

P0080LA - P5000LA Series - DO-15

ROHS

@10/700 μ S, 2KV

Thyristor Surge Suppressors (TSS)

Description

P0080LA - P5000LA Series are designed to protect broadband equipment such as modems, line card, CPE and DSL from damaging over-voltage transients.

The series provides a surface mount solution that enables equipment to comply with global regulatory standards.

Features and Benefits

- ◆ Low voltage overshoot
- ◆ Low on-state voltage
- ◆ Does not degrade surge capability after multiple surge events within limit
- ◆ Fails short circuit when surged in excess of ratings
- ◆ Low Capacitance

Applicable Global Standards

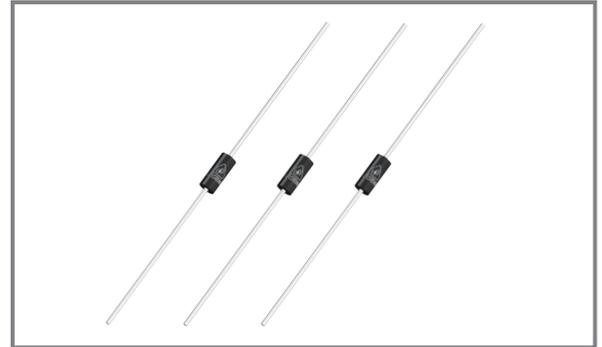
- ◆ TIA-968-A / TIA-968-B
- ◆ ITU K.20/21 Enhanced level
- ◆ ITU K.20/21 Basic Level
- ◆ GR 1089 Inter building
- ◆ IEC 61000-4-5
- ◆ YD/T 1082
- ◆ YD/T 993
- ◆ YD/T 950

Electrical Parameters

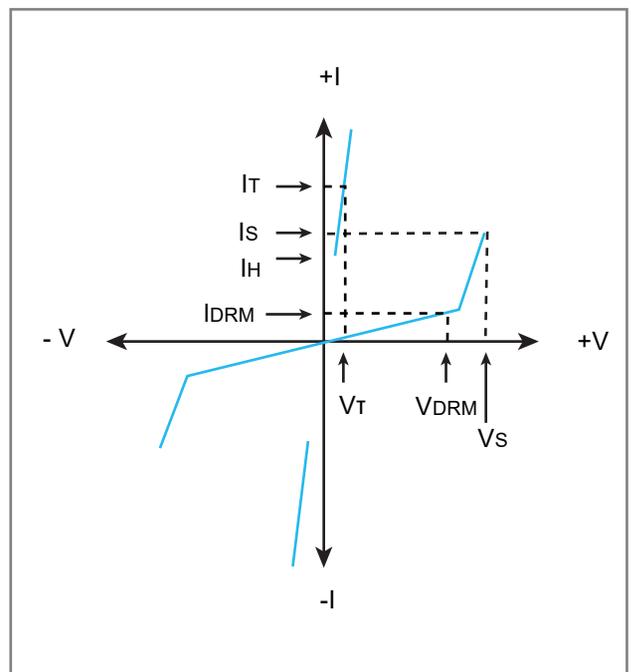
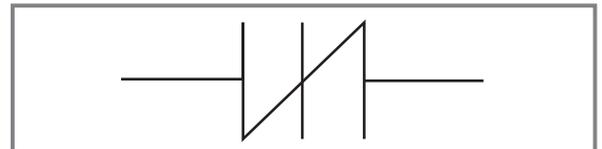
Parameter	Definition
I_S	Switching Current - maximum current required to switch to on state
I_{DRM}	Leakage Current - maximum peak off-state current measured at V_{DRM}
I_H	Holding Current - minimum current required to maintain on state
I_T	On-state Current - maximum rated continuous on-state current
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_T	On-state Voltage - maximum voltage measured at rated on-state current
C_0	Off-state Capacitance - typical capacitance measured in off state



