

## SIDACTor Protection Thyristor

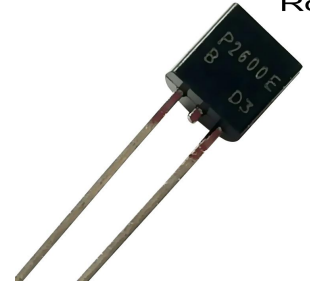
### Description

Package: TO-92



Pxxx0EAL,Pxxx0EBL,Pxxx0ECL Series SIDACTor Protection Thyristor 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 SIDACTor Protection Thyristor 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
$V_{DRM}$	<b>Peak Off-state Voltage</b> — maximum voltage that can be applied while maintaining off state
$V_S$	<b>Switching Voltage</b> — maximum voltage prior to switching to on state
$I_H$	<b>Holding Current</b> — minimum current required to maintain on state
$I_S$	<b>Switching Current</b> — maximum current required to switch to on state
$I_T$	<b>On-state Current</b> — maximum rated continuous on-state current
$V_T$	<b>On-state Voltage</b> — maximum voltage measured at rated on-state current
Capacitance	<b>Off-state Capacitance</b> — typical capacitance measured in off state
$I_{DRM}$	<b>Leakage Current</b> — maximum peak off-state current measured at $V_{DRM}$
$I_{PP}$	<b>Peak Pulse Current</b> — maximum rated peak impulse current
$I_{TSM}$	<b>Peak One-cycle Surge Current</b> — maximum rated one-cycle AC current
di/dt	<b>Rate of Rise of Current</b> — maximum rated value of the acceptable rate of rise in current over time

## Electrical Characteristics



Part Number	Marking	$V_{DRM}$ @ $I_{DRM}=5 \mu A$	$V_s$ @100V/ $\mu s$	$I_H$	$I_s$	$I_T$	$V_T$ @ $I_T=2.2Amps$	Capacitance @1MHz,2V bias
		$V_{min}$	$V_{max}$	mA min	mA max	A max	$V_{max}$	pF
P0080EAL	P0080EA	6	25	50	800	2.2	4	45
P0300EAL	P0300EA	25	40	50	800	2.2	4	45
P0640EAL	P0640EA	58	77	150	800	2.2	4	35
P0720EAL	P0720EA	65	88	150	800	2.2	4	50
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
P2600EAL	P2600EA	220	300	150	800	2.2	4	35
P3100EAL	P3100EA	275	350	150	800	2.2	4	35
P3500EAL	P3500EA	320	400	150	800	2.2	4	30
P0080EBL	P0080EB	6	25	50	800	2.2	4	60
P0300EBL	P0300EB	25	40	50	800	2.2	4	65
P0640EBL	P0640EB	58	77	150	800	2.2	4	45
P0720EBL	P0720EB	65	88	150	800	2.2	4	45
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
		@ $I_{DRM}=5 \mu A$	@ $100V/\mu s$				@ $I_T=2.2Amps$	@ $1MHz, 2V$ bias
		$V_{min}$	$V_{max}$	$mA_{min}$	$mA_{max}$	$A_{max}$	$V_{max}$	$pF$
P2300EBL	P2300EB	190	260	150	800	2.2	4	50
P2600EBL	P2600EB	220	300	150	800	2.2	4	45
P3100EBL	P3100EB	275	350	150	800	2.2	4	45
P3500EBL	P3500EB	320	400	150	800	2.2	4	40
P0080ECL	P0080EC	6	25	50	800	2.2	4	70
P0300ECL	P0300EC	25	40	50	800	2.2	4	65
P0640ECL	P0640EC	58	77	150	800	2.2	4	55
P0720ECL	P0720EC	65	88	150	800	2.2	4	60
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
P2600ECL	P2600EC	220	300	150	800	2.2	4	65
P3100ECL	P3100EC	275	350	150	800	2.2	4	55
P3500ECL	P3500EC	320	400	150	800	2.2	4	50

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.

