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.

Cilicom 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

- 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.

Mechanical Data

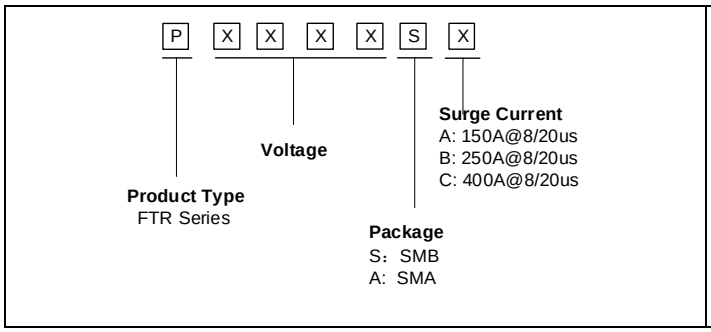
- Case: JEDEC DO-214AAMoulded plastic
- Terminal:solderplated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Mounting Position: Any

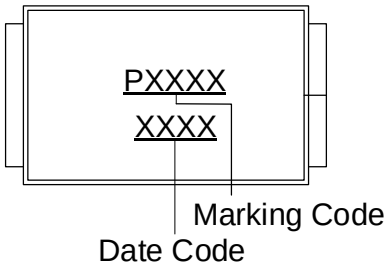
Thermal Characteristics

Ratings at 25℃ ambient temperature unless otherwise specified.

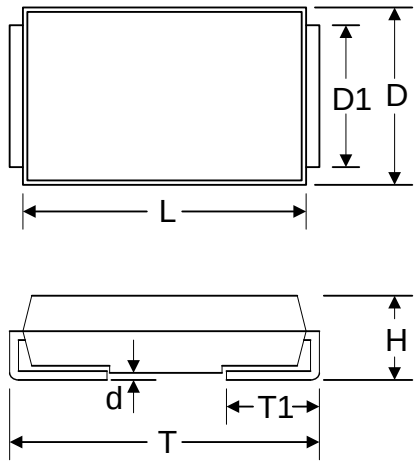
Rating	Symbol	Value	Units
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Operating junction and Storage Temperature Range.	T_J,T_{STG}	-55 to +125	℃
Typical thermal resistance junction to ambient	$R_{\theta JA}$	120	℃/W

Partnumber code





Dimensions (DO-214AC/SMA)



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	3.90	4.50	0.154	0.177
D	2.40	2.80	0.094	0.110
D1	1.30	1.70	0.051	0.067
T	4.80	5.30	0.189	0.208
T1	0.76	1.52	0.030	0.060
d	0.10	0.20	0.003	0.008
H	2.00	2.50	0.078	0.098

Electrical Characteristics (T_A=25℃)

Part Number	V_{DRM} (V)	V_S (V)	V_T (V)	I_{DRM} (uA)	I_S (mA)	I_T (A)	I_H (mA)	C_O (pF)	Marking
P0800AA	6	25	4	5	800	2.2	50	50	P008A
P0300AA	25	40	4	5	800	2.2	50	70	P03A
P0640AA	58	77	4	5	800	2.2	150	50	P06A
P0720AA	65	88	4	5	800	2.2	150	50	P07A
P0900AA	75	98	4	5	800	2.2	150	45	P09A
P1100AA	90	130	4	5	800	2.2	150	45	P11A
P1300AA	120	160	4	5	800	2.2	150	45	P13A
P1500AA	140	180	4	5	800	2.2	150	40	P15A
P1800AA	170	220	4	5	800	2.2	150	40	P18A
P2300AA	190	260	4	5	800	2.2	150	35	P23A
P2600AA	220	300	4	5	800	2.2	150	35	P26A
P3100AA	275	350	4	5	800	2.2	150	30	P31A
P3500AA	320	400	4	5	800	2.2	150	30	P35A

Notes: Off-state capacitance(C O) is measured at 1 MHz with a 2V bias and is typical value.

