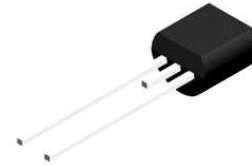


### Features

- Bi-directional crowbar transient voltage protection
- High surge capability
- High off-state impedance
- Low leakage current
- Low on-state voltage
- Short-circuit failure mode



TO-92

### Main Application

sanyan's thyristor surge protector devices are designed to help protect sensitive telecommunication equipment from the hazards caused by lightning ,power contact,and power induction. These devices enable equipment to comply with various regulatory requirements including GR 1089,ITU K.20,K.21and K.45,IEC 60950,UL 60950,and TIA-968-A(formerly known as FCC Part 68).

### Typical application including:

- Central office switching equipment. Analog and digital linecards(xDSL,T1/E1,ISDN.....)
- Customer Premises Equipment (CPE) such as phones, fax machines, modems, POS terminals, PBX systems and caller ID adjunct boxes.
- Primary protection modules including Main Distribution Frames (MDF), building entrance equipment and station protection modules.
- Access network equipment such as remote terminals, line repeaters, multiplexers, cross-connects, WAN equipment, Network Interface Devices (NID).
- Data lines and security systems.
- CATV line amplifiers and power inserters.
- Sprinkler systems.

### Electrical Parameters (Tamb=25°C)

Part Number	V <sub>DRM</sub>	I <sub>DRM</sub>	V <sub>BO</sub>	I <sub>BO</sub>	V <sub>T</sub>	I <sub>T</sub>	C <sub>o</sub>	I <sub>H</sub>
	Min.	Max.	Max.	Max.	Max.	Max.	Typ.	Min.
	V	uA	V	mA	V	A	pF	mA
P0080EA	6	5	25	800	4	2.2	55	50
P0300EA	25	5	40	800	4	2.2	55	50
P0640EA	58	5	77	800	4	2.2	45	120
P0720EA	65	5	88	800	4	2.2	45	120
P0900EA	75	5	98	800	4	2.2	40	120
P1100EA	90	5	130	800	4	2.2	40	120

Part Number	V <sub>DRM</sub>	I <sub>DRM</sub>	V <sub>BO</sub>	I <sub>BO</sub>	V <sub>T</sub>	I <sub>T</sub>	C <sub>O</sub>	I <sub>H</sub>
	Min.	Max.	Max.	Max.	Max.	Max.	Typ.	Min.
	V	uA	V	mA	V	A	pF	mA
P1300EA	120	5	160	800	4	2.2	40	120
P1500EA	140	5	180	800	4	2.2	40	120
P1800EA	170	5	220	800	4	2.2	40	120
P2000EA	180	5	220	800	4	2.2	35	120
P2300EA	190	5	260	800	4	2.2	35	120
P2600EA	220	5	300	800	4	2.2	30	120
P3100EA	275	5	350	800	4	2.2	30	120
P3500EA	320	5	400	800	4	2.2	25	120
P3800EA	360	5	460	800	4	2.2	25	120
P4200EA	400	5	540	800	4	2.2	25	120

## Electrical Characteristics

V<sub>DRM</sub> Stand-off voltage, is measured at I<sub>DRM</sub>

I<sub>H</sub> Holding current.

V<sub>BO</sub> Breakover voltage, is measured at 100V/μs.

I<sub>BO</sub> Breakover current.

C<sub>O</sub> Off-state capacitance is measured in V<sub>DC</sub>=2V@1MHz.

I<sub>T</sub> ON-state current

I<sub>DRM</sub> Leakage current, is measured at V<sub>DRM</sub>.

V<sub>T</sub> On-state voltage.

