SOCAY 5KP Series 5000W TVS Diode Through Hole TVS Diode 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: 5KP22CA
- Minimum Order Quantity: 250PCS
- Price: Negotiable
- Delivery Time: 5-8 work days

Product Specification

- 5KP22CA Vrwm: 22.0V
- 5KP22CA Vbr@It (Min.): 24.40V
- 5KP22CA Vbr@It (Max.): 26.90V
- 5KP22CA It: 1mA
- 5KP22CA Vc@Ipp: 35.5V
- 5KP22CA Ipp: 140.85A
- 5KP22CA Ir@Vrwm: 5μA
- Highlight: **5000W TVS Diode**, **Through Hole TVS Diode**

Product Description

SOCAY 5KP Series 5000W TVS Diode Through Hole TVS Diode Axial Lead Transient Voltage Suppressor

DATASHEET: 5KP.pdf

Brief Introduction:
The 5KP series is designed to protect sensitive electronic equipment from transient voltages caused by lightning and other transient voltage events that can damage the equipment itself.

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 (V) @I_{PP}	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R (μA) @V_{RWM}
Uni	Bi		MIN	MAX				
5KP5.0A	5KP5.0CA	5.0	6.40	7.00	10	9.2	543.48	800
5KP6.0A	5KP6.0CA	6.0	6.67	7.37	10	10.3	485.44	800
5KP6.5A	5KP6.5CA	6.5	7.22	7.89	10	11.2	446.43	500
5KP7.0A	5KP7.0CA	7.0	7.78	8.60	10	12.0	416.67	200
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	1	12.9	416.67	200
5KP8.0A	5KP8.0CA	8.0	8.89	9.83	1	13.6	367.65	50
5KP8.5A	5KP8.5ACA	8.5	9.44	10.40	1	14.4	347.22	20
5KP9.0A	5KP9.0CA	9.0	10.00	11.10	1	15.4	324.68	10
5KP10A	5KP10CA	10.0	11.10	12.30	1	17.0	294.12	5
5KP11A	5KP11CA	11.0	12.20	13.50	1	18.2	274.73	5
5KP12A	5KP12CA	12.0	13.30	14.70	1	19.9	251.26	5
5KP13A	5KP13CA	13.0	14.40	15.90	1	21.5	232.56	5
5KP14A	5KP14CA	14.0	15.60	17.20	1	23.2	215.52	5
5KP15A	5KP15CA	15.0	16.70	18.50	1	24.4	204.92	5
5KP16A	5KP16CA	16.0	17.80	19.70	1	26.0	192.31	5
5KP17A	5KP17CA	17.0	18.90	20.90	1	27.6	181.16	5
5KP18A	5KP18CA	18.0	20.00	22.10	1	29.2	171.23	5
5KP19A	5KP19CA	19.0	21.10	23.30	1	30.8	162.44	5
5KP20A	5KP20CA	20.0	22.20	24.50	1	32.4	154.32	5
5KP22A	5KP22CA	22.0	24.40	26.90	1	35.5	140.85	5
5KP24A	5KP24CA	24.0	26.70	29.50	1	38.9	128.53	5
5KP26A	5KP26CA	26.0	28.90	31.90	1	42.1	118.76	5
5KP28A	5KP28CA	28.0	31.10	34.40	1	45.4	110.13	5
5KP30A	5KP30CA	30.0	33.30	36.80	1	48.4	103.31	5

Characteristic:

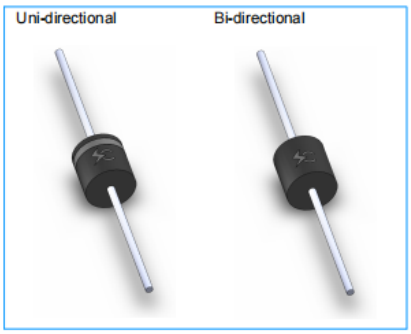
- u Glass passivated chip junction in P600 Package
- u Low leakage
- u Uni-directional and Bi-directional
- u Excellent clamping ability
- u Fast to respond and respond
- u RoHS compliant and Halogen free
- u Typical IR less than 5μA above 12V.
- u Matt Tin Lead Free
- u 5000W Peak power with 10 × 1000μs waveform Duty cycle: 0.01%
- u Fast response time: Typically less than 1.0 ps from 0 volts to VBR min.
- u High Temperature soldering: 260°C/40 seconds at terminals
- u Typical maximum temperature coefficient ΔVBR = 0.1% ×VBR@25°C× ΔT
- u Plastic package has Underwriters Laboratory Flammability 94V-0
- u Typical failure mode is short due to over voltage or over current.
- u Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- u IEC-61000-4-2 ESD 15kV(Air), 8kV (Contact)
- uESD protection of data lines according to IEC 61000-4-2 (IEC801-2)
- u EFT protection of data lines according to IEC 61000-4-4 (IEC801-4)

Usage:
TVS devices are ideal for protecting I/O interfaces, VCC buses and other sensitive circuits in industrial, computer, telecom 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°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, per Fig. 3 and derated above TA = 25°C per Fig. 2.
2. Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.
4. VF < 3.5V for VBR < 200V and VF< 6.5V for VBR > 201V.



