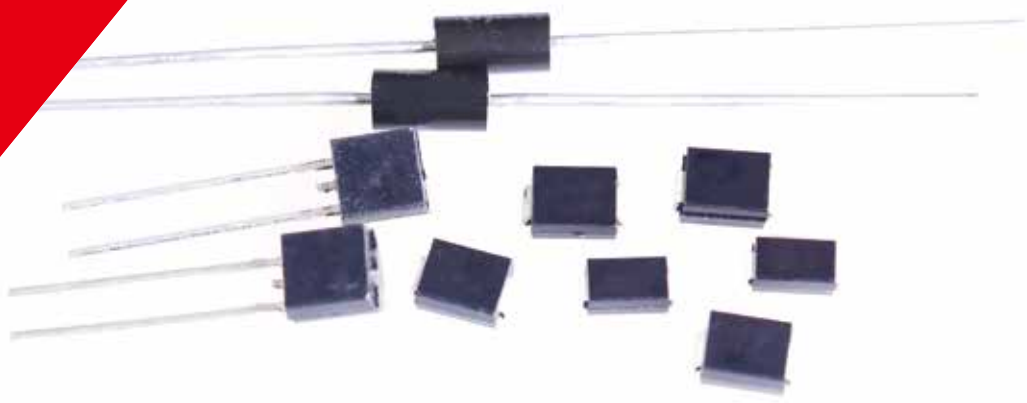
RUILON
ELECTRONICS



Thyristor Surge Suppressors

PxxxxEX Series
TO-92

361° Circuit Protection System

Specifications are subject to change without notice.

Please refer to http://www.ruilon.com.cn for current information.

RUILON
ELECTRONICS

Thyristor Surge Suppressors - PxxxxEX Series

Description

TO-92 Series are designed to protect baseband equipment such as modems, line cards, CPE and DSL from damaging overvoltage transients.

The series provides a cost-effective through-hole solution that enables equipment to comply with global regulatory standards.

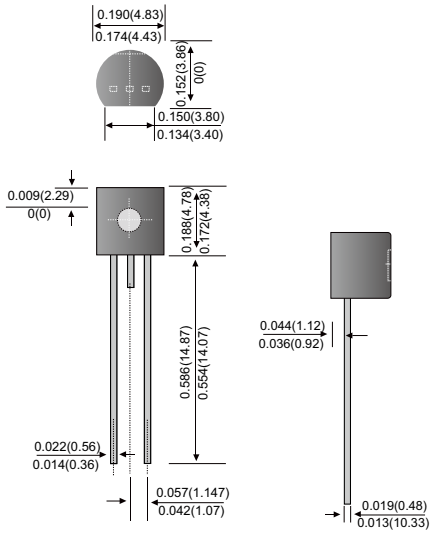
Features

Compared to surge suppression using other technologies, P 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

Dimensions

(mm)
(inches)



Part Number Code

P	x	x	x	x	X	X

Type	Breakdown Voltage	Type	Peak Pilse Current-Ipp 8/20μs
		S: SMB	A=150A
		T:SMA	B=250A
		E:TO-92	C=400A
		L:DO-15	

Thyristor Surge Suppressors - PxxxxEX Series

Electriacl Characteristics

Type Number	V_{DRM}	I_{DRM}	V_S	I_H	I_S	I_T	V_T	C_J	
	V	μA	V	MA	MA	A	V	pF_{Min}	pF_{Max}
P0080EA	6	5	25	50	800	2.2	4	25	150
P0080EB	6	5	25	50	800	2.2	4	25	150
P0080EC	6	5	25	50	800	2.2	4	35	260
P0300EA	25	5	40	50	800	2.2	4	15	140
P0300EB	25	5	40	50	800	2.2	4	15	140
P0300EC	25	5	40	50	800	2.2	4	25	250
P0640EA	58	5	77	150	800	2.2	4	40	60
P0640EB	58	5	77	150	800	2.2	4	40	60
P0640EC	58	5	77	150	800	2.2	4	55	155
P0720EA	65	5	88	150	800	2.2	4	35	60
P0720EB	65	5	88	150	800	2.2	4	35	75
P0720EC	65	5	88	150	800	2.2	4	50	150
P0900EA	75	5	98	150	800	2.2	4	35	55
P0900EB	75	5	98	150	800	2.2	4	35	70
P0900EC	75	5	98	150	800	2.2	4	45	140
P1100EA	90	5	130	150	800	2.2	4	30	50
P1100EB	90	5	130	150	800	2.2	4	30	70
P1100EC	90	5	130	150	800	2.2	4	45	115
P1300EA	120	5	160	150	800	2.2	4	25	45
P1300EB	120	5	160	150	800	2.2	4	25	60
P1300EC	120	5	160	150	800	2.2	4	40	105
P1500EA	140	5	180	150	800	2.2	4	25	40
P1500EB	140	5	180	150	800	2.2	4	25	55
P1500EC	140	5	180	150	800	2.2	4	35	95
P1800EA	170	5	220	150	800	2.2	4	25	35
P1800EB	170	5	220	150	800	2.2	4	25	50
P1800EC	170	5	220	150	800	2.2	4	35	90
P2300EA	190	5	260	150	800	2.2	4	25	35
P2300EB	190	5	260	150	800	2.2	4	25	50
P2300EC	190	5	260	150	800	2.2	4	30	80
P2600EA	220	5	300	150	800	2.2	4	20	35
P2600EB	220	5	300	150	800	2.2	4	20	45
P2600EC	220	5	300	150	800	2.2	4	30	80
P3100EA	275	5	350	150	800	2.2	4	20	35
P3100EB	275	5	350	150	800	2.2	4	20	45
P3100EC	275	5	350	150	800	2.2	4	30	70
P3500EA	320	5	400	150	800	2.2	4	20	35
P3500EB	320	5	400	150	800	2.2	4	20	40
P3500EC	320	5	400	150	800	2.2	4	25	65

