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DATA SHEET

THYRISTOR SURGE SUPPRESSORS MODEMS/LINE CARD

PXXXXTA series

RoHS compliant & Halogen free

Product specification– December 18, 2018 V.0

Thyristor Surge Suppressors (TSS) Data Sheet

Description

DO-214AC Thyristor 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).

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
- Meets MSL level 1, per J-STD-020
- Safety certification: UL: E244458

Electrical Parameters

Parameter	Definition
V_{DRM}	**Peak Off-state Voltage –** maximum voltage that can be applied while maintaining off state
V_S	**Switching Voltage –** maximum voltage prior to switching to on state
V_T	**On-state Voltage –** maximum voltage measured at rated on-state current
I_{DRM}	**Leakage Current –** maximum peak off-state current measured at V_{DRM}
I_S	**Switching Current –** maximum current required to switch to on state
I_T	**On-state Current –** maximum rated continuous on-state current
I_H	**Holding Current –** minimum current required to maintain on state
C_O	**Off-state Capacitance –** typical capacitance measured in off state
I_{PP}	**Peak Pulse Current –** maximum rated peak impulse current
I_{TSM}	**Peak One-cycle Surge Current –** maximum rated one-cycle AC current
di/dt	**Rate of Rise of Current –** maximum rated value of the acceptable rate of rise in current over time

Electrical Characteristics

Part Number	V_{DRM} (V)	V_S (V)	V_T (V)	I_{DRM} (μA)	I_S (mA)	I_T (A)	I_H (mA)	C_O (pF)	Marking
P0080TA	6	25	4	5	800	2.2	50	50	P008A
P0300TA	25	40	4	5	800	2.2	50	70	P03A
P0640TA	58	77	4	5	800	2.2	150	50	P06A
P0720TA	65	88	4	5	800	2.2	150	50	P07A
P0900TA	75	98	4	5	800	2.2	150	45	P09A
P1100TA	90	130	4	5	800	2.2	150	45	P11A
P1300TA	120	160	4	5	800	2.2	150	45	P13A
P1500TA	140	180	4	5	800	2.2	150	40	P15A
P1800TA	170	220	4	5	800	2.2	150	40	P18A
P2300TA	190	260	4	5	800	2.2	150	35	P23A
P2600TA	220	300	4	5	800	2.2	150	35	P26A
P3100TA	275	350	4	5	800	2.2	150	30	P31A
P3500TA	320	400	4	5	800	2.2	150	30	P35A

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 2V bias and is typical value.
- For surge ratings, see table below.

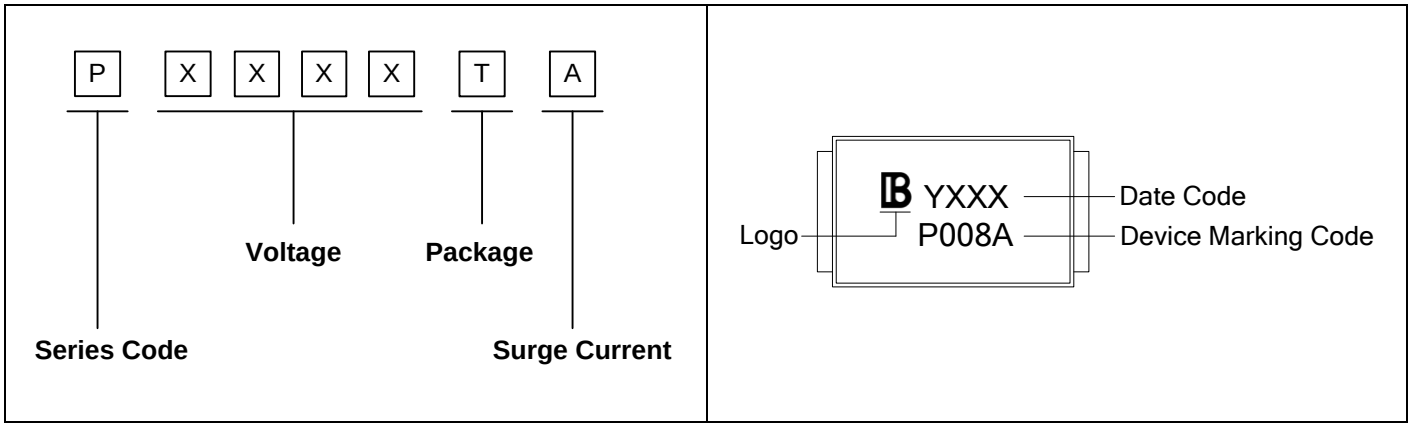
Surge Ratings

Series	I_{PP} 2×10μs (A)	I_{PP} 8×20μs (A)	I_{PP} 10×160μs (A)	I_{PP} 10×560μs (A)	I_{PP} 10×1000μs (A)	I_{TSM} 60Hz (A)	di/dt (A/μs)
A	150	150	90	50	45	20	500

