

Thyristor Surge Suppressors



Description

Package: TO-92

Pxxx0EAL, Pxxx0EBL, Pxxx0ECL Series Thyristor Surge Suppressors protect telecommunications equipment such as ADSL Modems, Router, Telephone, CCTV Camera, Digital Video Record, Video Capture Card, Twisted-pair video transmitter, CATV Splitter.....Etc.

Pxxx0EAL, Pxxx0EBL, Pxxx0ECL Series Thyristor Surge Suppressors are used to enable equipment to meet various regulatory requirements including GR 1089, ITU K.20/21, IEC 61000-4-5, YD/T 1082, YD/T 993, YD/T 950, TIA-968-A, TIA-968-B

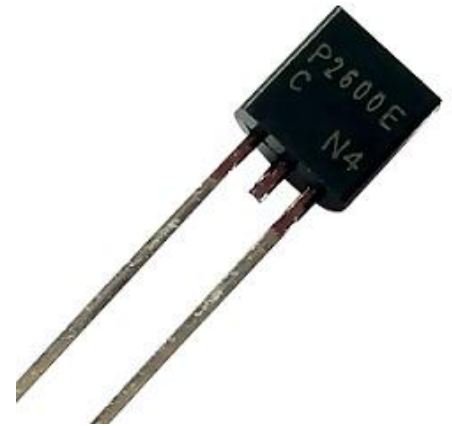
Features

Compared to surge suppression using other technologies,

Pxxx0EAL, Pxxx0EBL, Pxxx0ECL Series devices offer absolute surge protection regardless of the surge current available and the rate of applied voltage (dv/dt).

Pxxx0EAL, Pxxx0EBL, Pxxx0ECL Series devices:

- 100% Lead-Free (RoHS Compliant)
- 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
- Have low capacitance, making them ideal for high-speed transmission equipment



Electrical Characteristics

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
I_H	Holding Current — minimum current required to maintain on state
I_S	Switching Current — maximum current required to switch to on state
I_T	On-state Current — maximum rated continuous on-state current
V_T	On-state Voltage — maximum voltage measured at rated on-state current
Capacitance	Off-state Capacitance — typical capacitance measured in off state
I_{DRM}	Leakage Current — maximum peak off-state current measured at V_{DRM}
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	Marking	V _{DRM}	V _S	I _H	I _S	I _T	V _T	Capacitance	Delivery Time	
		@I _{DRM} =5 μ A	@100V/μs	Min	Max	Max	@I _T =2.2Amps	@1MHz,2V bias	in stock	Produce
		V _{min}	V _{max}	mA	mA	A	V _{max}	pF		
P0080EAL	P0080EA	6	25	50	800	2.2	4	45	4days	28days
P0300EAL	P0300EA	25	40	50	800	2.2	4	45	4days	28days
P0640EAL	P0640EA	58	77	150	800	2.2	4	35	4Days	28days
P0720EAL	P0720EA	65	88	150	800	2.2	4	50	4days	28days
P0900EAL	P0900EA	75	98	150	800	2.2	4	40	---	---
P1100EAL	P1100EA	90	130	150	800	2.2	4	35	---	---
P1300EAL	P1300EA	120	160	150	800	2.2	4	35	---	---
P1500EAL	P1500EA	140	180	150	800	2.2	4	40	---	---
P1800EAL	P1800EA	170	220	150	800	2.2	4	40	---	---
P2100EAL	P2100EA	180	240	150	800	2.2	4	40	---	---
P2300EAL	P2300EA	190	260	150	800	2.2	4	45	4days	15days
P2600EAL	P2600EA	220	300	150	800	2.2	4	35	4days	28days
P3100EAL	P3100EA	275	350	150	800	2.2	4	35	4days	15days
P3500EAL	P3500EA	320	400	150	800	2.2	4	30	4days	28days
P0080EBL	P0080EB	6	25	50	800	2.2	4	60	4days	15days
P0300EBL	P0300EB	25	40	50	800	2.2	4	65	4days	28days
P0640EBL	P0640EB	58	77	150	800	2.2	4	45	4days	15days
P0720EBL	P0720EB	65	88	150	800	2.2	4	45	4days	28days
P0900EBL	P0900EB	75	98	150	800	2.2	4	40	---	---
P1100EBL	P1100EB	90	130	150	800	2.2	4	40	---	---
P1300EBL	P1300EB	120	160	150	800	2.2	4	40	---	---
P1500EBL	P1500EB	140	180	150	800	2.2	4	35	---	---
P1800EBL	P1800EB	170	220	150	800	2.2	4	65	---	---
P2100EBL	P2100EB	180	240	150	800	2.2	4	60	---	---