## Electrical Characteristics Curves

Figure1 V-I Characteristics

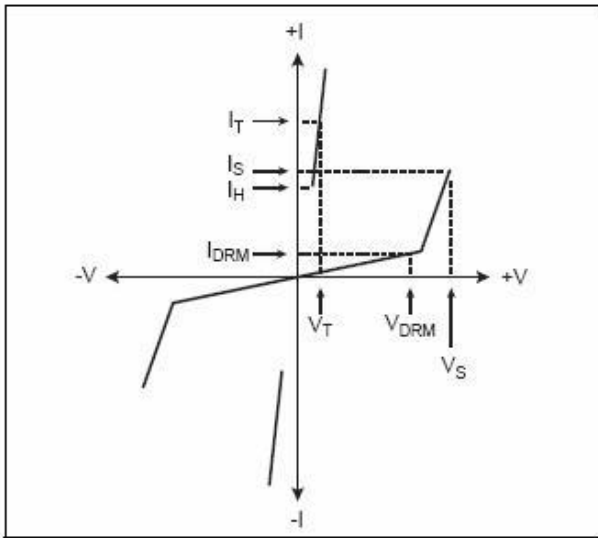


Figure2  $t_r \times t_d$  Pulse Wave-form

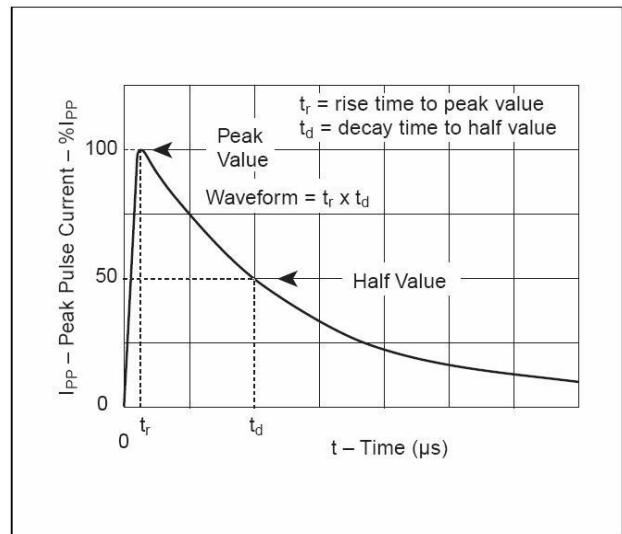


Figure 3 Normalized  $V_S$  Change versus Junction Temperature

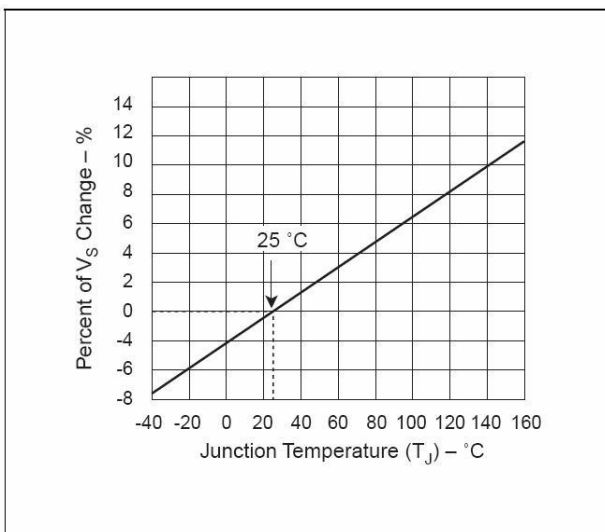
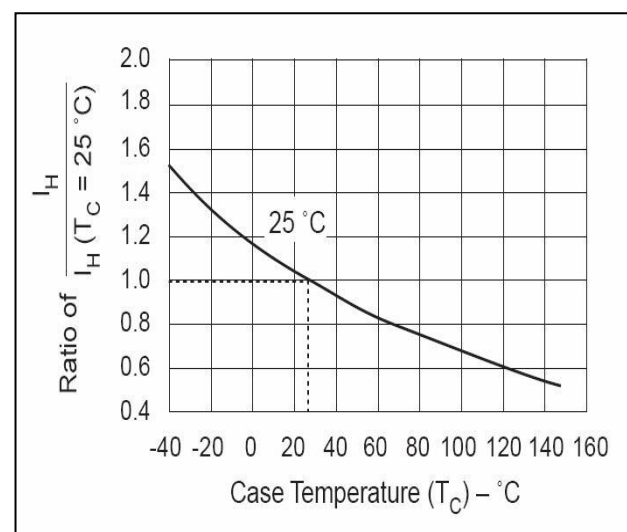



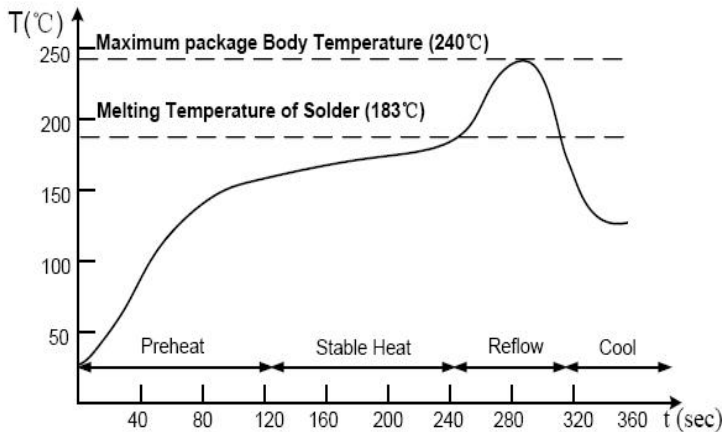
Figure 4 Normalized DC Holding Current



## Thermal Considerations

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

## Solder Reflow Recommendations

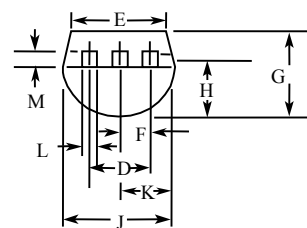
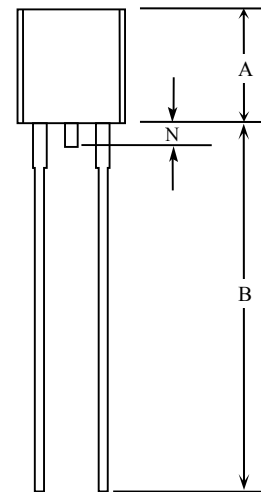


- Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder.
- The device can be exposed to a maximum temperature of 265°C for 10 seconds.
- Devices can be cleaned using standard industry methods and solvents.


**Notes:** If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

## Product Dimensions

Dimension	Inches		Millimeters	
	MIN	MAX		MIN
A	0.176	0.196	4.47	4.98
B	0.5		12.7	
D	0.095	0.105	2.41	2.67
E	0.15		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	4.73
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		0.063		1.6



## Summary of Packing Options

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