

## Description

DO-214AA/ P Series are low capacitance devices designed to protect broadband equipment such as VOIP, DSL modems and DSLAMs from damaging overvoltage transients.

The series provides a surface mount solution that enables equipment to comply with global regulatory standards while limiting the impact to broadband signals.

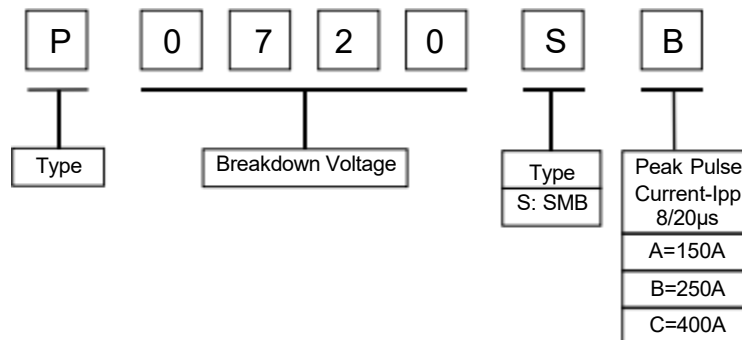


## Features

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


## Part Number Code



## Surge Ratings

Series	Ipp 2×10µs (A)	Ipp 8×20µs (A)	Ipp 10×160µs (A)	Ipp 10×560µs (A)	Ipp 10×1000µs (A)	VPP 10×700µs (V)	ITSM 60Hz (A)	di/dt (Aµs)
A	150	150	90	50	45	2000	20	500
B	250	250	150	100	80	4000	30	500
C	500	400	200	150	100	6000	50	500

## Thermal Considerations

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

**Electrical Characteristics**

Type Number	V <sub>DRM</sub>	V <sub>S</sub>	V <sub>T</sub>	I <sub>DRM</sub>	I <sub>S</sub>	I <sub>T</sub>	I <sub>H</sub>	C <sub>J</sub>
	V	V	V	μA	mA	A	mA	pF
P0720SA	65	88	4	5	800	2.2	150	50
P0720SB	65	88	4	5	800	2.2	150	45
P0720SC	65	88	4	5	800	2.2	150	60

Notes:

V<sub>DRM</sub>: Peak Off-state Voltage – maximum voltage that can be applied while maintaining off state.

V<sub>S</sub>: Switching Voltage – maximum voltage prior to switching to on state

V<sub>T</sub>: On-state Voltage – maximum voltage measured at rated on-state current

I<sub>S</sub>: Switching Current – maximum current required to switch to on state

I<sub>H</sub>: Holding Current – minimum current required to maintain on state.

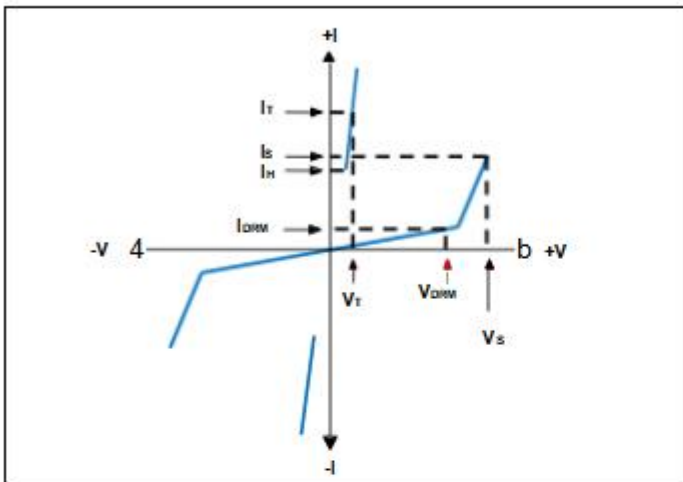
I<sub>DRM</sub>: Leakage Current – maximum peak off-state current measured at V<sub>DRM</sub>

I<sub>T</sub>: On-state Current – maximum rated continuous on-state current.

