

Thyristor Surge Suppressor (TSS) – L Series

Description

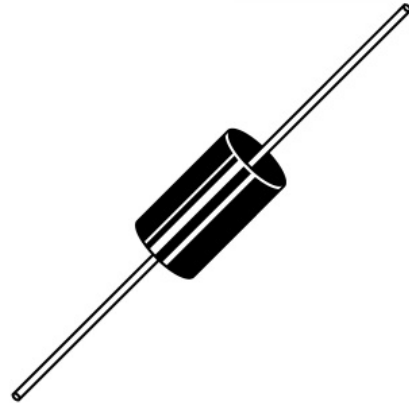
DO-15/DO-201 PXXXX L series solid state protection thyristor protect telecommunication equipments such as modem, line cards, fax machines and other CPE. PXXXX L series devices are used to enable equipment to meet various regulatory requirements including GR 1089, ITU K.20, K.21 and K.45, IEC 60950, UL 60950 and TIA-968 (formerly known as FCC Part 68)

Electrical Parameters

Compared to surge suppression using other technologies, PXXXX L 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.

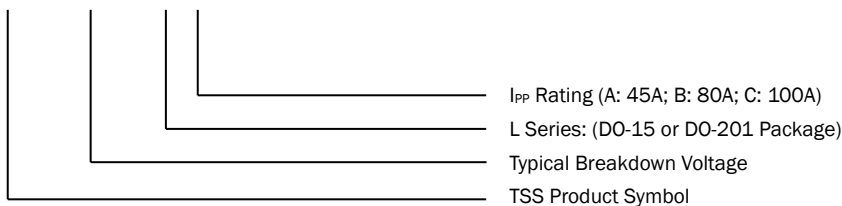


Thermal Considerations

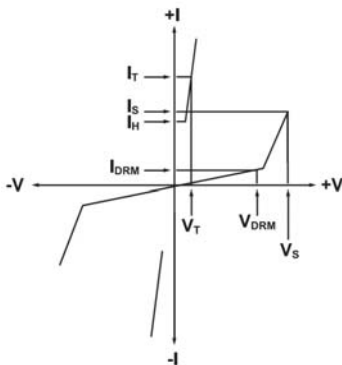
- T_J – Operating Junction Temperature Range: -40~150°C
- T_S – Storage Temperature Range: -40~150°C
- $R_{\theta JA}$ – Thermal Resistance: Junction to Ambient: 90°C/W

Part Number Code

P □ □ □ □ L □



I-V Curve Characteristics



C_0 Off-state Capacitance — typical capacitance measured in off state.

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 during 100 V/ μ s surge

V_{DRM} Peak Off-state Voltage — maximum voltage that can be applied while maintaining off state

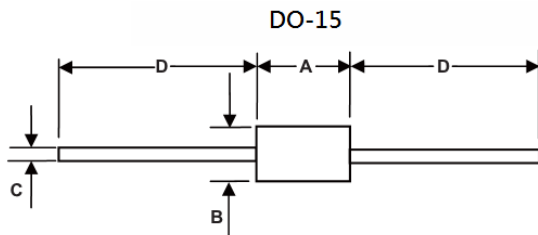
V_T On-state Voltage — maximum voltage measured at rated on-state current

