

Over-voltage Protection Thyristor

SPXXX0LC

ROHS

Description

P Series 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, ITUK.20, K.21 and K.45, IEC 60950, UL 60950, and TIA-968 (formerly known as FCC Part 68).



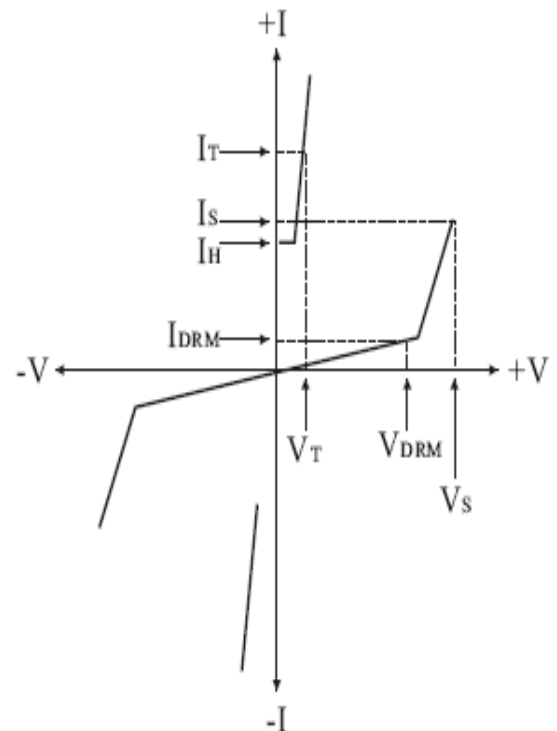
Compared to surge suppression using other technologies, P Series devices offer absolute surge protection regardless of the surge current available and the rate of applied voltage (dv/dt).

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_0	Off-state Capacitance — typical capacitance measured in off state
di/dt	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} μ Amps	I _S mAmps	I _T Amps	I _H mAmps	C _O pF
SP0080LC	6	25	4	5	800	2.2	50	75
SP0300LC	25	40	4	5	800	2.2	50	75
SP0640LC	58	77	4	5	800	2.2	150	55
SP0720LC	65	88	4	5	800	2.2	150	60
SP0900LC	75	98	4	5	800	2.2	150	65
SP1100LC	90	130	4	5	800	2.2	150	55
SP1300LC	120	160	4	5	800	2.2	150	90
SP1500LC	140	180	4	5	800	2.2	150	50
SP1800LC	170	220	4	5	800	2.2	150	55
SP2000LC	180	220	4	5	800	2.2	150	85
SP2300LC	190	260	4	5	800	2.2	150	65
SP2600LC	220	300	4	5	800	2.2	150	65
SP3100LC	275	350	4	5	800	2.2	150	55
SP3500LC	320	400	4	5	800	2.2	150	50
SP4000LA	360	460	4	5	800	2.2	150	45
SP4500LA	400	540	4	5	800	2.2	150	45
SP5000LA	440	600	4	5	800	2.2	150	45

* For surge ratings, see table below.


Notes:

- All measurements are made at an ambient temperature of 25°C. I_{PP} 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 μ s Amps	I _{PP} 8x20 μ s Amps	I _{PP} 10x160 μ s Amps	I _{PP} 10x560 μ s Amps	I _{PP} 10x1000 μ s Amps	I _{TSM} 60 Hz Amps	di/dt Amps/μ s
C	500	400	200	150	100	50	500

Thermal Considerations

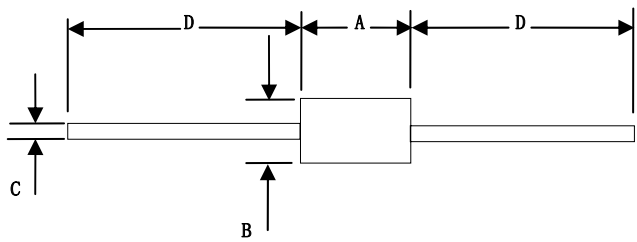
Package	D0-27	Symbol	Parameter	Value	Unit
		T _J	Operating Junction Temperature	-40 to +150	°C
		T _S	Storage Temperature Range	-40 to +150	°C
		R _{θJA}	Junction to Ambient on printed circuit	90	°C/W

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Dimensions



Dimension	Inches		Millimeters		NOTE
	MIN	MAX	MIN	MAX	
A		0.370		9.50	
B		0.250		6.40	ϕ
C	0.048	0.052	1.20	1.30	ϕ
D	1.000		25.40		

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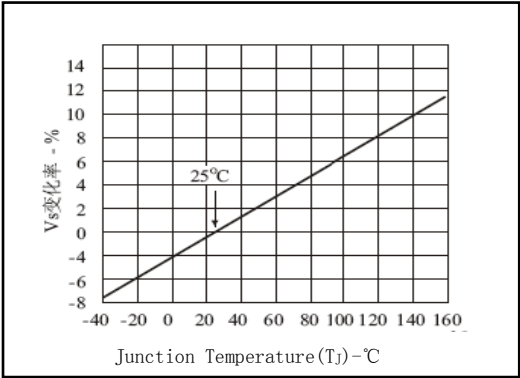
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Summary of Packing Options

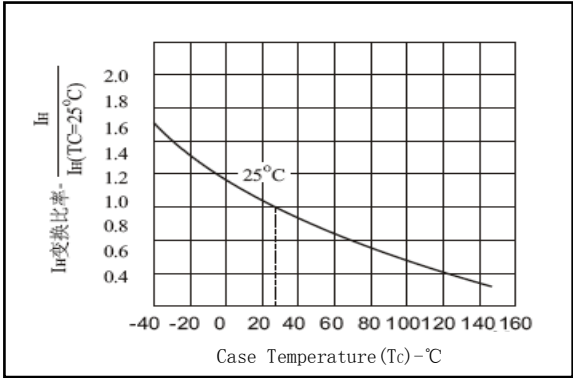
Package Type	Description	Packing Quantity	Industry Standard
D0-27	Tape and Reel Pack	1200 PCS	N/A



Thermal Derating Curves



Normalized VS Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature



E313687