Notes:
Is:Switching Current – maximum current required to switch to on state
IDRM:Leakage Current – maximum peak off-state current measured at VDRM
IH:Holding Current – minimum current required to maintain on state
IPP:Peak Pulse Current – maximum rated peak impulse current
IT:On-state Current – maximum rated continuous on-state current
VDRM:Peak Off-state Voltage – maximum voltage that can be applied while maintaining off state
VT:On-state Voltage – maximum voltage measured at rated on-state current
VS:Switching Voltage – maximum voltage prior to switching to on state

Thyristor Surge Suppressors - PxxxxEX Series

Surge Ratings

Series	Peak Pilse Current-Ipp(A)				
	2/10μs	8/20μs	10/160μs	10/560μs	10/1000μs
A	200	150	100	60	50
B	250	250	150	100	80
C	500	400	200	120	100

Thermal Considerations

Package	Symbol	Parameter	Value	Unit
 TO-92	TJ	Operating Junction Temperature	-40 to +150	℃
	TS	Storage Temperature Range	-40 to +150	℃
	RθJA	Junction to Ambient on printed circuit	90	℃/W

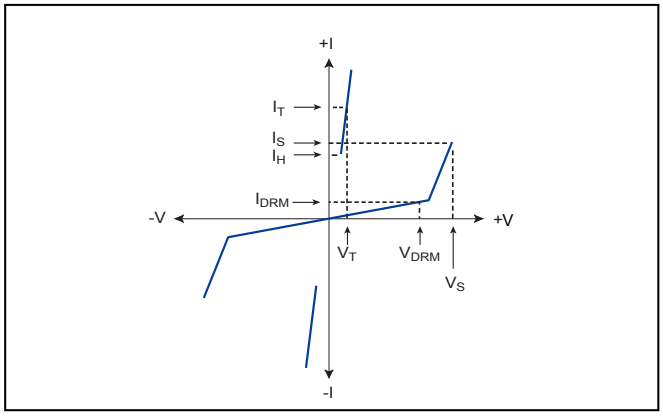
Thermal Considerations

Part Number	Description	Quantity
PXXXXEX	TO-92	1000 pcs

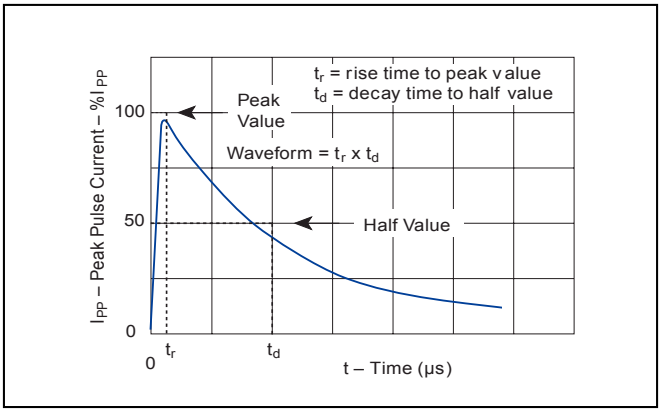
Thyristor Surge Suppressors - PxxxxEX Series

