

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 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



Over-voltage Protection Thyristor
SP1500SB
ROHS
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
SP1500SB	140	180	4	5	800	2.2	150	35

* For surge ratings, see table below.


Notes:

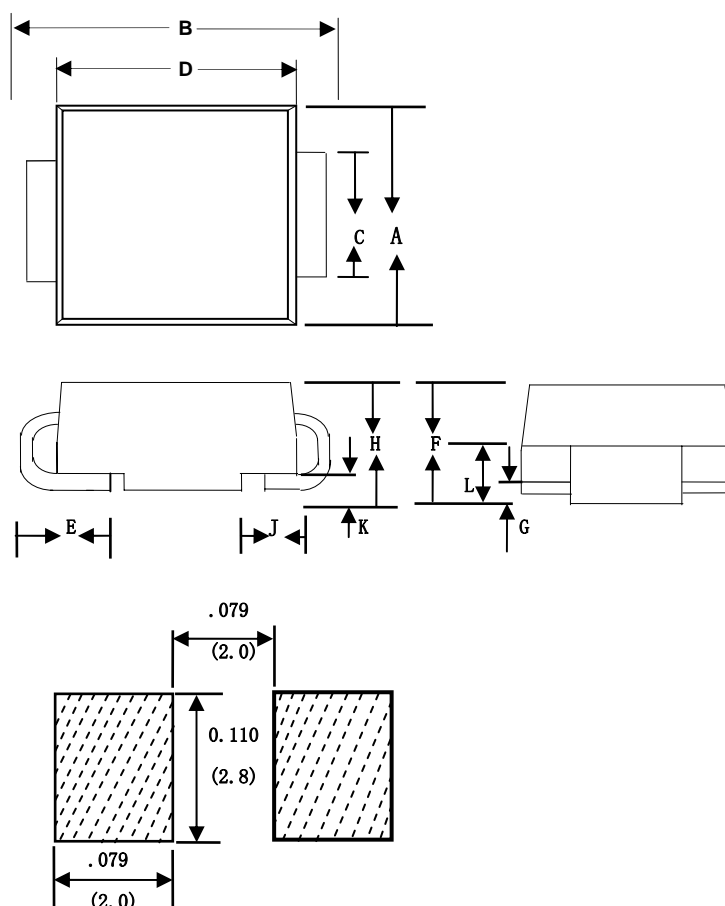
- All measurements are made at an ambient temperature of 25°C. I_{PP} applies to -40°C through +85°C temperature range.
- Off-state capacitance (C_o) is measured at 1 MHz with a 2 V bias and is typical value.

Surge Ratings

Series	I _{PP} 2/10 μ s Amps	I _{PP} 8/20 μ s Amps	I _{PP} 10/160 μ s Amps	I _{PP} 10/560 μ s Amps	I _{PP} 10/1000 μ s Amps	I _{TSM} 60 Hz Amps	di/dt Amps/μ s
B	250	250	150	100	80	30	500

Thermal Considerations

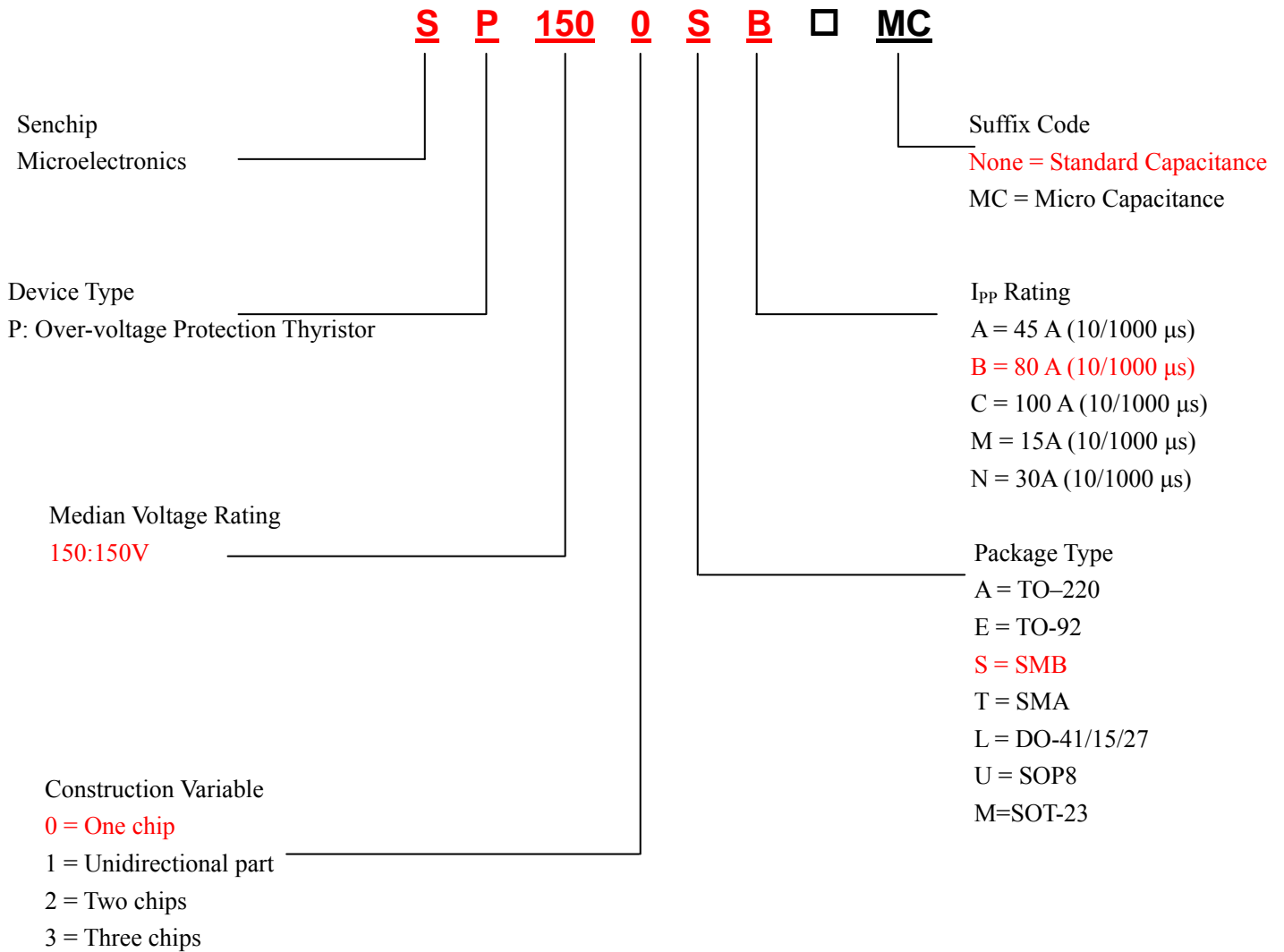
Package	DO-214AA/SMB	Symbol	Parameter	Value	Unit
		T _J	Operating Junction Temperature	-40 to +150	°C
		T _S	Storage Temperature Range	-40 to +150	°C
		R _{θJA}	Junction to Ambient on printed circuit	90	°C/W

