

Over-voltage Protection Thyristor PXXX0SA

Description

- ⚡ DO-214AA/SMB Thyristor solid state protection thyristor protect telecommunications equipment such as modems, line cards, fax machines, and other CPE.
- ⚡ P Series devices are used to enable equipment to meet various regulatory requirements including GR 1089, ITU K.20, K.21 and K.45, IEC 60950, and TIA-968 (formerly known as FCC Part 68)..

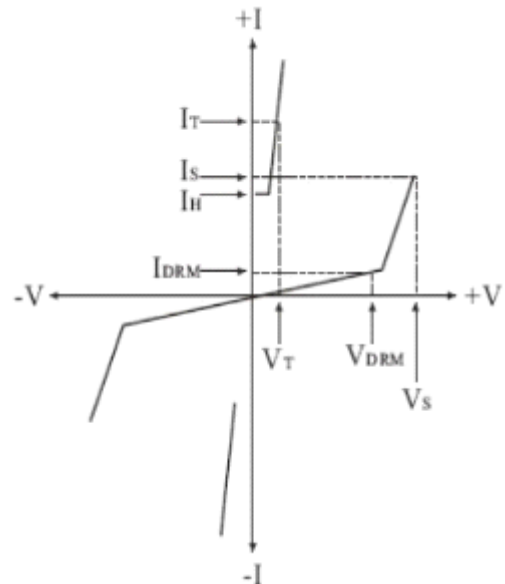


Compared to surge suppression using other technologies, P Series devices offer absolute surge protection regardless of the surge current available and the rate of applied voltage (dv/dt). P Series devices:

- ⚡ Cannot be damaged by voltage
- ⚡ Eliminate hysteresis and heat dissipation typically found with clamping devices
- ⚡ Eliminate voltage overshoot caused by fast-rising transients
- ⚡ Are non-degenerative
- ⚡ Will not fatigue
- ⚡ Have low capacitance, making them ideal for high-speed transmission equipment

Electrical Parameters

Parameter	Definition
C_o	Off-state Capacitance — typical capacitance measured in off state
d_i/d_t	Rate of Rise of Current — maximum rated value of the acceptable rate of rise in current over time
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_{PP}	Peak Pulse Current — maximum rated peak impulse current
I_T	On-state Current — maximum rated continuous on-state current
I_{TSM}	Peak One-cycle Surge Current — maximum rated one-cycle AC current
V_s	Switching Voltage — maximum voltage prior to switching to on state
V_{DRM}	Peak Off-state Voltage — maximum voltage that can be applied while maintaining off state
V_F	On-state Forward Voltage — maximum forward voltage measured at rated on-state current
V_T	On-state Voltage — maximum voltage measured at rated on-state current



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Electrical Characteristics

Part Number*	V _{DRM} Volts	V _S Volts	V _T Volts	I _{DRM} μAmps	I _S mAmps	I _T Amps	I _H mAmps	C _O pF
P0080SA	6	25	4	5	800	2.2	50	50
P0300SA	25	40	4	5	800	2.2	50	70
P0640SA	58	77	4	5	800	2.2	150	50
P0720SA	65	88	4	5	800	2.2	150	50
P0900SA	75	88	4	5	800	2.2	150	45
P1100SA	90	130	4	5	800	2.2	150	45
P1300SA	120	160	4	5	800	2.2	150	45
P1500SA	140	180	4	5	800	2.2	150	40
P1800SA	170	220	4	5	800	2.2	150	40
P2000SA	180	220	4	5	800	2.2	150	40
P2300SA	190	260	4	5	800	2.2	150	35
P2600SA	220	300	4	5	800	2.2	150	35
P3100SA	275	350	4	5	800	2.2	150	30
P3500SA	320	400	4	5	800	2.2	150	30
P4000SA	360	460	4	5	800	2.2	150	20
P4500SA	400	540	4	5	800	2.2	150	20
P5000SA	440	600	4	5	800	2.2	150	20

* For surge ratings, see table below.


Notes:

- All measurements are made at an ambient temperature of 25°C. IPP applies to -40°C through +85°C temperature range.
- Off-state capacitance (C_O) is measured at 1 MHz with a 2 V bias and is typical value.

