

Over-voltage Protection Thyristor

Description

DO-214AA 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, ITU K.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 fatigu
- · 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	
Is	Switching Current — maximum current required to	
	switch to on state	
I DRM	Leakage Current — maximum peak off-state current	
	measured at VDRM	
$\mathbf{I}^{ ext{H}}$	Holding Current — minimum current required to	
	maintain on state	
I PP	Peak Pulse Current — maximum rated peak impulse	
	current	-V ←
IT	On-state Current — maximum rated continuous	r
	on-state current	/
I TSM	Peak One-cycle Surge Current — maximum rated	/
	one-cycle AC current	/
Vs	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	
VF	On-state Forward Voltage — maximum forward	
	voltage measured at rated on-state current	
VT	On-state Voltage — maximum voltage measured at	
	rated on-state current	





SP3500SC



ROHS

Senchip

P Series

Over-voltage	Thyristor		SP3500SC				ROHS	
ElectricalCharacteristics								
Part Number*	Vdrm Volts	Vs Volts	V _T Volts	Idrm µ Amps	Is mAmps	It Amps	IH mAmps	Co pF
SP3500SC	320	400	4	5	800	2.2	150	50

* 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 (Co) is measured at 1 MHz with a 2 V bias and is typical value.

Surge Rat:	ings						
Series	Ipp 2/10 μs Amps	IPP 8/20 µs Amps	IPP 10/160 μs Amps	IPP 10/560 µs Amps	IPP 10/1000 μs Amps	Itsm 60 Hz Amps	di/dt Amps∕µs
С	500	400	200	150	100	50	500
Thermal Co	onsiderations						
Package	DO-214AA/SMB	Symbol		Parameter		Value	Unit
		TJ	Operatin.	g Junction Ten	nperature	-40 to +150	$^{\circ}\mathrm{C}$
		Ts	Storage	e Temperature	Range	-40 to +150	°C
		R o ja	Junction t	o Ambient on p	printed circuit	90	°C/W



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Dimensions



SMB

Dimension	In	ches	Millimeters		
	MIN	MAX	MIN	MAX	
A	0. 134	0. 155	3. 40	3. 94	
В	0. 205	0. 22	5. 21	5. 59	
С	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	
Н	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	



P Series

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ROHS

Description of Part Number



- 2 = Two chips
- 2 = Three chips



___20: the 20th week. The week order.



Sencinp	P Series		
Over-voltage Protec	ROHS		
Summary of Packing	Options		
Package Type	Description	Packing Quantity	Industry Standard
DO-214AA SMB	Embossed Carrier Reel Pack	2500 PCS	EIA RS-481

Thermal Derating Curves



Normalized VS Change versus Junction Temperature





