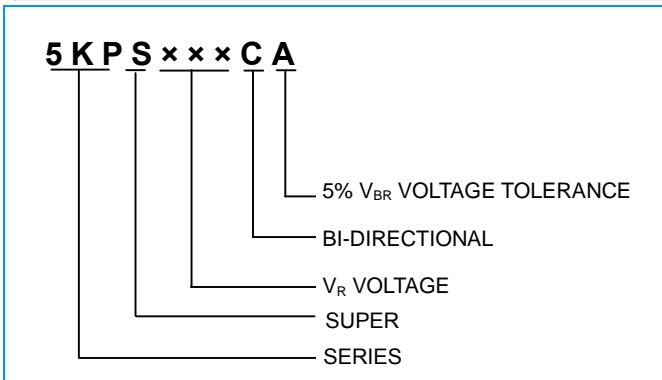
### 5KPS Series 15 To 43V 6600W

#### 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
5KPSXXXXX	R6/P600	300	Box

#### Packaging Dimensions Unit: Inches (Millimeters)