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Schematic Symbol



Electrical Characteristics

Part Number	Marking	V_{DRM} @ $I_{DRM}=5\mu A$	I_{DRM}	V_s @100V/ μ S	I_s	V_T @ $I_T=2.2A$	I_T	I_H	C_o @1MHz
		V Min.	μ A Max.	V Max.	mA Max.	V Max.	A Max.	mA Min.	pF Typ.
P0080LA	P008LA	6	5	25	800	4	2.2	50	50
P0300LA	P03LA	25	5	40	800	4	2.2	50	70
P0640LA	P06LA	58	5	77	800	4	2.2	150	50
P0720LA	P07LA	65	5	88	800	4	2.2	150	50
P0900LA	P09LA	75	5	98	800	4	2.2	150	45
P1100LA	P11LA	90	5	130	800	4	2.2	150	45
P1300LA	P13LA	120	5	160	800	4	2.2	150	45
P1500LA	P15LA	140	5	180	800	4	2.2	150	40
P1800LA	P18LA	170	5	220	800	4	2.2	150	40
P2000LA	P20LA	180	5	220	800	4	2.2	150	40
P2300LA	P23LA	190	5	260	800	4	2.2	150	35
P2600LA	P26LA	220	5	300	800	4	2.2	150	35
P3100LA	P31LA	275	5	350	800	4	2.2	150	30
P3500LA	P35LA	320	5	400	800	4	2.2	150	30
P3800LA	P38LA	360	5	460	800	4	2.2	150	30
P4200LA	P42LA	400	5	520	800	4	2.2	150	30
P4500LA	P45LA	420	5	540	800	4	2.2	150	30
P5000LA	P50LA	440	5	600	800	4	2.2	150	30

Notes:

- Absolute maximum ratings measured at TA= 25°C (unless otherwise noted).
- Devices are bi-directional.

Surge Ratings

Series	2/10 μ S ¹	8/20 μ S ¹	10/160 μ S ¹	10/560 μ S ¹	10/1000 μ S ¹	5/320 μ S ¹	I_{TSM} 50/60Hz	di/dt
	2/10 μ S ²	1.2/50 μ S ²	10/160 μ S ²	10/560 μ S ²	10/1000 μ S ²	10/700 μ S ²		
	A min	A min	A min	A min	A min	A min	A min	Amps/ μ s max
A	150	150	90	50	45	50	20	500

Notes:

- Current waveform in μ s
 - Voltage waveform in μ s
- Peak pulse current rating (IPP) is repetitive and guaranteed for the life of the product.
 - IPP ratings applicable over temperature range of -40°C to +85°C
 - The device must initially be in thermal equilibrium with -40°C < TJ < +150°C

Thermal Considerations

Package	Symbol	Parameter	Value	Unit
 DO-15	T _J	Operating Junction Temperature Range	- 40 to +150	°C
	T _s	Storage Temperature Range	- 40 to +150	°C
	R _{θJA}	Thermal Resistance: Junction to Ambient	90	°C/W