Electrical Characteristics

continued



Part Number	Marking	V _{DRM}	V _S	I _H	I _S	I _T	V _T	Capacitance	Delivery Time	
		@I _{DRM} =5 μ A	@100V/μs	Min	Max	Max	@I _T =2.2Amps	@1MHz,2V bias	in stock	Produce
		V _{min}	V _{max}	mA	mA	A	V _{max}	pF		
P2300EBL	P2300EB	190	260	150	800	2.2	4	50	4days	28days
P2600EBL	P2600EB	220	300	150	800	2.2	4	45	4days	28days
P3100EBL	P3100EB	275	350	150	800	2.2	4	45	4days	15days
P3500EBL	P3500EB	320	400	150	800	2.2	4	40	4days	28days
P0080ECL	P0080EC	6	25	50	800	2.2	4	70	4days	15days
P0300ECL	P0300EC	25	40	50	800	2.2	4	65	4days	28days
P0640ECL	P0640EC	58	77	150	800	2.2	4	55	4days	15days
P0720ECL	P0720EC	65	88	150	800	2.2	4	60	4days	28days
P0900ECL	P0900EC	75	98	150	800	2.2	4	65	---	---
P1100ECL	P1100EC	90	130	150	800	2.2	4	55	---	---
P1300ECL	P1300EC	120	160	150	800	2.2	4	60	---	---
P1500ECL	P1500EC	140	180	150	800	2.2	4	50	---	---
P1800ECL	P1800EC	170	220	150	800	2.2	4	55	---	---
P2100ECL	P2100EC	180	240	150	800	2.2	4	85	---	---
P2300ECL	P2300EC	190	260	150	800	2.2	4	65	4days	28days
P2600ECL	P2600EC	220	300	150	800	2.2	4	65	4days	28days
P3100ECL	P3100EC	275	350	150	800	2.2	4	55	4days	15days
P3500ECL	P3500EC	320	400	150	800	2.2	4	50	4days	28days

Notes:

-All measurements are made at an ambient temperature of 25°C .Ipp applies to -40°C through +85°C temperature range .

-Off-state capacitance(Co) is typical value.

*For surge ratings,see next page.

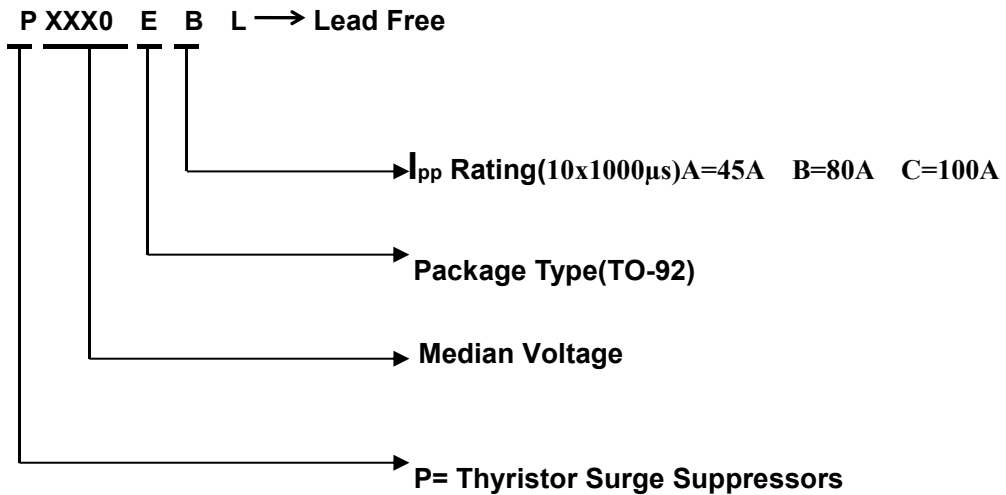
Surge Ratings

Series	I_{pp} 2x10 μ s	I_{pp} 8x20 μ s	I_{pp} 10x160 μ s	I_{pp} 10x560 μ s	I_{pp} 10x1000 μ s	I_{pp} 5x320 μ s	I_{pp} 5x310 μ s	I_{pp} 10x360 μ s	I_{TSM} 50/60Hz	di/dt
	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps/ μ s
A	150	150	90	50	45	75	75	75	20	500
B	250	250	150	100	80	100	100	125	25	500
C	500	400	200	150	100	200	200	175	30	500