Thermal Considerations

Package DO-214AC/SMA	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	120	℃/W

Part Number Code and Marking



Characteristics Curves

Figure 1. V-I Characteristics

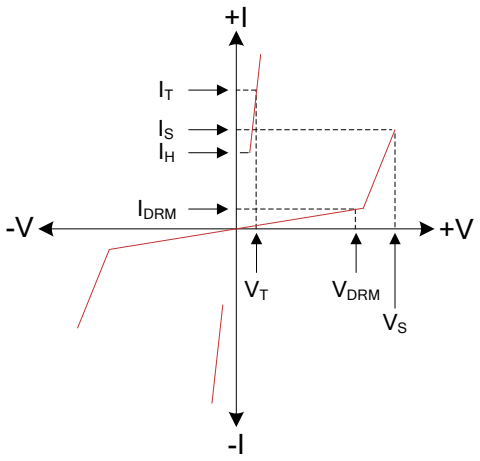


Figure 2. tr × td Pulse Wave-form

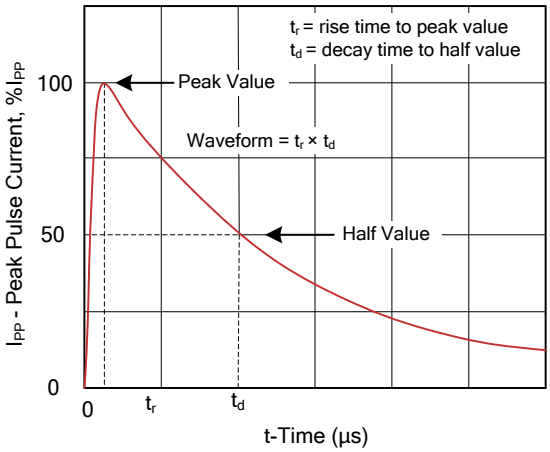


Figure 3. Normalized Vs Change versus Junction Temperature

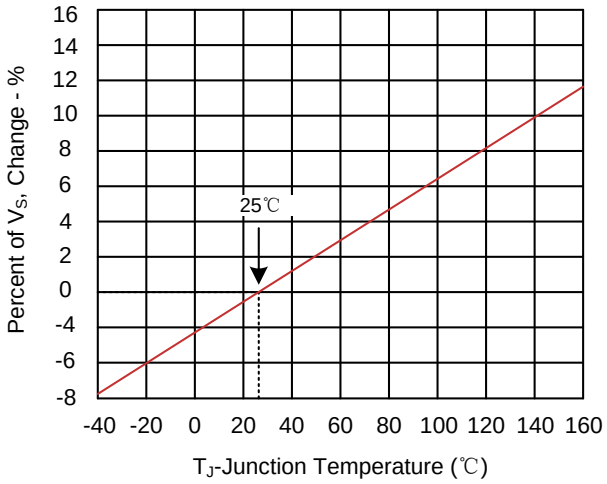
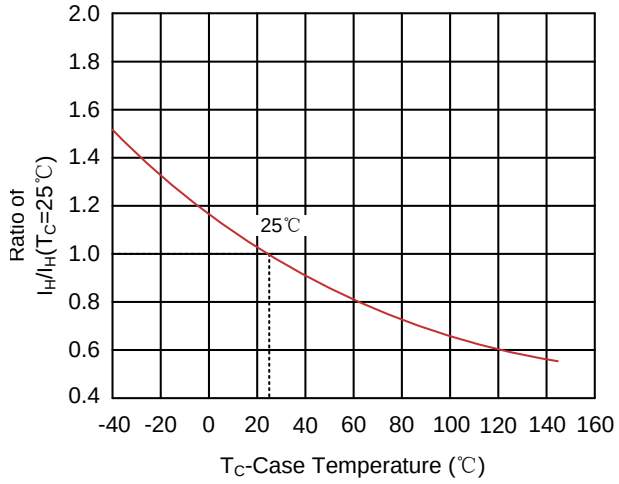
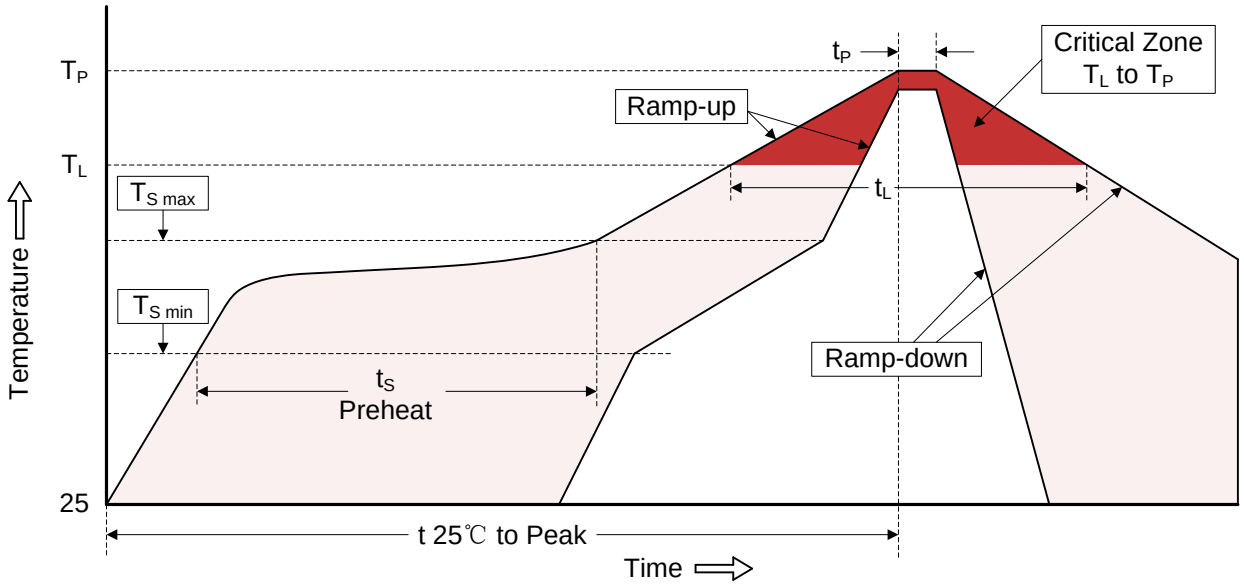


