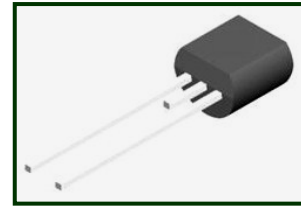


ELA'S TSS

TO-92 Series

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

ELA'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 Characteristics (Tamb=25°C)

Part Number	VDRM	IDRM	VBO	IBO	VT	IT	IH	CO		
	Min.	Max.	Max.	Max.	Max.	Max.	Min.	Max.		
	V	uA	V	mA	V	A	mA	pF		
								A	B	C
P0080E_	6	5	25	800	4	2.2	50	50	75	100
P0300E_	25	5	40	800	4	2.2	50	70	75	100
P0640E_	58	5	77	800	4	2.2	150	50	65	100
P0720E_	65	5	88	800	4	2.2	150	50	65	100
P0900E_	75	5	98	800	4	2.2	150	45	60	90
P1100E_	90	5	130	800	4	2.2	150	45	60	90
P1300E_	120	5	160	800	4	2.2	150	45	60	90
P1500E_	140	5	180	800	4	2.2	150	40	60	85
P1800E_	170	5	220	800	4	2.2	150	40	60	85
P2000E_	180	5	220	800	4	2.2	150	40	60	85
P2300E_	190	5	260	800	4	2.2	150	35	55	80
P2600E_	220	5	300	800	4	2.2	150	35	50	80
P3100E_	275	5	350	800	4	2.2	150	30	45	65
P3500E_	320	5	400	800	4	2.2	150	30	40	65
P3800E_	360	5	460	800	4	2.2	150	25	40	45
P4200E_	400	5	540	800	4	2.2	150	25	40	45

General Notes:

- ◆ All measurements are made at an ambient temperature of 25°C. Ipp applies to -40°C through +85°C temperature range.
- ◆ Special voltage (VBO and VDRM) and holding current (IH) requirements are available up on request.
- ◆ Off-state capacitance (Co) is measured at 1 MHz with a 2 V bias and is typical value.

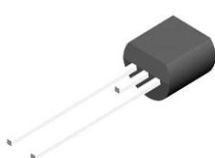
Electrical Parameters(Tamb=25°C)

Symbol	Parameter	Symbol	Parameter
V _{DRM}	Stand-off voltage, is measured at I _{DRM}	I _{DRM}	Leakage current, is measured at V _{DRM}
I _H	Holding current	I _T	ON-state current
V _{BO}	Breakover voltage, is measured at 100V/μs	C _O	Off-state capacitance is measured in VDC=2V@1MHZ
I _{BO}	Breadover current	V _T	On-state voltage

Surge Ratings

Series	I _{PP} 2x10 μs Amps	I _{PP} 8x20 μs Amps	I _{PP} 10x160 μs Amps	I _{PP} 10x560 μs Amps	I _{PP} 10x1000 μs Amps	I _{TSM} 60 Hz Amps	di/dt Amps/μs
A	150	150	90	50	45	20	500
B	250	250	250	200	80	30	500
C	500	400	200	150	100	50	500

Thermal Considerations

Package SMB(DO-214AA)	Symbol	Parameter	Value	Unit
	T _J	Operating Junction Temperature	-40 to +150	°C
	T _S	Storage Temperature Range	-40 to +150	°C
	R _{θJA}	Junction to Ambient on printed circuit	90	°C/W

Electrical Characteristics Curves

Figure1 V-I Characteristics

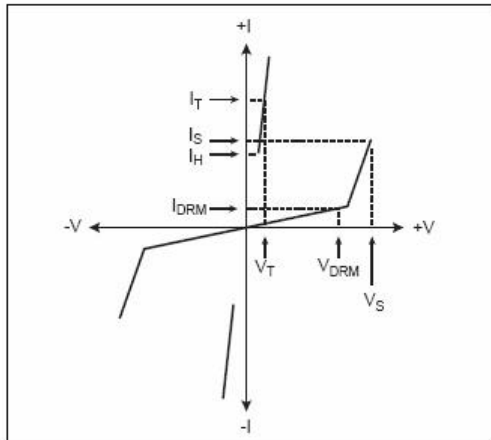


Figure 3 Normalized V_S Change versus Junction Temperature

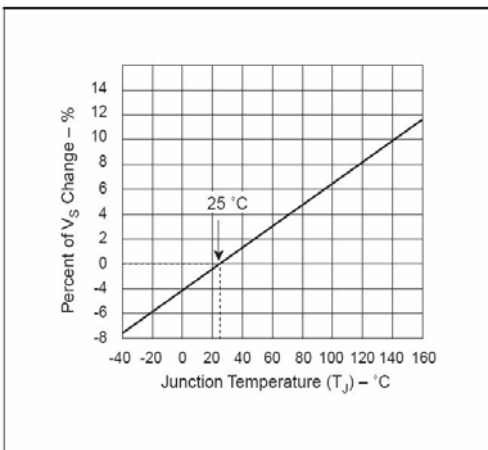


Figure2 $t_r \times t_d$ Pulse Wave-form

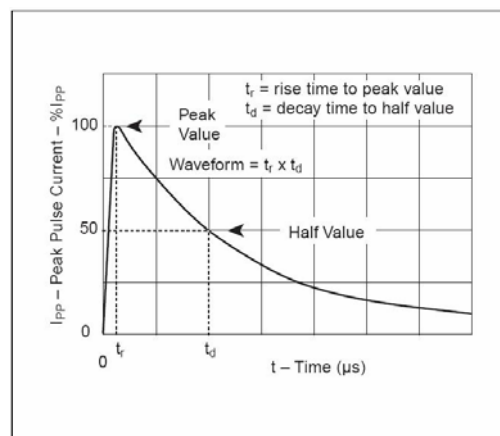
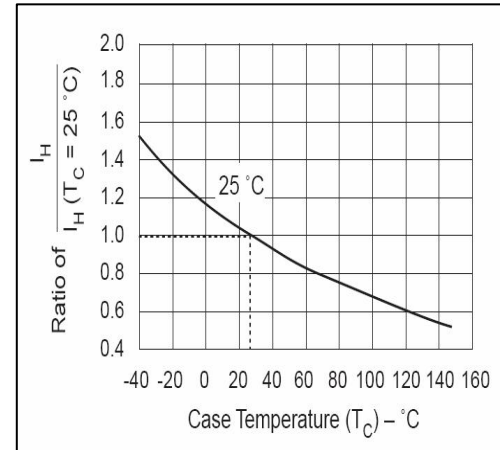
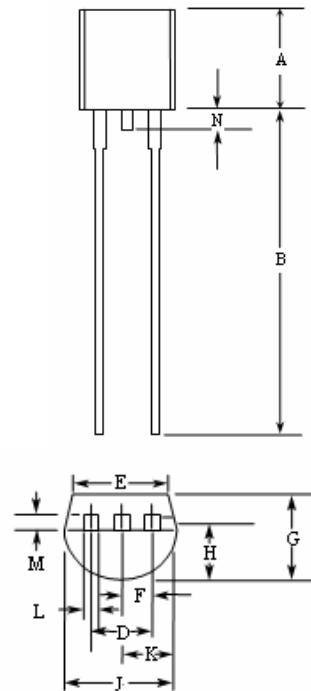


Figure 4 Normalized DC Holding Current versus Case Temperature




Product Dimensions

Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
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		0.06		1.52



Summary of Packing Options

Package Type	Description	Packing Quantity	Industry Standard
DO-214AA(SMB) 	Buck Pack	2000 PCS	N/A