Functional Diagram

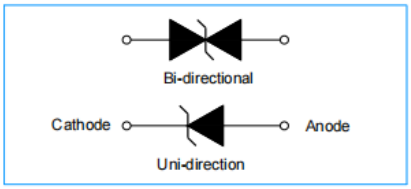


Figure 1 - Peak Pulse Power Rating Curve

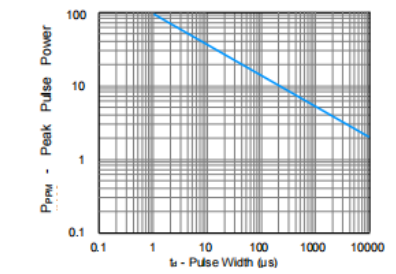


Figure 2 - Pulse Derating Curve

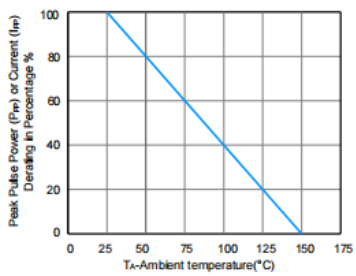


Figure 3 - Pulse Waveform

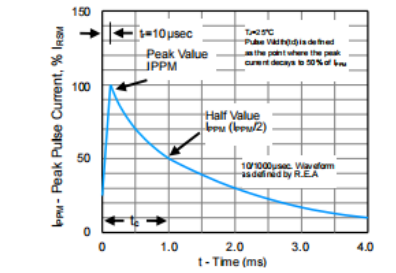


Figure 4 - Typical Junction Capacitance

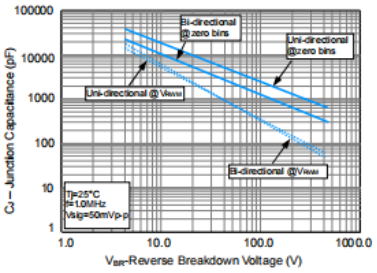


Figure 5 - Steady State Power Derating Curve

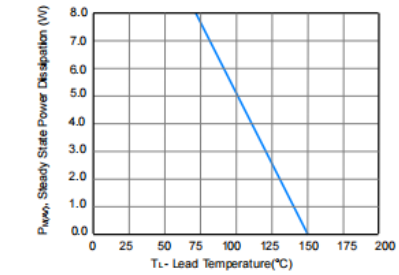
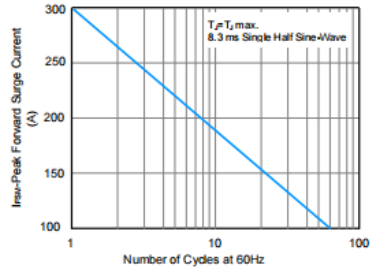
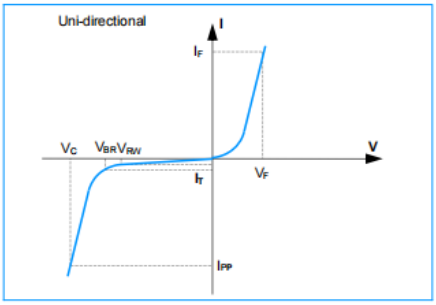
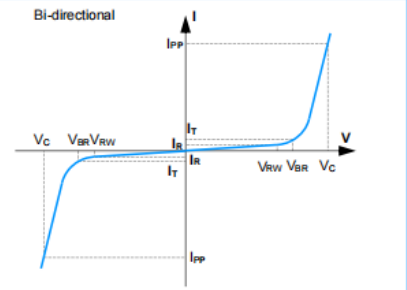


Figure 6 - Maximum Non-Repetitive Surge Current



I-V Curve Characteristics





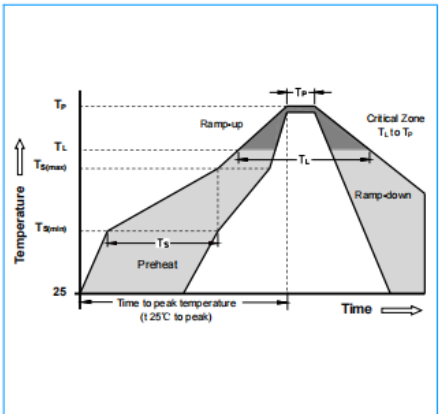
Physical Specifications

Weight	0.07 ounce, 2.1gram
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

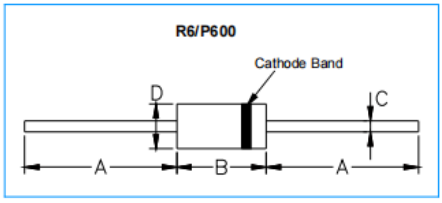
Environmental Specifications

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

Soldering Parameters

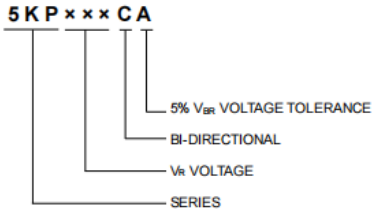


Reflow Condition		Lead–free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{S(max)}$ to TL - Ramp-up Rate		3°C/second max
Reflow	- Temperature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

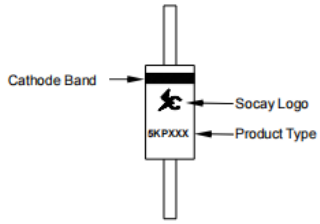


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.340	0.360	8.64	9.14
C	0.048	0.052	1.22	1.32
D	0.340	0.360	8.64	9.14

Part Numbering



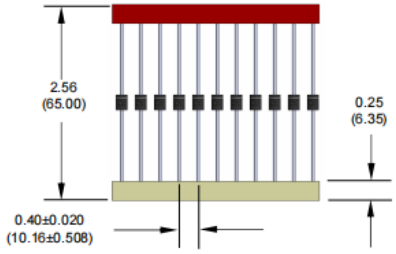
Part Marking



Packaging

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

Packaging Dimensions Unit: Inches (Millimeters)



SOCAY® Shenzhen Socay Electronics Co., Ltd.

+8618126201429 sylvia@socay.com socaydiode.com

4/F, Block C, HeHengXing Science & Technology Park, 19 MinQing Road, LongHua District, Shenzhen City, GuangDong Province, China