



## ELA'S TSS

## SMA 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



DO-214AC(SMA)

### 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
P0080TA	6	5	25	800	4	2.2	50	50
P0300TA	25	5	40	800	4	2.2	50	70
P0640TA	58	5	77	800	4	2.2	150	50
P0720TA	65	5	88	800	4	2.2	150	50
P0900TA	75	5	98	800	4	2.2	150	45
P1100TA	90	5	130	800	4	2.2	150	45
P1300TA	120	5	160	800	4	2.2	150	45
P1500TA	140	5	180	800	4	2.2	150	40
P1800TA	170	5	220	800	4	2.2	150	40
P2000TA	180	5	220	800	4	2.2	150	40
P2300TA	190	5	260	800	4	2.2	150	35
P2600TA	220	5	300	800	4	2.2	150	35
P3100TA	275	5	350	800	4	2.2	150	30
P3500TA	320	5	400	800	4	2.2	150	30
P3800TA	360	5	460	800	4	2.2	150	25
P4200TA	400	5	540	800	4	2.2	150	25

### 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( $T_{amb}=25^{\circ}C$ )

Symbol	Parameter	Symbol	Parameter
$V_{DRM}$	Stand-off voltage, is measured at $I_{DRM}$	$I_H$	Holding current
$I_{DRM}$	Leakage current, is measured at $V_{DRM}$	$I_T$	ON-state current
$V_{BO}$	Breakover voltage, is measured at $100V/\mu s$	$V_T$	On-state voltage
$I_{BO}$	Breadover current	$C_O$	Off-state capacitance is measured in $V_{DC}=2V@1MHz$

## Surge Ratings

Series	$I_{PP}$ 2x10 $\mu s$ Amps	$I_{PP}$ 8x20 $\mu s$ Amps	$I_{PP}$ 10x160 $\mu s$ Amps	$I_{PP}$ 10x560 $\mu s$ Amps	$I_{PP}$ 10x1000 $\mu s$ Amps	$I_{TSM}$ 60 Hz Amps	di/dt Amps/ $\mu s$
A	150	150	90	50	45	20	500

## Thermal Considerations

Package SMA(DO-214AC)	Symbol	Parameter	Value	Unit
	$T_J$	Operating Junction Temperature	-40 to +150	$^{\circ}C$
	$T_S$	Storage Temperature Range	-40 to +150	$^{\circ}C$
	$R_{\theta JA}$	Junction to Ambient on printed circuit	90	$^{\circ}C/W$

## Electrical Characteristics Curves

Figure1 V-I Characteristics

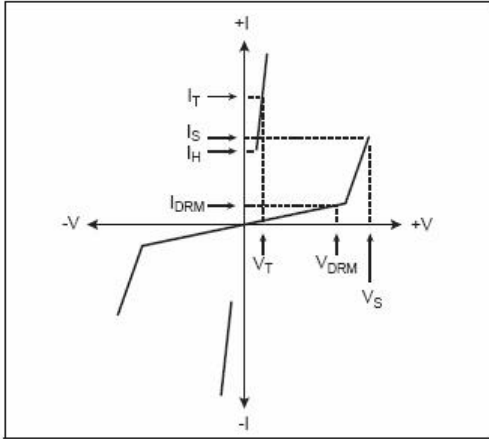


Figure 3 Normalized  $V_S$  Change versus Junction Temperature

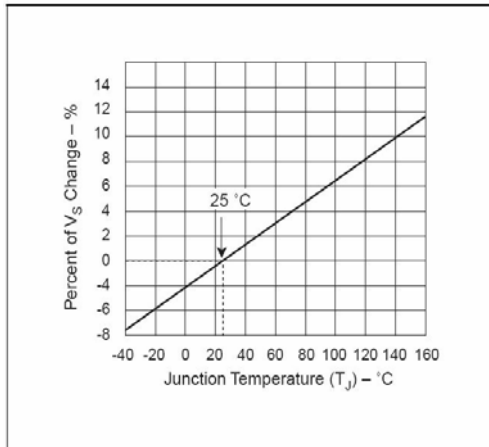


Figure2  $t_r \times t_d$  Pulse Wave-form

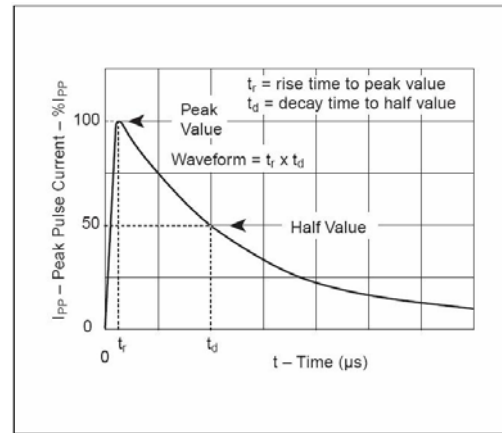
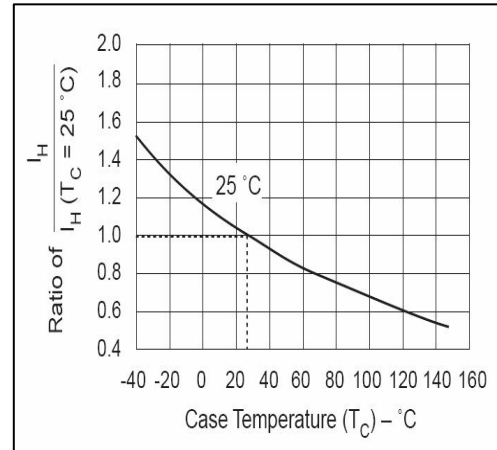


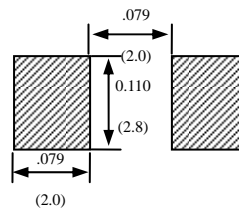
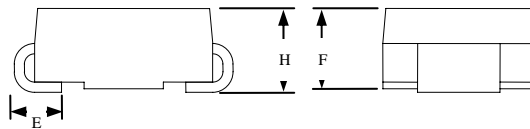
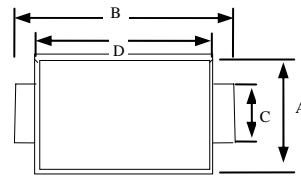
Figure 4 Normalized DC Holding Current versus Case Temperature






## Product Dimensions

Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.098	0.114	2.50	2.90
B	0.188	0.208	4.80	5.28
C	0.055	0.062	1.40	1.60
D	0.157	0.181	4.00	4.60
E	0.030	0.060	0.76	1.52
F	0.078	0.096	2.00	2.44
H	0.080	0.104	2.051	2.643



## Summary of Packing Options

Package Type	Description	Packing Quantity	Industry Standard
DO-214AC(SMA) 	Embossed Carrier Reel Pack	5000PCS	EIA-481-D