Over-voltage Protection Thyristor SP2300EC

ROHS

Description

P Series solid state protection thyristor protect telecommunications equipment such as modems, line cards, fax machines, and other CPE.

P Series solid state protection 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).

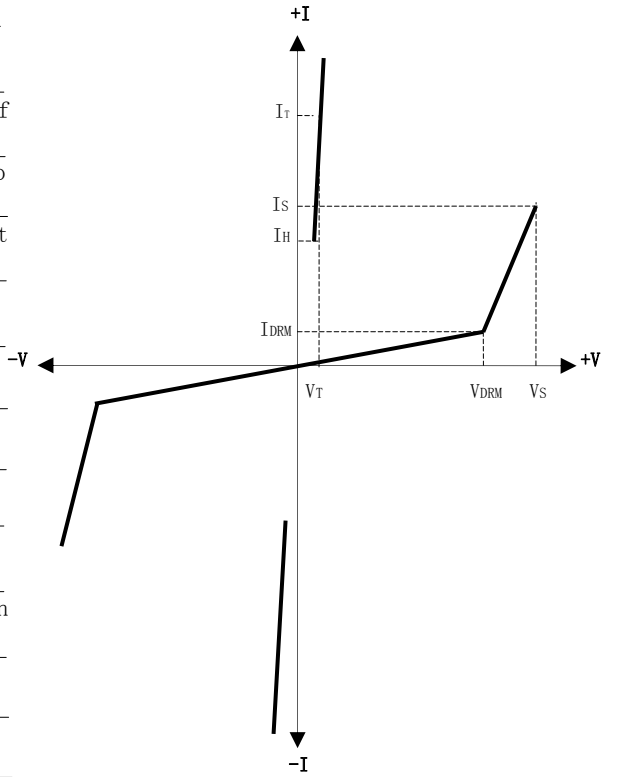
Electrical Parameters

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_O	**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 VDRM
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
SP2300EC	190	260	4	5	800	2.2	150	65

* For surge ratings, see table below.

Notes:

• All measurements are made at an ambient temperature of 25℃. I_{PP} applies to -40℃ through +85℃ temperature range.

• Off-state capacitance (C_O) is measured at 1 MHz with a 2 V bias and is typical value.

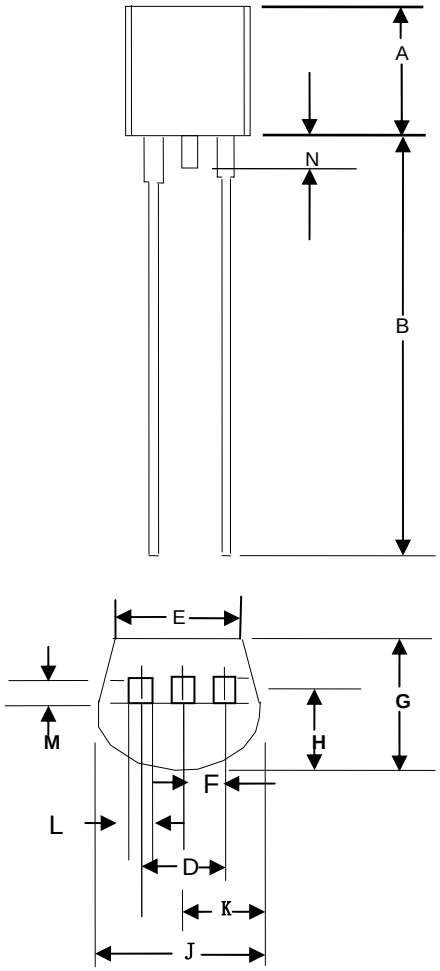
Surge Ratings

Series	I_{PP} 2/10 μs Amps	I_{PP} 8/20 μs Amps	I_{PP} 10/160 μs Amps	I_{PP} 10/560 μs Amps	I_{PP} 10/1000 μs Amps	I_{TSM} 60 Hz Amps	di/dt Amps/μs
C	500	400	200	150	100	50	500

Thermal Considerations

Package TO-92	Symbol	Parameter	Value	Unit
	T_J	Operating Junction Temperature	-40 to +150	℃
	T_S	Storage Temperature Range	-40 to +150	℃
	$R_{\theta JA}$	Junction to Ambient on printed circuit	90	℃/W

Dimensions



Dimension	Inches		Millimeters	
	MIN	MIN	MIN	MIN
A	0.176	0.196	4.47	4.98
B	0.5		12.7	
D	0.095	0.105	2.14	2.67
E	0.15		3.81	
F	0.046	0.054	1.16	1.37
G	0.135	0.145	3.43	3.68
H	0.088	0.096	2.23	2.44
J	0.176	0.186	4.47	4.73
K	0.088	0.096	2.23	2.44
L	0.013	0.019	0.33	0.48
M	0.013	0.017	0.33	0.43
N		0.06		1.52