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Electrical Characteristics

Part Number	Marking	Package Type	V _{DRM}	V _S	I _{DRM}	I _S	I _H	I _T	V _T	C ₀
			(V)	(V)	(μA)	(mA)	(mA)	(A)	(V)	(pF)
			(Min.)	(Max.)	(Max.)	(Max.)	(Min.)	(Max.)	(Max.)	(Typ.)
P0080LA	008A	DO-15	6	25	5	800	50	2.2	4	45
P0300LA	03A	DO-15	25	40	5	800	50	2.2	4	45
P0640LA	06A	DO-15	58	77	5	800	150	2.2	4	35
P0720LA	07A	DO-15	65	88	5	800	150	2.2	4	50
P0900LA	09A	DO-15	75	98	5	800	150	2.2	4	40
P1100LA	11A	DO-15	90	130	5	800	150	2.2	4	35
P1300LA	13A	DO-15	120	160	5	800	150	2.2	4	35
P1500LA	15A	DO-15	140	180	5	800	150	2.2	4	40
P1800LA	18A	DO-15	170	220	5	800	150	2.2	4	40
P2000LA	20A	DO-15	180	240	5	800	150	2.2	4	40
P2300LA	23A	DO-15	190	260	5	800	150	2.2	4	45
P2600LA	26A	DO-15	220	300	5	800	150	2.2	4	35
P3100LA	31A	DO-15	275	350	5	800	150	2.2	4	35
P3500LA	35A	DO-15	320	400	5	800	150	2.2	4	30
P4000LA	40A	DO-15	360	460	5	800	150	2.2	4	20
P4500LA	45A	DO-15	400	540	5	800	150	2.2	4	20
P5000LA	50A	DO-15	440	600	5	800	150	2.2	4	20
P0080LB	008B	DO-15	6	25	5	800	50	2.2	4	60
P0300LB	03B	DO-15	25	40	5	800	50	2.2	4	65
P0640LB	06B	DO-15	58	77	5	800	150	2.2	4	45
P0720LB	07B	DO-15	65	88	5	800	150	2.2	4	45
P0900LB	09B	DO-15	75	98	5	800	150	2.2	4	40
P1100LB	11B	DO-15	90	130	5	800	150	2.2	4	40
P1300LB	13B	DO-15	120	160	5	800	150	2.2	4	40
P1500LB	15B	DO-15	140	180	5	800	150	2.2	4	35
P1800LB	18B	DO-15	170	220	5	800	150	2.2	4	65
P2000LB	20B	DO-15	180	240	5	800	150	2.2	4	60
P2300LB	23B	DO-15	190	260	5	800	150	2.2	4	60
P2600LB	26B	DO-15	220	300	5	800	150	2.2	4	45
P3100LB	31B	DO-15	275	350	5	800	150	2.2	4	45
P3500LB	35B	DO-15	320	400	5	800	150	2.2	4	40
P4000LB	40B	DO-15	360	460	5	800	150	2.2	4	40
P4500LB	45B	DO-15	400	540	5	800	150	2.2	4	40
P5000LB	50B	DO-15	440	600	5	800	150	2.2	4	40

Physical Dimensions



Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	5.8	7.6	0.230	0.300
B	2.6	3.6	0.104	0.140
C	0.7	0.9	0.026	0.034
D	25.4	-	1.000	-

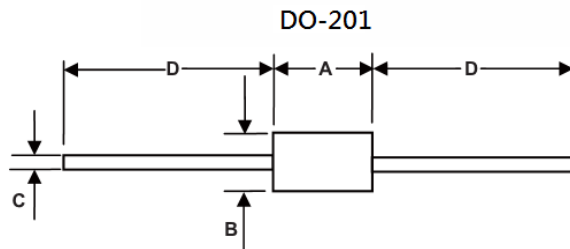
Thyristor Surge Suppressor (TSS) – L Series

Part Number	Marking	Package Type	V _{DRM}	V _s	I _{DRM}	I _s	I _H	I _T	V _T	C ₀
			(V)	(V)	(μA)	(mA)	(mA)	(A)	(V)	(pF)
			(Min.)	(Max.)	(Max.)	(Max.)	(Min.)	(Max.)	(Max.)	(Typ.)
P0080LC	008C	DO-201	6	25	5	800	50	2.2	4	75
P0300LC	03C	DO-201	25	40	5	800	50	2.2	4	75
P0640LC	06C	DO-201	58	77	5	800	150	2.2	4	55
P0720LC	07C	DO-201	65	88	5	800	150	2.2	4	60
P0900LC	09C	DO-201	75	98	5	800	150	2.2	4	65
P1100LC	11C	DO-201	90	130	5	800	150	2.2	4	55
P1300LC	13C	DO-201	120	160	5	800	150	2.2	4	90
P1500LC	15C	DO-201	140	180	5	800	150	2.2	4	50
P1800LC	18C	DO-201	170	220	5	800	150	2.2	4	55
P2000LC	20C	DO-201	180	240	5	800	150	2.2	4	85
P2300LC	23C	DO-201	190	260	5	800	150	2.2	4	65
P2600LC	26C	DO-201	220	300	5	800	150	2.2	4	65
P3100LC	31C	DO-201	275	350	5	800	150	2.2	4	55
P3500LC	35C	DO-201	320	400	5	800	150	2.2	4	50
P4000LC	40C	DO-201	360	460	5	800	150	2.2	4	45
P4500LC	45C	DO-201	400	540	5	800	150	2.2	4	45
P5000LC	50C	DO-201	440	600	5	800	150	2.2	4	45

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 (C₀) is measured at 1MHz with a 2V bias and is typical value.