Characteristics Curves

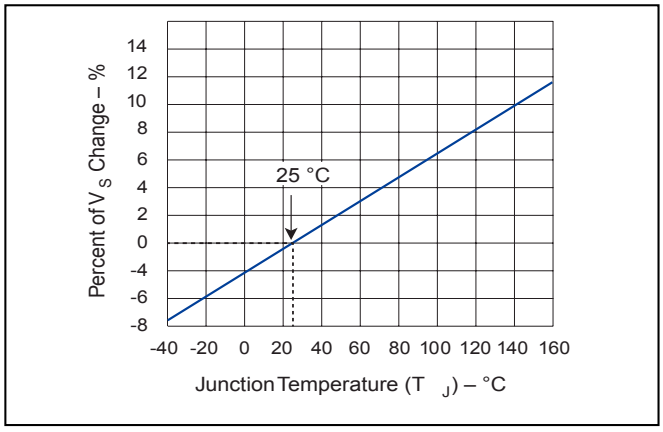
V-I Characteristics



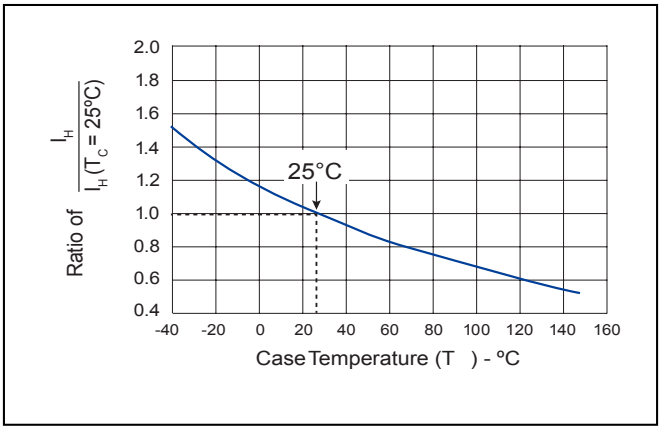
t_r x t_d Pulse Waveform



Normalized V_S Change vs. Junction Temperature



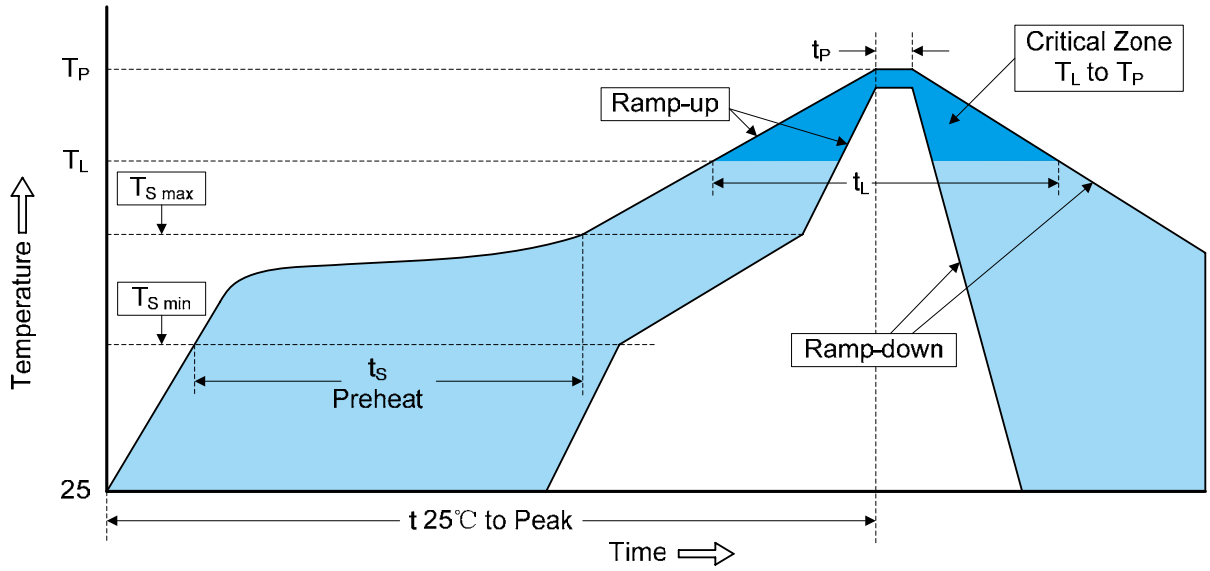
Normalized DC Holding Current vs. Case Temperature



Thyristor Surge Suppressors - PxxxxEX Series

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

RuiLongYuan Electronics Co., Ltd.

- Reproducing and modifying information of the document is prohibited without permission from Ruilongyuan International Inc.

- Ruilongyuan International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.

- Ruilongyuan International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.

- Ruilongyuan International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications.Ruilongyuan International Inc. makes no representation or warranty that such applications will be suitable for the specifed use without further testing or modifcation.

- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment,aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fullyindemnify Ruilongyuan International Inc. for any damages resulting from such improper use or sale.

Tel: +86-755-8290 8296 **Fax: +86-755-8290 8002** **E-mail: jack@ruilon.com**