Characteristic Curves

Figure 1 - V- I Characteristics

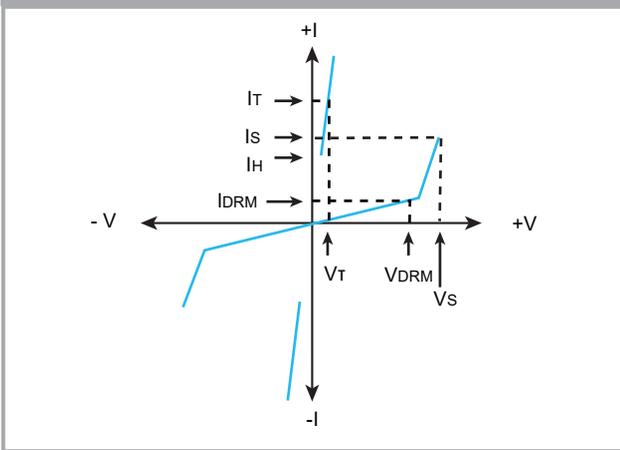


Figure 2 - $t_r \times t_d$ Pulse Waveform

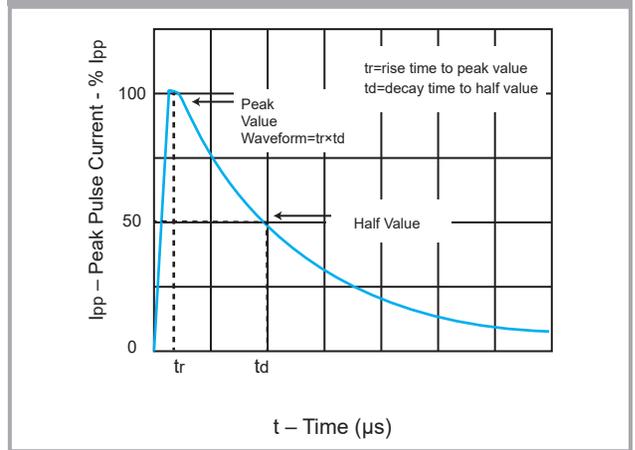


Figure 3 - Normalized VS Change Versus Junction Temperature

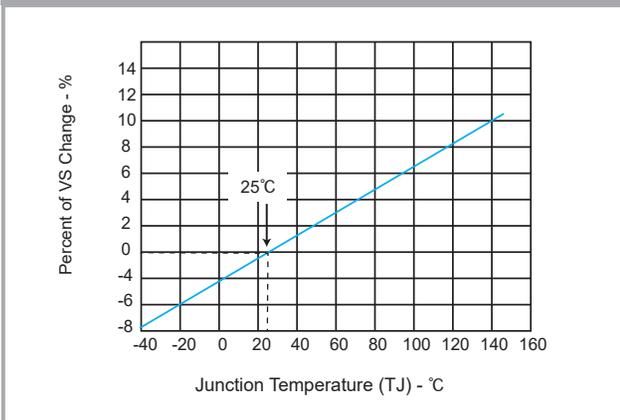
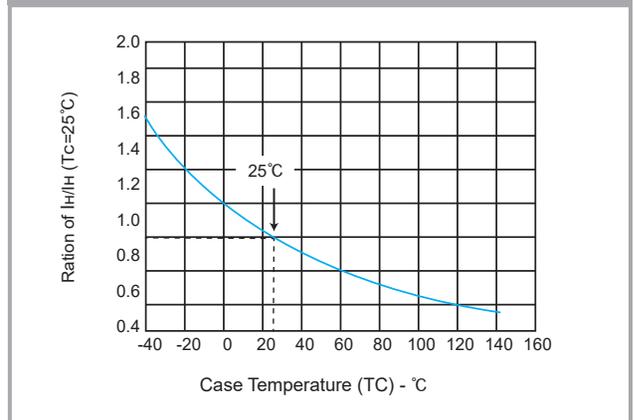
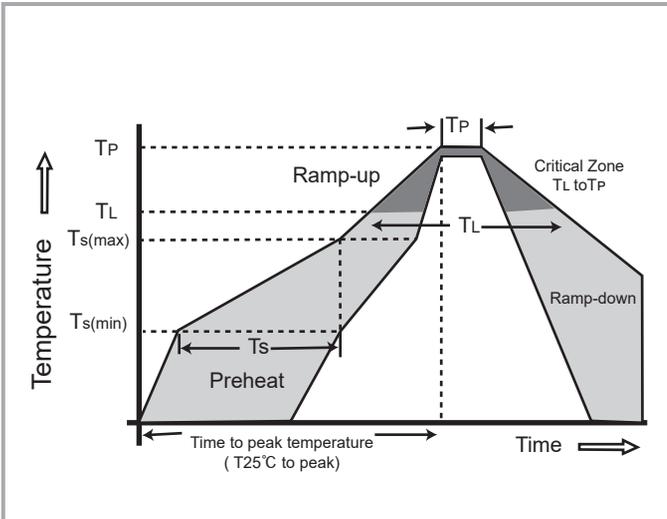