Surge Ratings

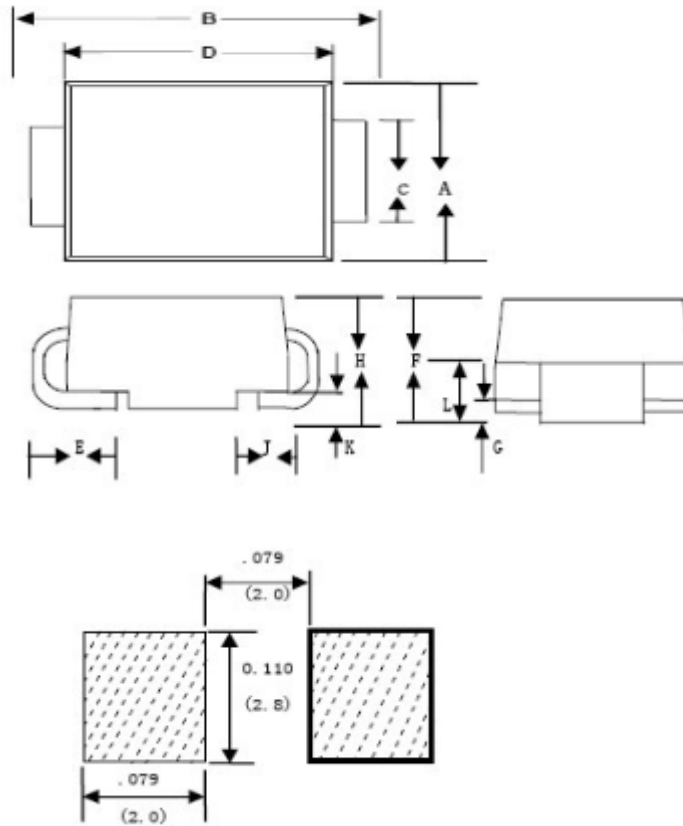
Series	I _{PP} 2x10 μs	I _{PP} 8x20μs	I _{PP} 10x160μs	I _{PP} 10x560μs	I _{PP} 10x1000μs	I _{TSM} 60 Hz	di/dt
	Amps	Amps	Amps	Amps	Amps	Amps	Amps/μs
A	150	150	90	50	45	20	500

Thermal Considerations

Package DO-214AA/SMB	Symbol	Parameter	Value	Unit
	T _J	Operating Junction Temperature	-40 to +150	°C
	T _S	Storage Temperature Range	-40 to +150	°C
	RθJA	unction to Ambient on printed circuit	90	°C/W

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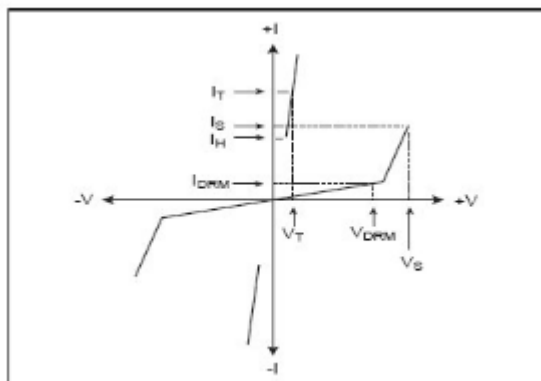
Dimensions



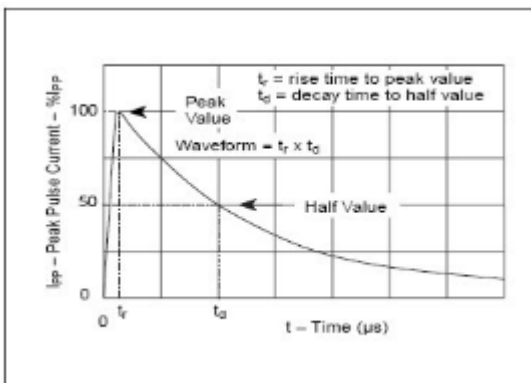
Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.134	0.155	3.40	3.94
B	0.205	0.22	5.21	5.59
C	0.075	0.083	1.90	2.11
D	0.166	0.185	4.22	4.70
E	0.036	0.056	0.91	1.42
F	0.073	0.087	1.85	2.2
G	0.002	0.008	0.05	0.20
H	0.077	0.094	1.95	2.40
J	0.043	0.053	1.09	1.35
K	0.008	0.014	0.20	0.35
L	0.039	0.049	0.99	1.24

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V-I Characteristics

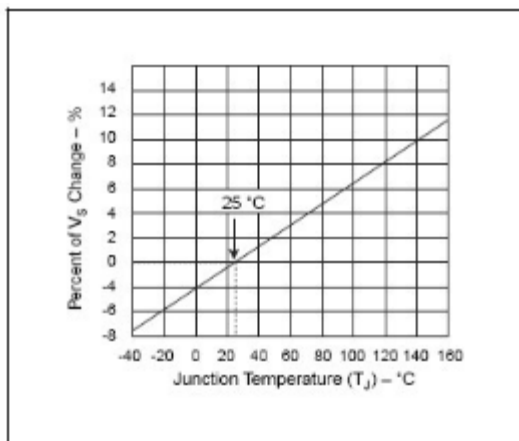


$t_r \times t_d$ Pulse Wave-form



Thermal Derating Curves

Normalized V_S Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature