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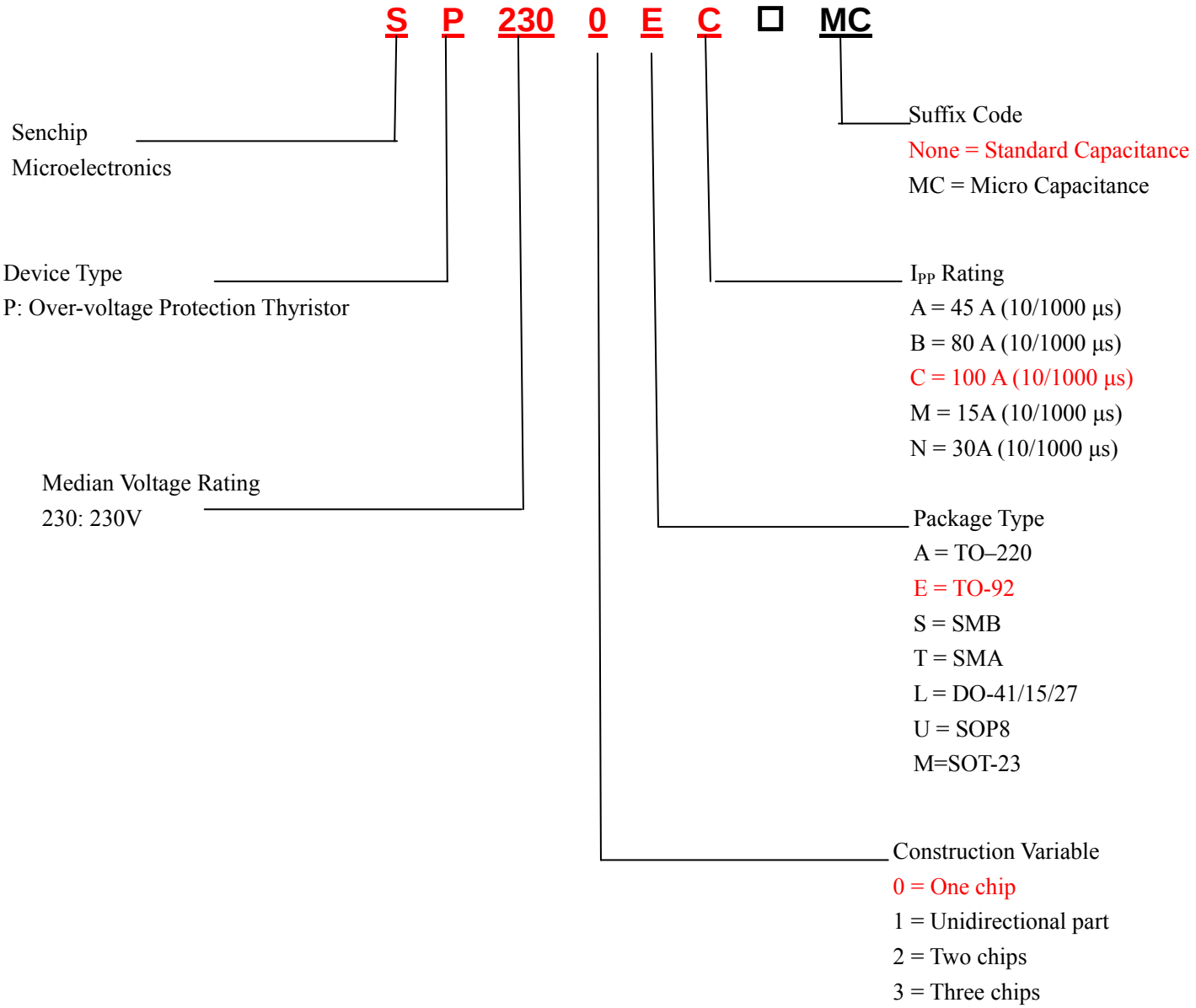
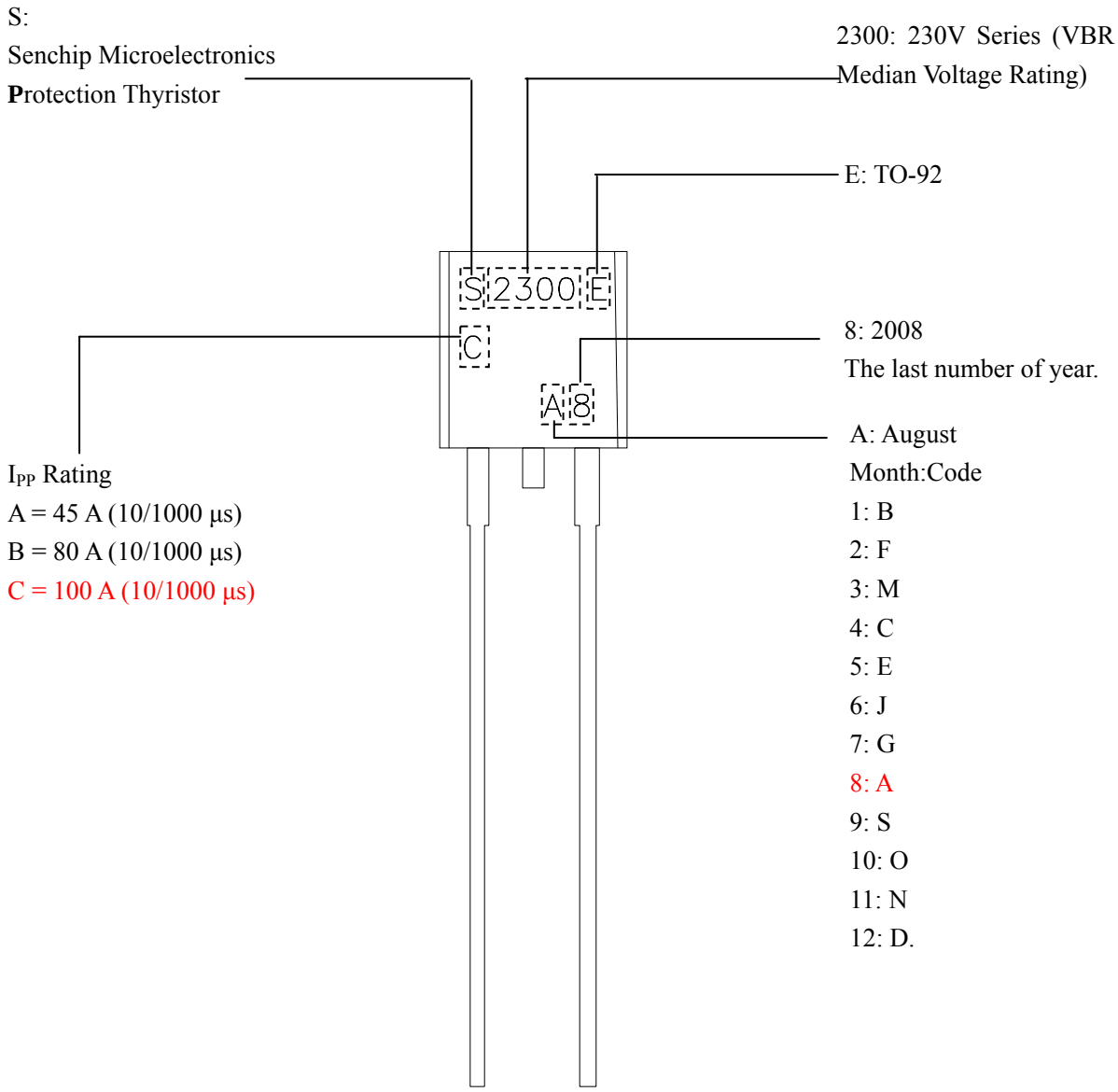
Description of Part Number