Figure 4 - Normalized DC Holding Current Versus Case Temperature

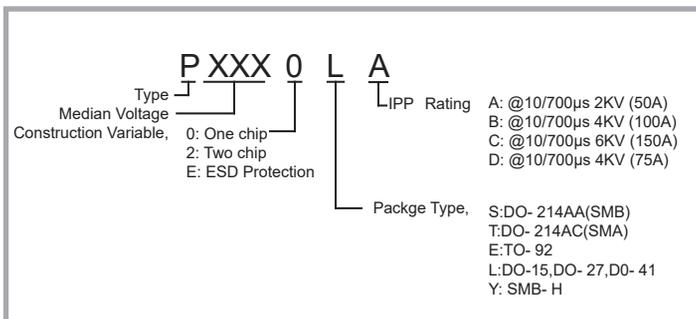


Soldering Parameters

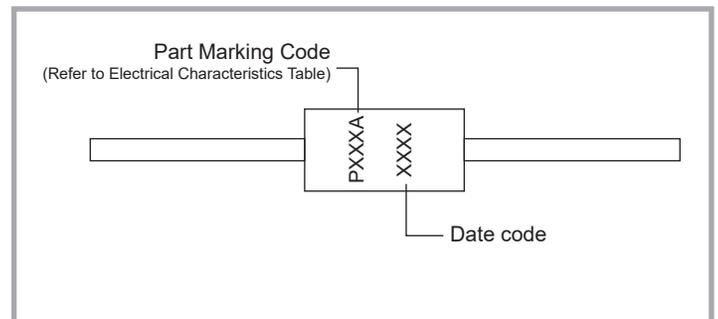


Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 $^{\circ}\text{C}$
	-Temperature Max ($T_{s(max)}$)	+200 $^{\circ}\text{C}$
	- Time (min to max) (T_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L to peak)		3 $^{\circ}\text{C}/\text{Second max}$
$T_{s(max)}$ to T_L - Ramp-up Rate		5 $^{\circ}\text{C}/\text{Second max}$
Reflow	- Temperature (T_L) (Liquidus)	217 $^{\circ}\text{C}$
	- Time (min to max) (T_s)	60 -150 Seconds
Peak Temperature (T_P)		260 +0/-5 $^{\circ}\text{C}$
Time within 5 $^{\circ}\text{C}$ of actual peak Temperature (T_P)		30 Seconds Max
Ramp-down Rate		6 $^{\circ}\text{C}/\text{Second Max}$
Time 25 $^{\circ}\text{C}$ to peak Temperature (T_P)		8 minutes Max
Do not exceed		+260 $^{\circ}\text{C}$

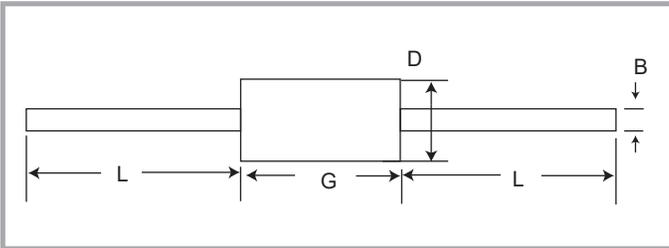
Part Numbering



Part Marking



Dimensions DO-15

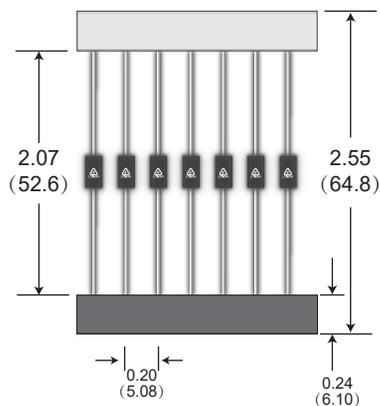


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
B	0.028	0.034	0.711	0.864
D	0.120	0.140	3.048	3.556
G	0.235	0.270	5.968	6.858
L	1.000		25.40	

Packaging

Part Number	Packaging Option	Quantity
Pxxx0LA	Box	2000

Tape and Reel Specifications DO-15



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