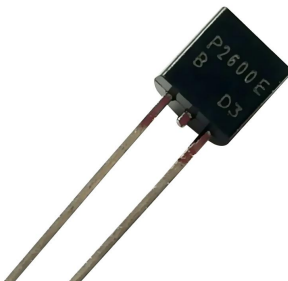
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## Surge Ratings

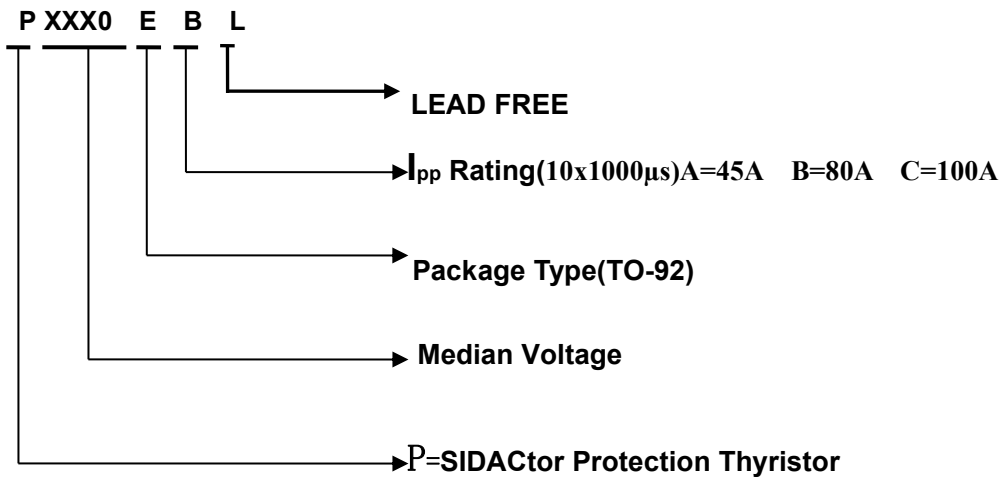


Series	$I_{pp}$ 2x10 $\mu$ s	$I_{pp}$ 8x20 $\mu$ s	$I_{pp}$ 10x160 $\mu$ s	$I_{pp}$ 10x560 $\mu$ s	$I_{pp}$ 10x1000 $\mu$ s	$I_{pp}$ 5x320 $\mu$ s	$I_{pp}$ 5x310 $\mu$ s	$I_{pp}$ 10x360 $\mu$ s	$I_{TSM}$ 50/60Hz	di/dt
	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps/ $\mu$ s
A	150	150	90	50	45	75	75	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