Figure 4. Normalized DC Holding Current versus Case Temperature



Recommended Soldering Conditions

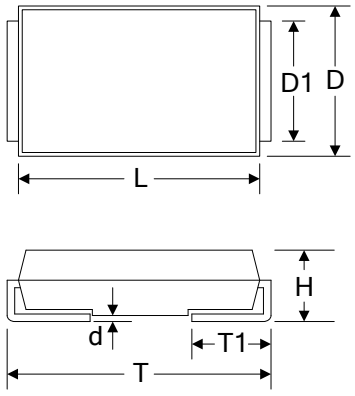
Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

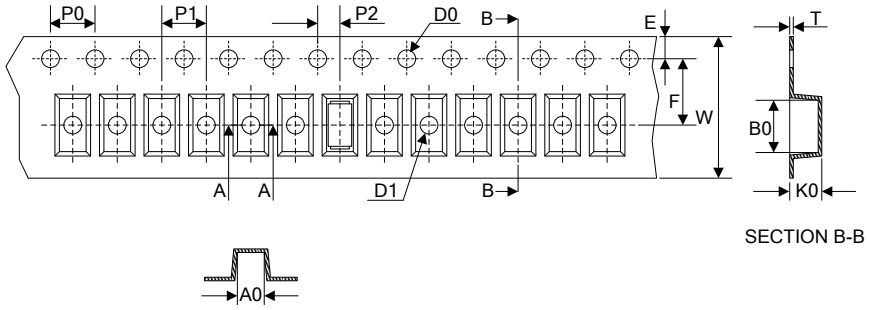
Dimensions (SMA/DO-214AC)



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	3.99	4.50	0.157	0.177
D	2.54	2.79	0.100	0.110
D1	1.25	1.65	0.049	0.065
T	4.93	5.28	0.194	0.208
T1	0.76	1.52	0.030	0.060
d	-	0.203	-	0.008
H	2.00	2.50	0.079	0.098

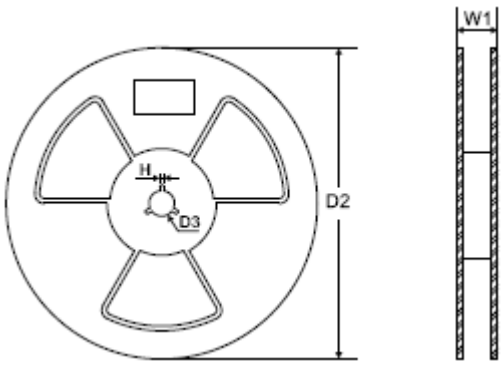
Packaging

Tape



Symbol	Dimension (mm)
W	12.00±0.20
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	Φ1.50±0.10
D1	Φ1.50±0.10
E	1.75±0.10
F	5.50±0.10
A0	2.79±0.10
B0	5.33±0.10
K0	2.55±0.10
T	0.25±0.05

Reel



D2	Φ330.0±2.0
D3	Φ13.5±0.5
H	2.5±0.5
W1	16.0±1.0

Quantity: 5000PCS

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