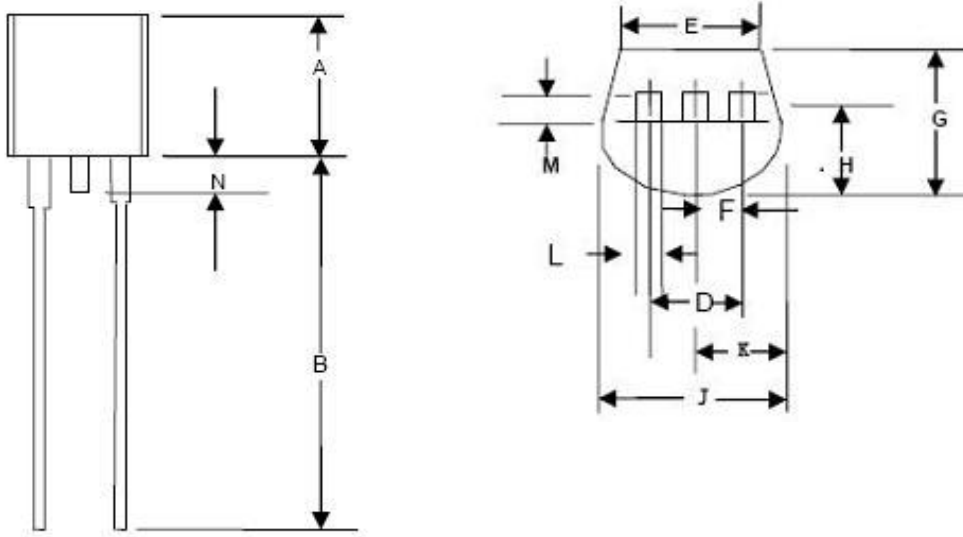
Thermal Considerations

Package	TO-92	Symbol	Parameter	Value	Unit
		T_J	Operating Junction Temperature Range	-40 to +150	$^{\circ}C$
		T_S	Storage Temperature Range	-65 to +150	$^{\circ}C$
		$R_{\theta JA}$	Junction to Ambient on printed circuit Lead Free	90	$^{\circ}C/W$

Description of Part Number



Dimensions - TO-92



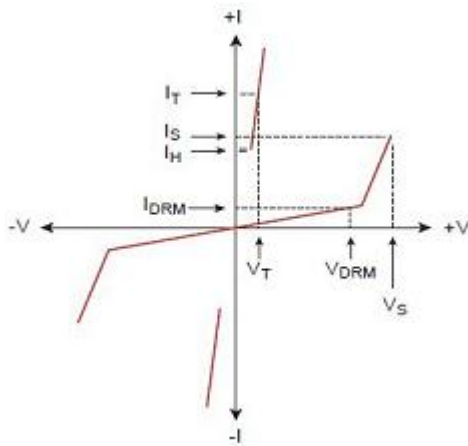
Dimension	Inches		Millimeters	
	Min	Max	Min	Max
A	0.176	0.196	4.40	4.98
B	0.500		12.1	
D	0.095	0.105	2.14	2.67
E	0.150		3.81	
F	0.046	0.054	1.16	1.37
G	0.135	0.145	3.43	3.68
H	0.088	0.096	2.23	2.44
J	0.176	0.186	4.47	4.70
K	0.088	0.096	2.23	2.44
L	0.013	0.019	0.33	0.48
M	0.013	0.017	0.33	0.43
N				2.20

Packing Options

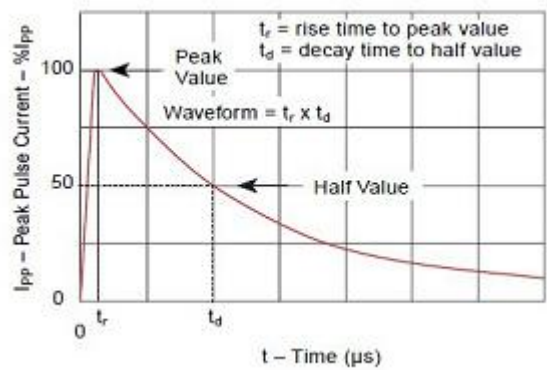
Package Type	Description	Packing Quantity	Industry Standard
E	TO-92 Bulk Pack	1000 PCS	N/A

Characteristics Curve

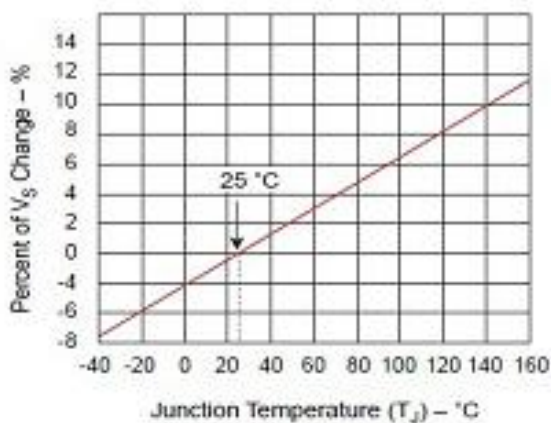
V-I Characteristics



Tr x Td Pulse Waveform



Normalized V_S Change Versus Junction Temperature



Normalized DC Holding Current Versus Case Temperature