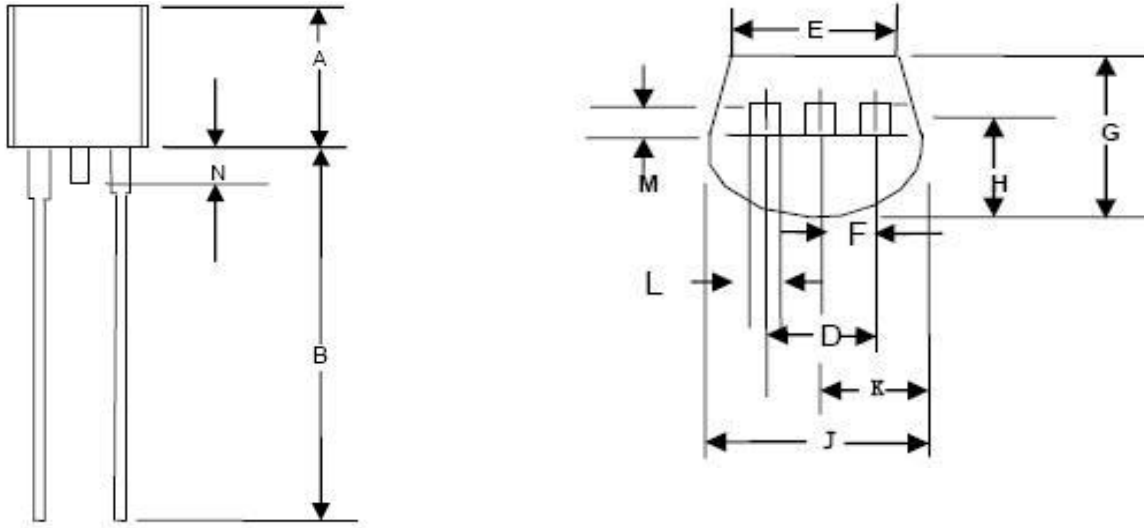
## Thermal Considerations

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	90	$^{\circ}C/W$

## Description of Part Number



Dimensions - TO-92



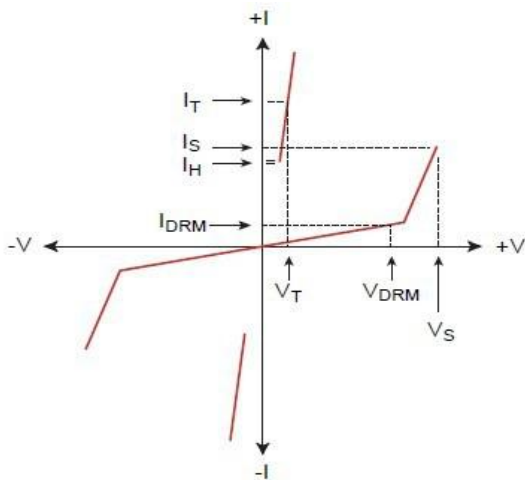
Dimension	Inches		Millimeters	
	Min	Max	Min	Max
A	0.176	0.196	4.40	4.98
B	0.500		12.1	
D	0.095	0.105	2.14	2.67
E	0.150		3.81	
F	0.046	0.054	1.16	1.37
G	0.135	0.145	3.43	3.68
H	0.088	0.096	2.23	2.44
J	0.176	0.186	4.47	4.70
K	0.088	0.096	2.23	2.44
L	0.013	0.019	0.33	0.48
M	0.013	0.017	0.33	0.43
N				2.20

## Packing Options

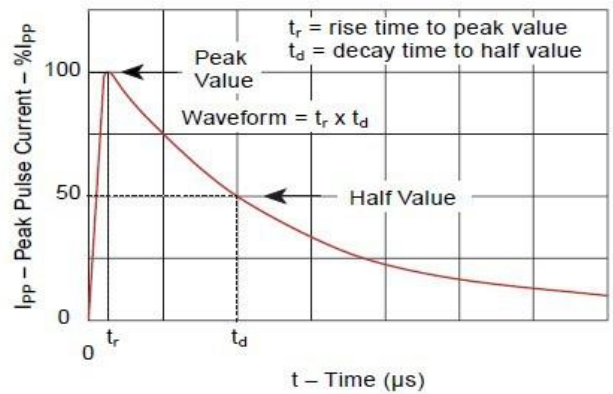
Package Type	Description	Packing Quantity	Industry Standard
E	TO-92 Bulk Pack	1000 PCS	N/A

