DO-214AA Thyristor Surge Protection Devices 100A 275V SMD P3100SB 4KV

Our Product Introduction

Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: REACH,RoHS,ISO
- Model Number: P3100SB
- Minimum Order Quantity: 2500PCS
- Price: Negotiable
- Packaging Details: tape reel,bulk
- Delivery Time: 1-3 weeks

Product Specification

- Other Name: Thyristor Tubes
- Footprint: DO-214AA/SMB
- Pattern: Surface Amount
- VDRM (Min.): 275V
- IDRM: 5μA
- Vs @100V/μS (Max.): 350V
- Is (Max.): 800mA
- Vt @It=2.2A (Max.): 4V
- It (Max.): 2.2A
- Date Code: Nearest
- Highlight: **Thyristor Surge Protection Devices 4KV**, **Thyristor Surge Protection Devices 100A**, **P3100SB**

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Product Description

SOCAY P3100SB 4KV DO-214AA P3100SB Thyristor Surge Protection Devices 100A 275V SMD

DATASHEET: PXXX0SB_v2103.1.pdf

1.Selection Method

1,To know the customer's product, operating voltage, application port, protection level.
2,Break-state voltage > DC working voltage on the circuit.
3,Select the capacitance value and flow rate of the device according to the application port and protection level.

Part Number	Marking	V_{DRM} @I_{DRM}=5μA	VS @100V/μS	V_T @I_T=2.2A	I_S	I_T	I_H	C0 @1MHz, 2V bias
		V min	V max	V max	mA max	A max	mA min	pF typ
P0080SB	P008B	6	25	4	800	2.2	50	80
P0300SB	P03B	25	40	4	800	2.2	50	80
P0640SB	P06B	58	77	4	800	2.2	150	80
P0720SB	P07B	65	88	4	800	2.2	150	75
P0900SB	P09B	75	98	4	800	2.2	150	70
P1100SB	P11B	90	130	4	800	2.2	150	70
P1300SB	P13B	120	160	4	800	2.2	150	65
P1500SB	P15B	140	180	4	800	2.2	150	65
P1800SB	P18B	170	220	4	800	2.2	150	65
P2300SB	P23B	190	260	4	800	2.2	150	60
P2600SB	P26B	220	300	4	800	2.2	150	60
P3100SB	P31B	275	350	4	800	2.2	150	50
P3500SB	P35B	320	400	4	800	2.2	150	50
P4200SB	P42B	400	520	4	800	2.2	150	40

Notes:
Vs is measured at 100KV/s.
Off-state capacitance is measured in V_{DC}=2V, V_{RMS}=1V, f=1MHz.

Parameter	Definition
I_S	**Switching Current** - maximum current required to switch to on state
I_{DRM}	**Leakage Current** - maximum peak off-state current measured at V_{DRM}
I_H	**Holding Current** - minimum current required to maintain on state
I_T	**On-state Current** - maximum rated continuous on-state current
V_S	**Switching Voltage** - maximum voltage prior to switching to on stat
V_{DRM}	**Peak Off-state Voltage** - maximum voltage that can be applied while maintaining off state
V_T	**On-state Voltage** - maximum voltage measured at rated on-state current
C_0	**Off-state Capacitance** - typical capacitance measured in off state

Series	2/10μS[1]	8/20μS[1]	10/160μS[1]	10/560μS[1]	10/1000μS[1]	5/310μS[1]	I_{TSM} 50/60 Hz	di/dt

	2/10µS[2]	1.2/50µS[2]	10/160µS[2]	10/560µS[2]	10/1000µS[2]	10/700µS[2]		
	A min	**A min**	**A min**	**A min**	**A min**	**A min**	**A min**	**Amps/µs max**
B	250	250	150	100	80	100	30	500
Notes: Current waveform in µs Voltage waveform in µs	- Peak pulse current rating (I_{PP}) is repetitive and guaranteed for the life of the product. - I_{PP} ratings applicable over temperature range of -40ºC to +85ºC - The device must initially be in thermal equilibrium with -40°C < T_J < +150°C							

High Temp Voltage Blocking	80% Rated VDRM (VAC Peak) +125°C or +150°C, Lead Material Copper Alloy High Temp Voltage Blocking 504 or 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101	
Temp Cycling	-65°C to +150°C, 15 min. dwell, 10 up to 100 cycles. MIL-STD-750 (Method 1051) EIA/JEDEC, JESD22-A104	
Biased Temp & Humidity	52 VDC (+85°C) 85%RH, 504 up to 1008 hrs. EIA/ JEDEC, JESD22-A-101	
High Temp Storage	+150°C 1008 hrs. MIL-STD-750 (Method 1031) JEDEC, JESD22-A-101	
Low Temp Storage	-65°C, 1008 hrs.	
Thermal Shock	0°C to +100°C, 5 min. dwell, 10 sec. transfer, Thermal Shock 10 cycles. MIL-STD-750 (Method 1056) JEDEC, JESD22-A-106	
Autoclave (Pressure Cooker Test)	+121°C, 100%RH, 2atm, 24 up to 168 hrs. EIA/Cooker Test) JEDEC, JESD22-A-102	
Resistance to Solder Heat	+260°C, 30 secs. MIL-STD-750 (Method 2031	
Moisture Sensitivity Level	85%RH, +85°C, 168 hrs., 3 reflow cycles Level (+260°C Peak). JEDEC-J-STD-020, Level 1	