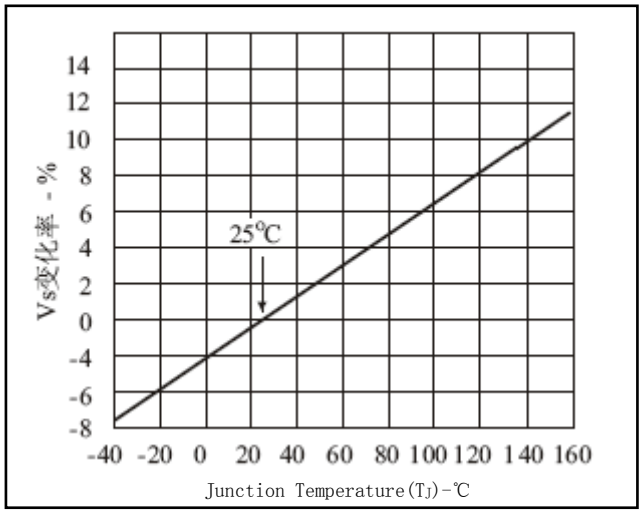
Description of Marking



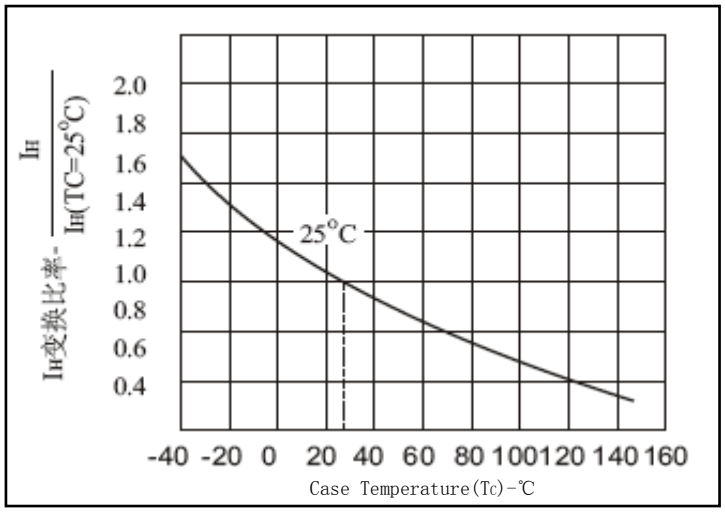
Summary of Packing Options

Package Type	Description	Packing Quantity	Industry Standard
TO-92 EA, EB, EC 	Bulk Pack	2000 PCS	N/A

Thermal Derating Curves



Normalized VS Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature

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