



SOCAY 5000W 5KP Series TVS Diodes For Circuit Protection Axial Lead Transient Voltage Suppressor

Our Product Introduction

Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: UL, REACH, RoHS, ISO
- Model Number: 5KP78A 5KP78CA
- Minimum Order Quantity: 250PCS
- Price: Negotiable
- Delivery Time: 5-8 work days



Product Specification

- Reverse Stand-Off Voltage: 78.0V
- Breakdown Voltage @It (Min.): 86.70V
- Breakdown Voltage@It (Max.): 95.80V
- Test Current: 1mA
- Maximum Clamping Voltage 126.0V @Ipp:
- Maximum Peak Pulse Current: 39.68A
- Maximum Reverse Leakage@Vrwm: 5μA
- Highlight: 5000W TVS Diodes, 5KP Series TVS Diodes

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DATASHEET: [5KP.pdf](#)

The 5KP series is designed for the protection of sensitive electronic equipment from transient voltages caused by lightning and other transient voltage events that can be harmful to the equipment itself.

5KP78A 5KP78CA Characteristic:

- u Low leakage
- u Uni-directional and Bi-directional
- u Excellent clamping ability
- u Fast reaction and response
- u RoHS compliant and Halogen free
- u Typical IR less than 5μA above 12V.
- u Matt Tin Lead Free
- u P600 packaged glass-passivated chip nodes
- u High-temperature brazing: 260°C/40 seconds on clamps
- u 5000W Peak power with 10 × 1000μs waveform Duty cycle: 0.01%
- u Typical maximum temperature coefficient $\Delta VBR = 0.1\% \times VBR @ 25^\circ C \times \Delta T$
- u Fast response time: Typically less than 1.0 ps from 0 volts to VBR min.
- u Plastic package has Underwriters Laboratory Flammability 94V-0
- u The most common type of failure is short circuit due to overvoltage or overcurrent.
- u The whisker test is carried out according to JEDEC JESD201A tables 4a and 4c.
- u IEC-61000-4-2 ESD 15kV(Air), 8kV (Contact)
- u Data cables ESD protected according to IEC 61000-4-2 (IEC801-2)
- u EFT protection of data lines according to IEC 61000-4-4 (IEC801-4)

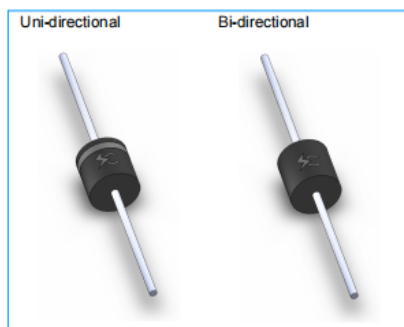
5KP78A 5KP78CA Application:

TVS devices are ideal for the protection of I/O interfaces, VCC buses and other sensitive circuits in industrial, computer, telecommunications and consumer electronics applications.

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000μs waveform (Fig.1)(Note 1), (Note 2)	P_{PPM}	5000	Watts
Peak Pulse Current with a 10/1000μs waveform.(Note1, Fig.3)	I_{PP}	See Next Table	Amps
Power Dissipation on Infinite Heat Sink at $T_L = 75^\circ C$	$P_{M(AV)}$	8.0	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	500	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only (Note 4)	T_F	3.5/5.0	Voltage
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to +150	°C

Notes:

1. Non-repetitive current pulse, according to Fig. 3 and derated above $T_A = 25^\circ C$ according to Fig. 2.
2. Mounted on 5.0 mm x 5.0 mm (0.03 mm thick) copper pads at each terminal.
3. 8.3ms single half-sinusoidal or equivalent square wave, duty cycle = maximum 4 pulses/minute.
4. $V_F < 3.5V$ for $VBR < 200V$ and $V_F < 6.5V$ for $VBR > 201V$.