## Characteristics Curve

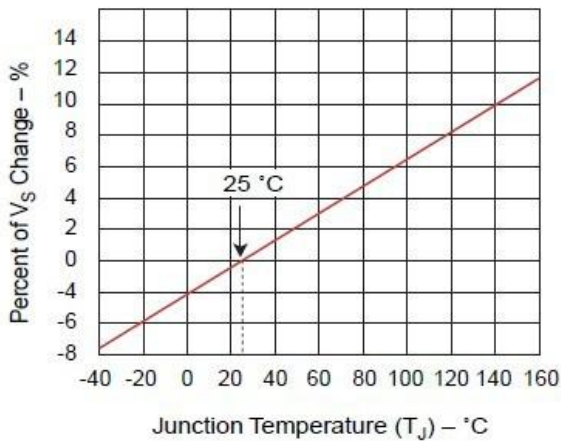
### V-I Characteristics



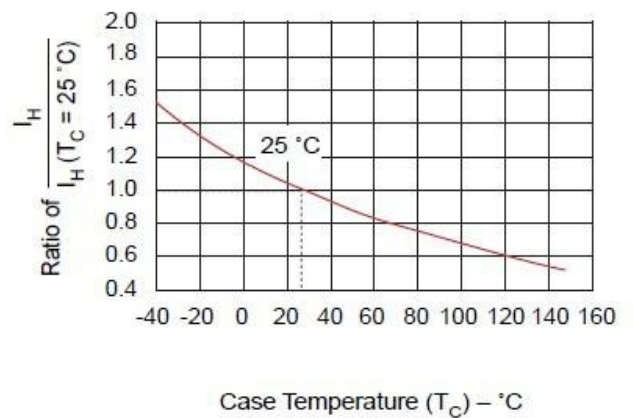
### Tr x Td Pulse Waveform



### Normalized Vs Change Versus Junction Temperature



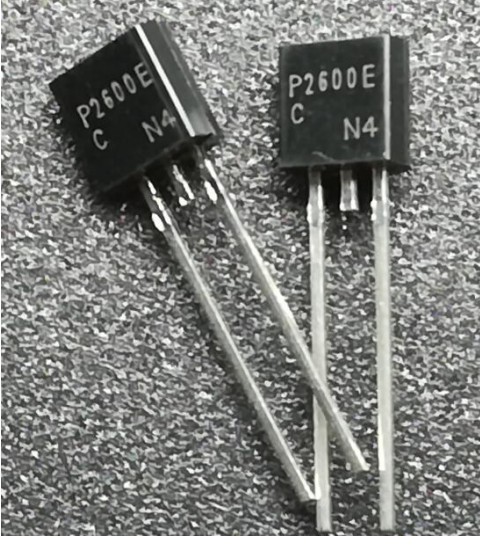
### Normalized DC Holding Current Versus Case Temperature



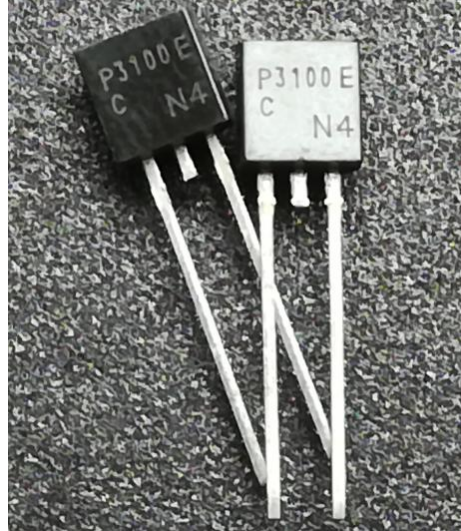
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Sample pictures

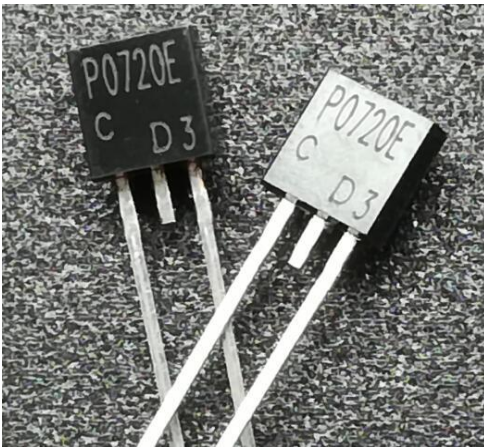
P2600ECL (Marking:P2600EC)



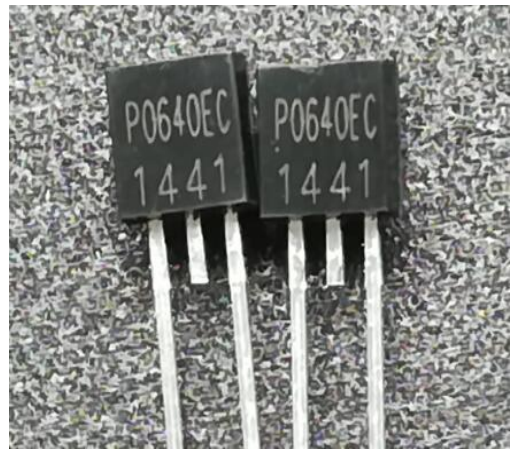
P3100ECL (Marking:P3100EC)



P0720ECL(Marking:P0720EC)



P0640ECL(Marking:P0640EC)



Specifications are subject to change without notice

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