Lead Material	Copper Alloy	
Terminal Finish	100% Matte-Tin Plated	
Body Material	UL recognized epoxy meeting flammability classification 94V-0	

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
Pxxx0SB	DO-214AA	2500	Tape & Reel - 12mm/13″tape	EIA -481 - D

Thermal Considerations

Package	Symbol	Parameter	Value	Unit
DO-214AA	T_J	Operating Junction Temperature Range	- 40 to + 150	°C
	T_S	Storage Temperature Range	- 40 to +150	°C
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	90	°C/W

Figure 1 - V-I Characteristics

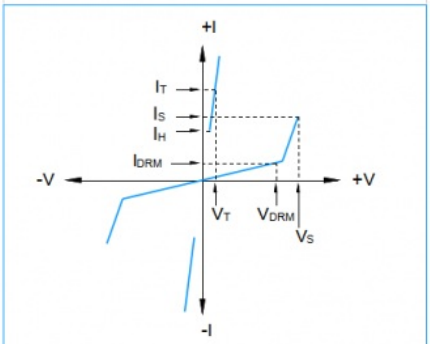


Figure 2 - $t_r \times t_d$ Pulse Waveform

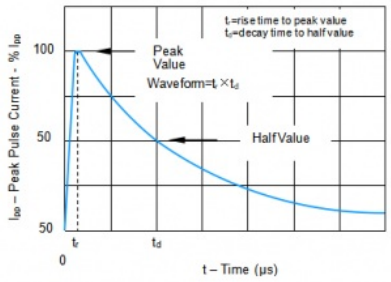


Figure 3 - Normalized V_S Change Versus Junction Temperature

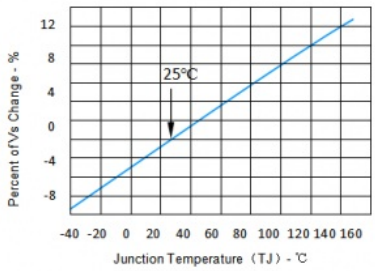
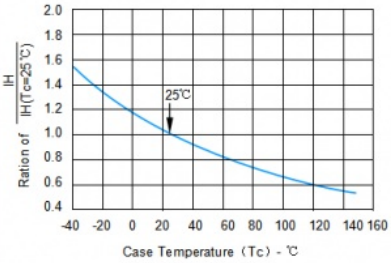
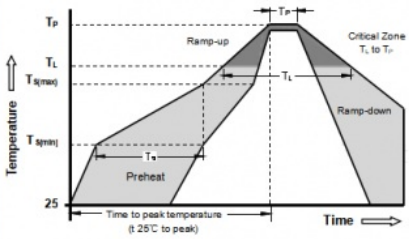


Figure 4 - Normalized DC Holding Current Versus Case Temperature

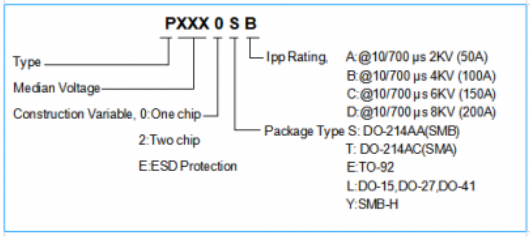


Soldering Parameters



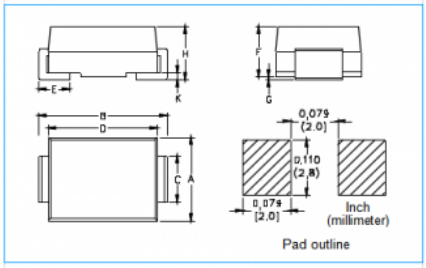
Reflow Condition		Lead–free assembly
Pre Heat	-Temperature Min ($T_{S(min)}$)	+150°C
	-Temperature Max ($T_{S(max)}$)	+200°C
	-Time (min to max) (T_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/Second Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/Second Max
Reflow	- Temperature (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)		30 Seconds Max
Ramp-down Rate		6°C/Second Max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		+260°C

Part Numbering



Part Marking

Dimensions DO-214AA



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.156	3.30	3.95
B	0.201	0.220	5.10	5.60
C	0.077	0.087	1.95	2.20
D	0.159	0.181	4.05	4.60
E	0.030	0.063	0.76	1.60
F	0.076	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
K	0.006	0.016	0.15	0.41

FAQ

Q1. Can I have a sample order ?
A: Yes, we welcome sample order to test and check quality. Mixed samples are acceptable.
Q2. What about the lead time?
A:Sample needs 1 days, mass production time needs 1-2 weeks for order quantity more than
Q3. Do you have any MOQ ?
A: MOQ depend on the type of product, 1pc for sample checking is available
Q4. How do you ship the goods and how long does it take to arrive?
A: We usually ship by DHL, UPS, FedEx or TNT. It usually takes 3-5 days to arrive. Airline and sea shipping also optional.
Q5. How to proceed an order ?
A: Firstly let us know your requirements or application.
Secondly We quote according to your requirements or our suggestions.
Thirdly customer confirms the samples and places deposit for formal order.
Fourthly We arrange the production.
Q6: Do you offer guarantee for the products?
A: Yes, we offer 2-5 years warranty to our products.

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