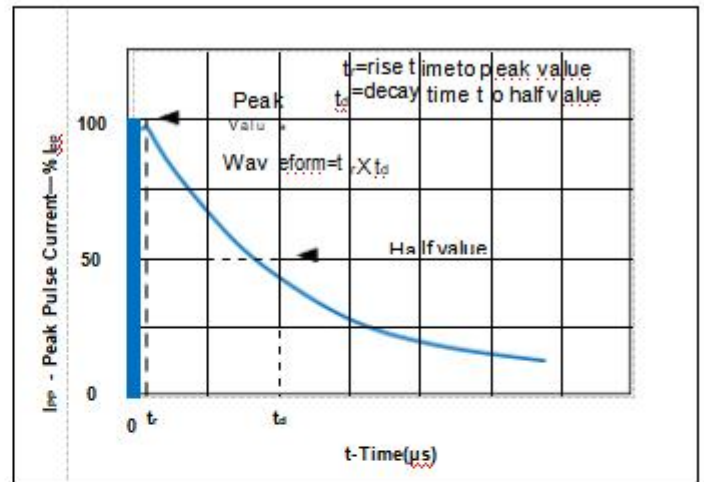
C<sub>J</sub>: Off-state Capacitance – typical capacitance measured in off state.

**Characteristics Curves**

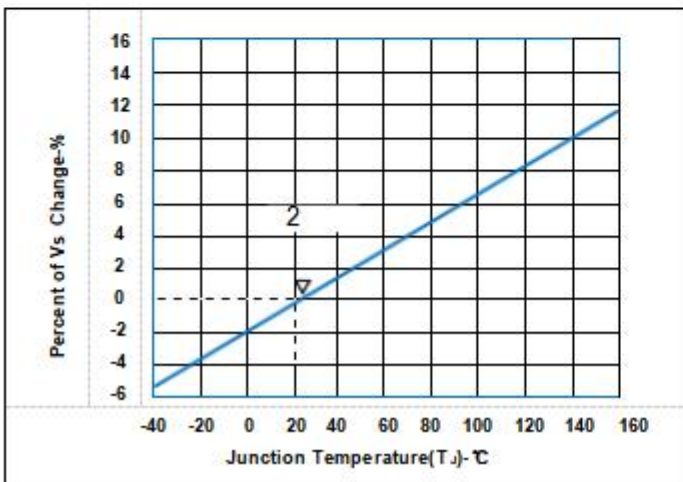
**V-1 Characteristics**



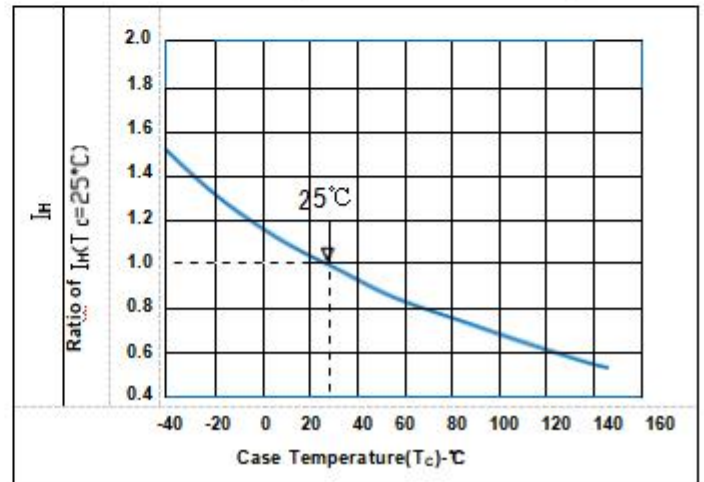
**t<sub>r</sub> X t<sub>d</sub> Pulse Waveform**



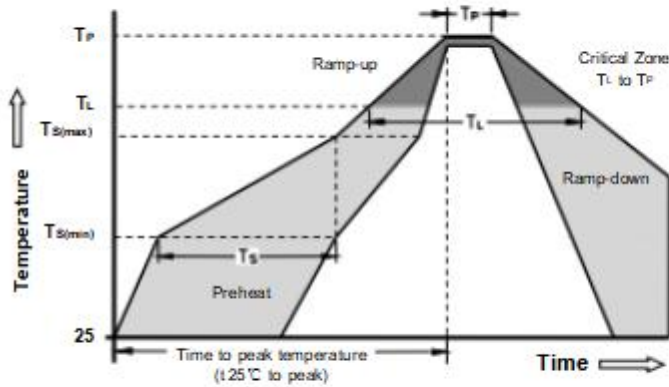
**Normalized V<sub>s</sub> Change vs. Junction Temperature**