Dimensions


SMB

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

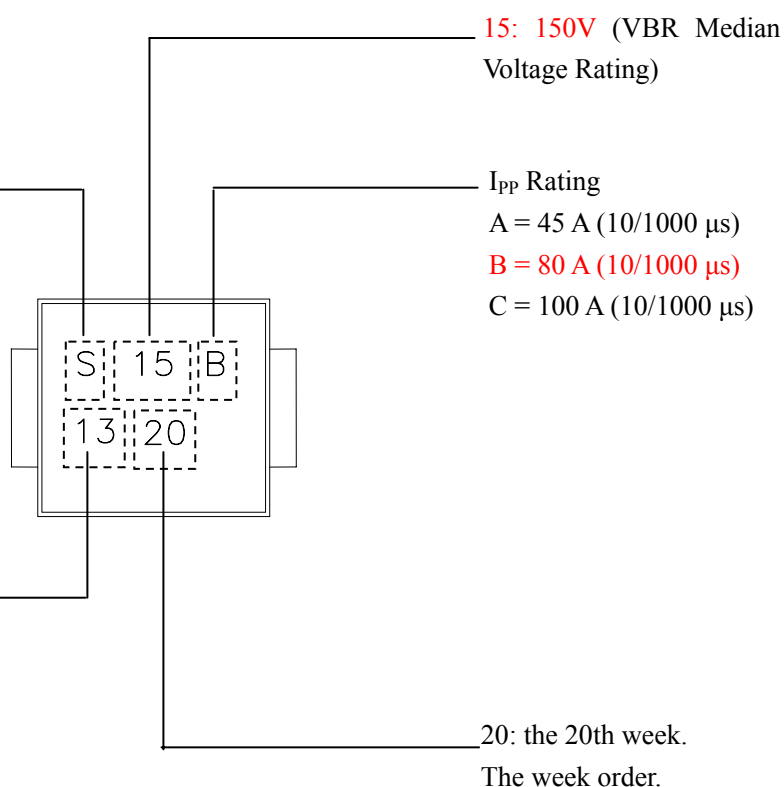
Description of Part Number



Description of Marking

S:
Senchip Over-voltage
Protection Thyristor


13: 2013
The last two numbers of
year.



Over-voltage Protection Thyristor
SP1500SB

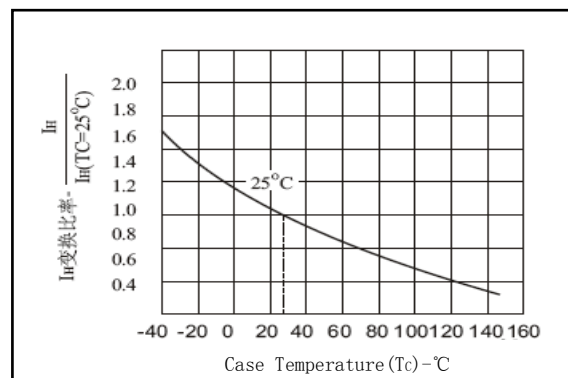
ROHS

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



Normalized DC Holding Current versus Case Temperature


E313687