Surge Rating

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

Electrical Parameters

Parameter	Parameter
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 – typical 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

Ratings and Characteristic Curves (T_A=25℃ unless otherwise noted)

Figure 1. V/I Characteristics

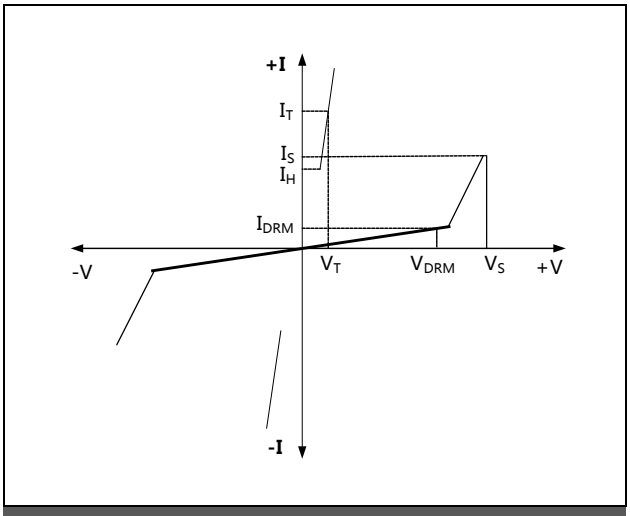


Figure 2. Normalized Vs Change versus Junction Temperature

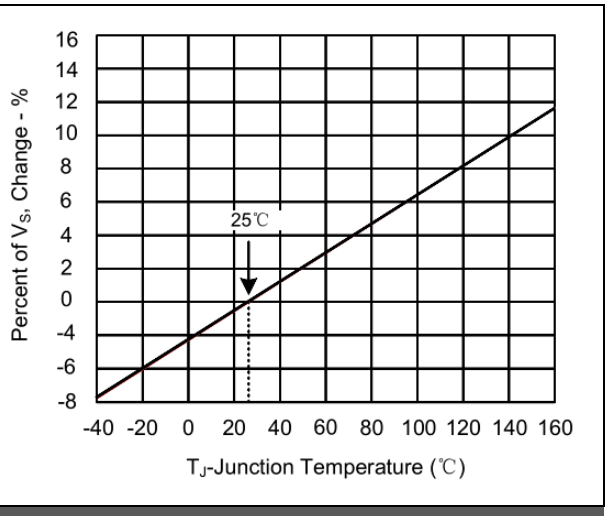


Figure 3. Pulse Waveform

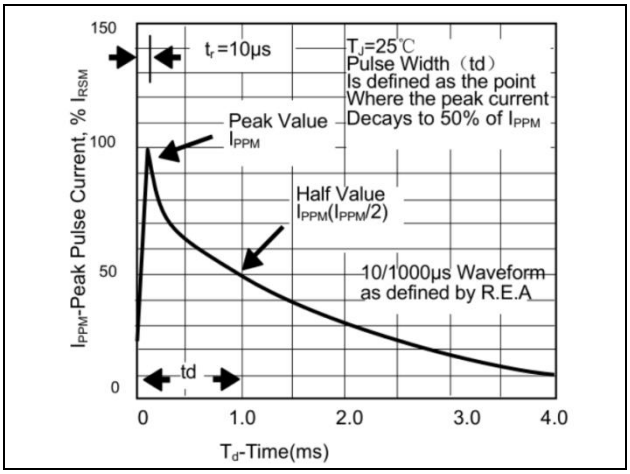
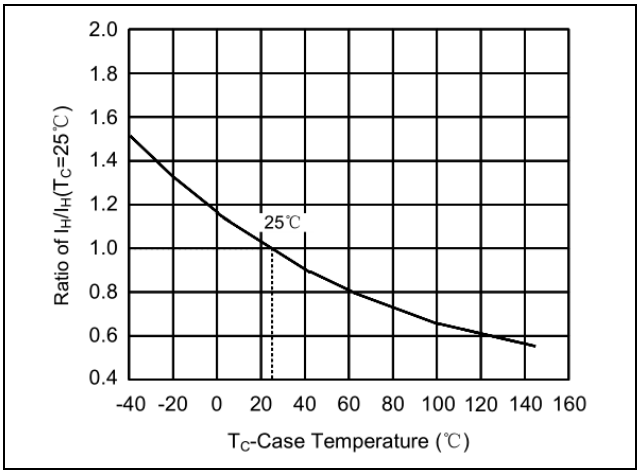
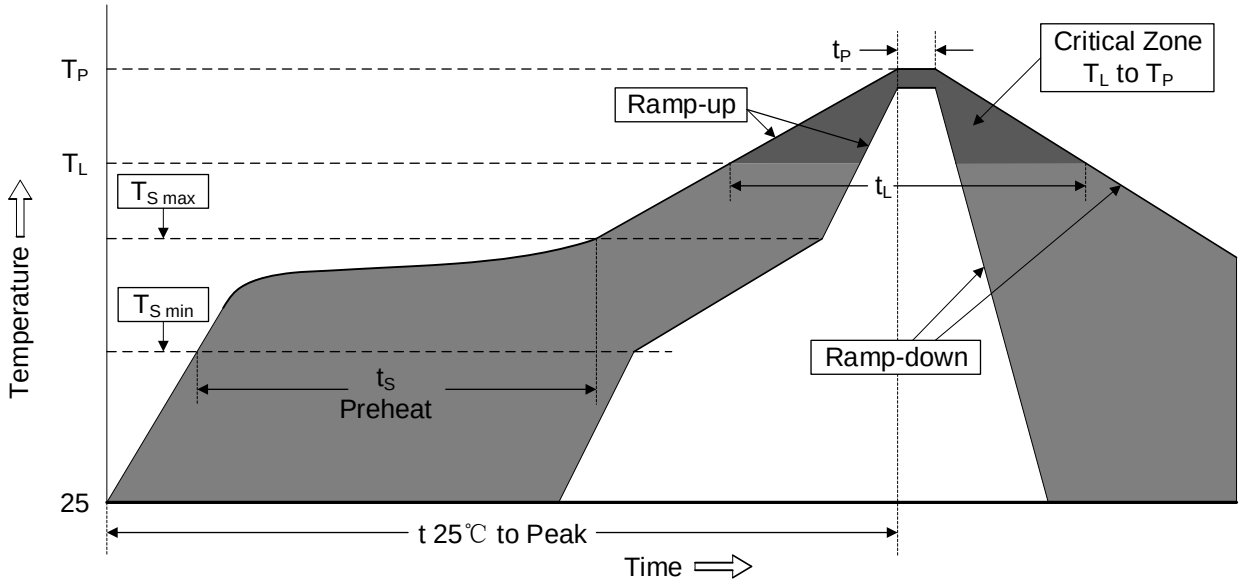