**Normalized DC Holding Current vs. Case Temperature**

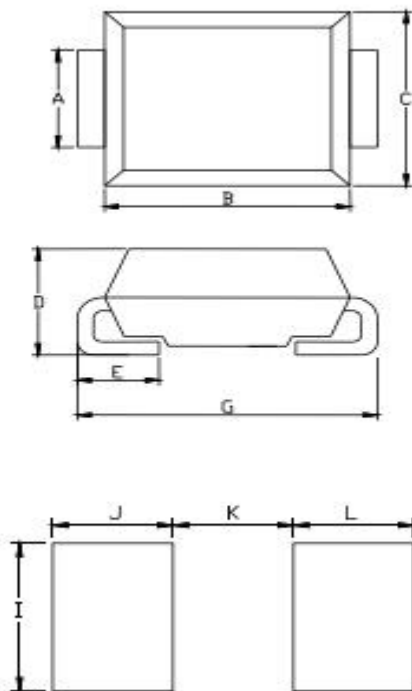


**Soldering Parameters - Reflow Soldering (Surface Mount Devices)**



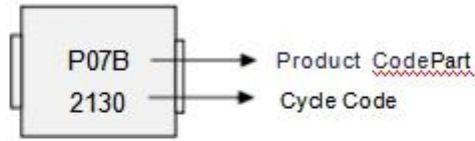
Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	150°C
	-Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 - 180 Seconds
Average ramp up rate ( Liquids Temp $T_L$ ) to peak		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquids)	217°C
	- Time (min to max) ( $t_r$ )	60 - 150 Seconds
Peak Temperature ( $T_p$ )		260 +0/-5°C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 - 40 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes Max
Do not exceed		260°C

**Dimensions**

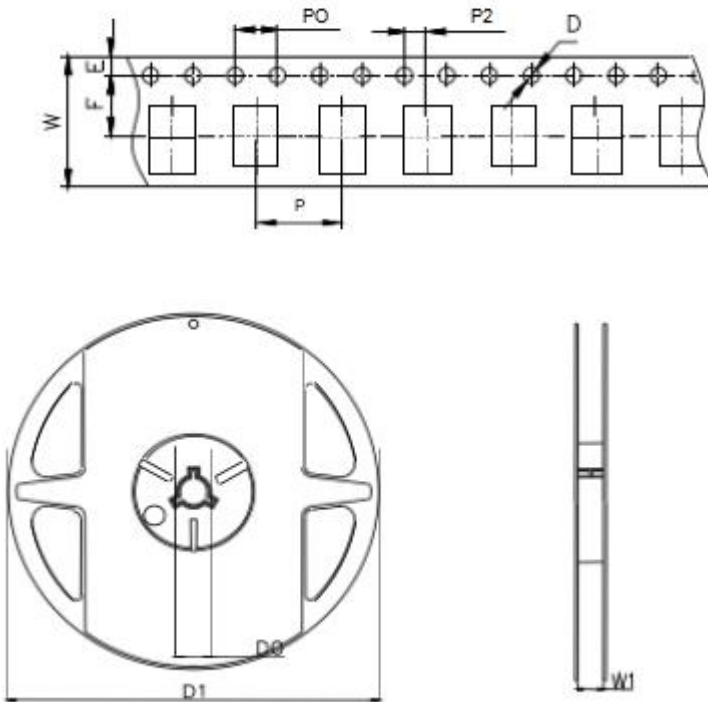


DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	1.90	2.11	0.075	0.083
B	4.22	4.70	0.166	0.185
C	3.40	3.94	0.134	0.155
D	1.95	2.65	0.077	0.104
E	0.91	1.42	0.036	0.056
G	5.21	5.59	0.205	0.220
I	2.80		0.110	
J	2.00		0.079	
K	2.00		0.079	
L	2.00		0.079	

## Part Marking System



## Taping and Reel Specifications



Symbol	Millimeters	Inches
<b>W</b>	12±0.3	0.472±0.012
<b>P</b>	8±0.1	0.315±0.004
<b>F</b>	5.5±0.1	0.217±0.004
<b>E</b>	1.75±0.1	0.069±0.004
<b>D</b>	1.55±0.05	0.061±0.002
<b>P0</b>	4±0.1	0.157±0.004
<b>P2</b>	2±0.1	0.079±0.004
<b>D0</b>	13.5±0.5	0.531±0.02
<b>D1</b>	Φ330±2.0	12.99±0.079
<b>W1</b>	16.0±1.0	0.63±0.039

Part Number	Component package	Quantity	Packaging option	Industry Standard
P0720SB	DO-214AA	2500	Tape&Reel-12mm tape/13"reel	EIA-481-1