Functional Diagram

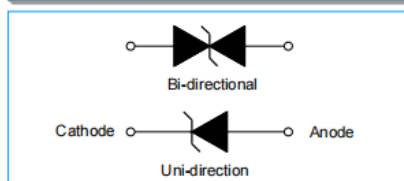


Figure 1 - Peak Pulse Power Rating Curve

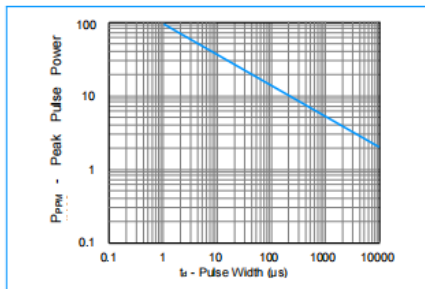


Figure 2 - Pulse Derating Curve

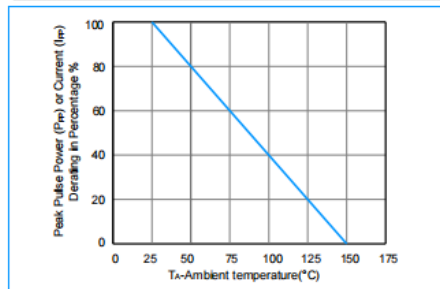


Figure 3 - Pulse Waveform

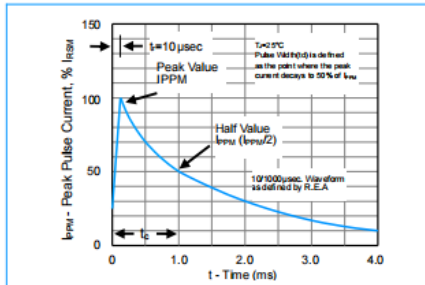


Figure 4 - Typical Junction Capacitance

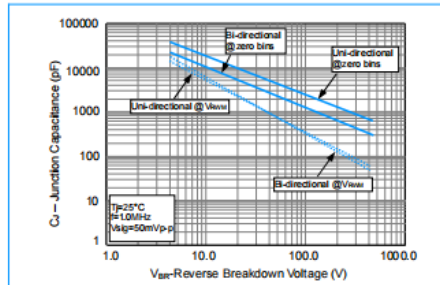


Figure 5 - Steady State Power Derating Curve

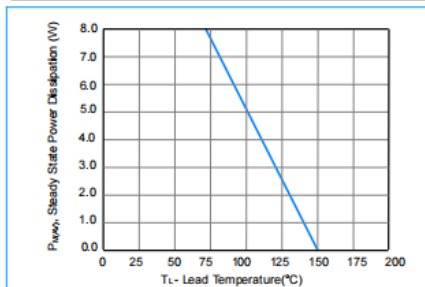
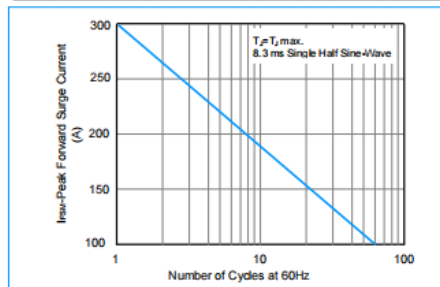
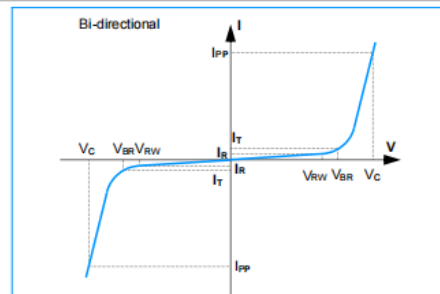
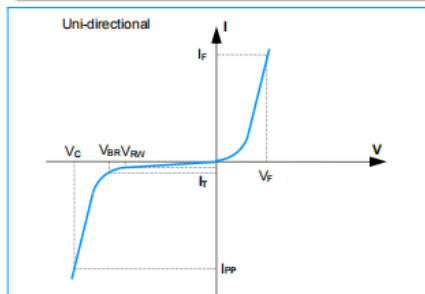


Figure 6 - Maximum Non-Repetitive Surge Current



I-V Curve Characteristics



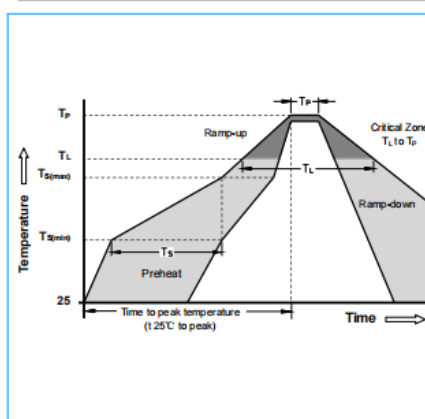
Physical Specifications

Weight	0.07 ounce, 2.1 gram
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

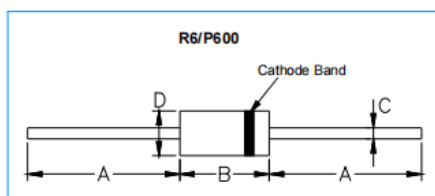
Environmental Specifications

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

Soldering Parameters

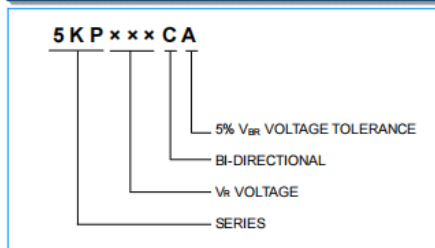


Reflow Condition	Lead-free assembly
Pre Heat	- Temperature Min (T_S(min)) 150°C - Temperature Max (T_S(max)) 200°C - Time (min to max) (T_S) 60 - 180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak	3°C/second max
T_S(max) to T_L - Ramp-up Rate	3°C/second max
Reflow	- Temperature (T_L) (Liquidus) 217°C - Time (min to max) (T_L) 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

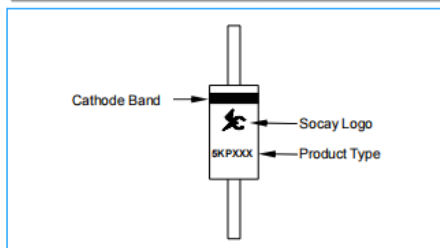


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.340	0.360	8.64	9.14
C	0.048	0.052	1.22	1.32
D	0.340	0.360	8.64	9.14

Part Numbering



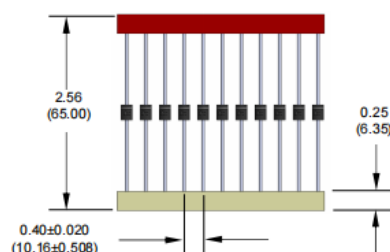
Part Marking



Packaging

Part Number	Component Package	Quantity	Packaging Option
5KPXXXXX	R6/P600	800 PCS	Reel
		250 PCS	Box

Packaging Dimensions Unit: Inches (Millimeters)



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