Physical Dimensions



Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	-	9.5	-	0.370
B	-	6.4	-	0.250
C	1.2	1.3	0.048	0.052
D	25.4	-	1.000	-

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Surge Ratings

Series	I_{PP} (A)						I_{TSM} 60 Hz (A)	di/dt (A/ μ s) (Typ.)
	2/10 ¹	1.2/50 ¹	10/160 ¹	10/560 ¹	10/700 ¹	10/1000 ¹		
	2/10 ²	8/20 ²	10/160 ²	10/560 ²	5/320 ²	10/1000 ²		
	(Min.)	(Min.)	(Min.)	(Min.)	(Min.)	(Min.)	(Min.)	
A	150	150	90	50	75	45	20	500
B	250	250	150	100	100	80	30	500
C	500	400	200	150	200	100	50	500

Notes:

- 1. Voltage waveform in μ s.
- 2. Current waveform in μ s.

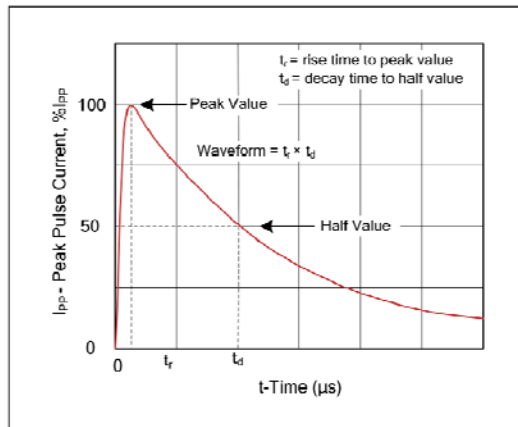
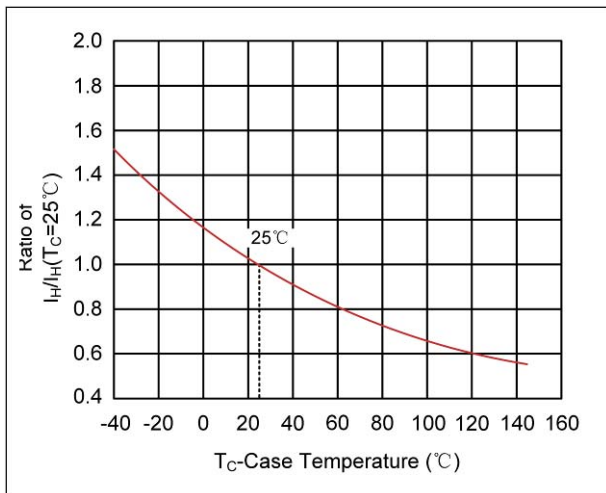


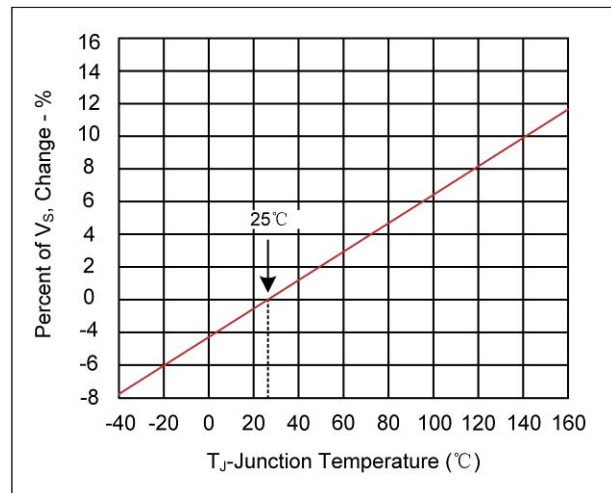
Fig 1. $t_r * t_d$ Pulse Waveform

Ratings and Characteristic Curves

Normalized DC Holding Current vs. Case Temp

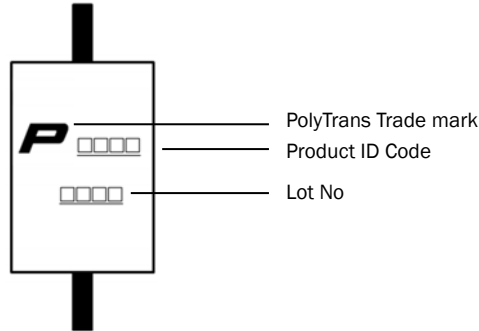


Normalized V_s Change vs. Junction Temperature



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Marking Definitions



Packaging

Part Number	Component Package	Quantity	Packaging Specification	Standard
PXXXX LA Series	DO-15	500	Bulk	N/A
PXXXX LA Series	DO-15	4000	Tape & Reel	EIA STD RS-296
PXXXX LB Series	DO-15	500	Bulk	N/A
PXXXX LB Series	DO-15	4000	Tape & Reel	EIA STD RS-296
PXXXX LC Series	DO-201	500	Bulk	N/A
PXXXX LC Series	DO-201	1000	Tape & Reel	EIA STD RS-296