Figure 4. Normalized DC Holding Current versus Case Temperature



Recommended Soldering Conditions

Reflow Soldering

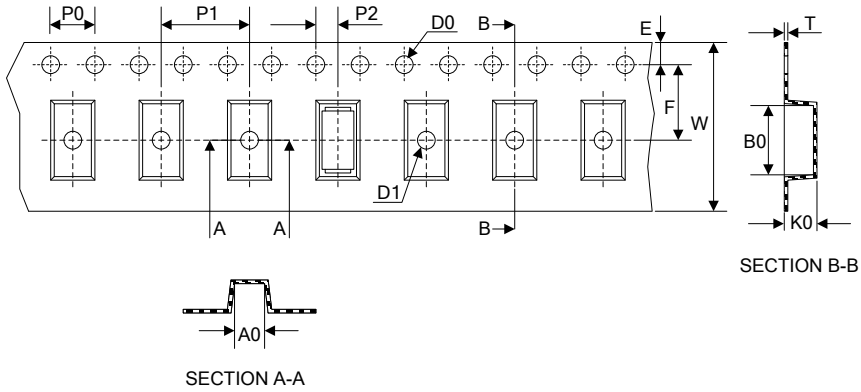


Recommended Conditions

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 PeakTemperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

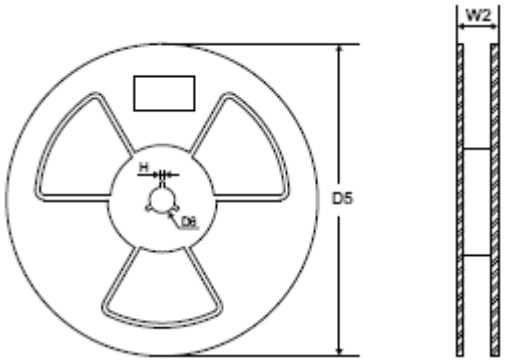
Packaging

Tape



Symbol	Dimension (mm)
W	12.00±0.30
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	Φ1.50±0.05
D1	Φ1.50±0.05
E	1.75±0.10
F	5.50±0.10
A0	2.79±0.10
B0	5.33±0.10
K0	2.55±0.05
T	0.25±0.10

Reel



D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±0.5
W2	16.0±1.0
Quantity: 5000PCS	