



## ELA'S TSS

## DO-41/15/27 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-41/15/27

### 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
P0080L_	6	5	25	800	4	2.2	50	50	75	100
P0300L_	25	5	40	800	4	2.2	50	70	75	100
P0640L_	58	5	77	800	4	2.2	150	50	65	100
P0720L_	65	5	88	800	4	2.2	150	50	65	100
P0900L_	75	5	98	800	4	2.2	150	45	60	90
P1100L_	90	5	130	800	4	2.2	150	45	60	90
P1300L_	120	5	160	800	4	2.2	150	45	60	90
P1500L_	140	5	180	800	4	2.2	150	40	60	85
P1800L_	170	5	220	800	4	2.2	150	40	60	85
P2000L_	180	5	220	800	4	2.2	150	40	60	85
P2300L_	190	5	260	800	4	2.2	150	35	55	80
P2600L_	220	5	300	800	4	2.2	150	35	50	80
P3100L_	275	5	350	800	4	2.2	150	30	45	65
P3500L_	320	5	400	800	4	2.2	150	30	40	65
P3800L_	360	5	460	800	4	2.2	150	25	40	45
P4200L_	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( $T_{amb}=25^{\circ}C$ )

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 $100V/\mu s$	$C_o$	Off-state capacitance is measured in $V_{DC}=2V@1MHz$
$I_{BO}$	Breadover current	$V_T$	On-state voltage

## 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
B	250	250	250	200	80	30	500
C	500	400	200	150	100	50	500

## Thermal Considerations

Package DO-41/15/27	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	70	$^{\circ}C/W$



## Electrical Characteristics Curves

Figure1 V-I Characteristics

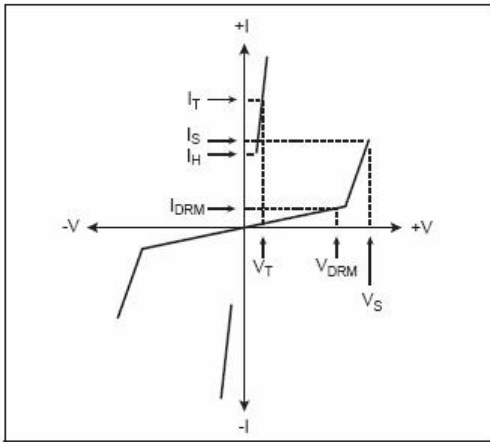


Figure 3 Normalized  $V_S$  Change versus Junction Temperature

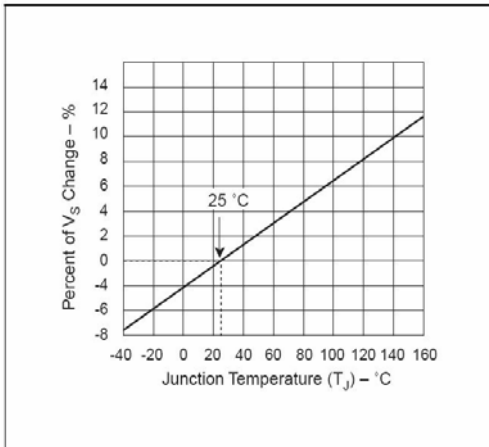


Figure2  $t_r \times t_d$  Pulse Wave-form

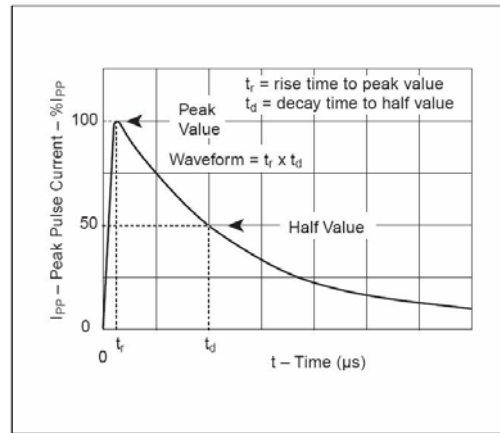
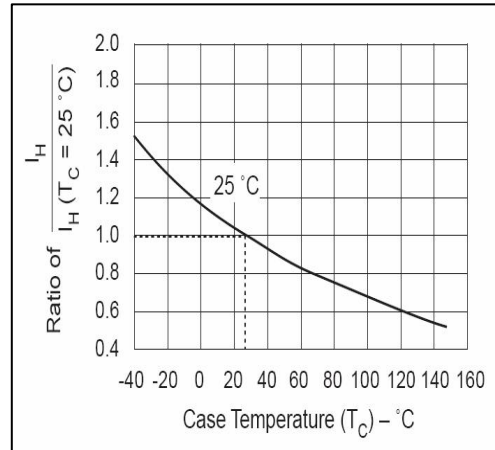
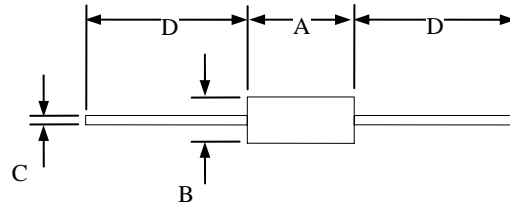


Figure 4 Normalized DC Holding Current versus Case Temperature





## Product Dimensions



**DO-41**

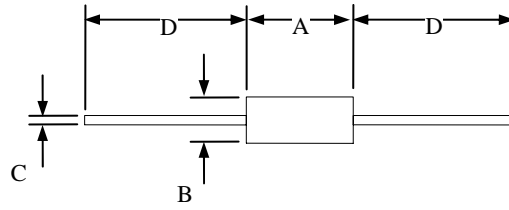
Dimension	Inches		Millimeters		NOTE
	MIN	MAX	MIN	MAX	
A	0.166	0.205	4.10	5.20	
B	0.080	0.107	2.00	2.70	Φ
C	0.028	0.034	0.70	0.90	Φ
D	1.000		25.40		

**DO-15**

Dimension	Inches		Millimeters		NOTE
	MIN	MAX	MIN	MAX	
A	0.230	0.300	5.80	7.60	
B	0.104	0.140	2.60	3.60	Φ
C	0.026	0.034	0.70	0.90	Φ
D	1.000		25.40		




## Product Dimensions



### DO-27

Dimension	Inches		Millimeters		NOTE
	MIN	MAX	MIN	MAX	
A		0.370		9.50	
B		0.250		6.40	$\phi$
C	0.048	0.052	1.20	1.30	$\phi$
D	1.000		25.40		

## Summary of Packing Options

Package Type	Description	Packing Quantity			Industry Standard
		DO-41	DO-15	DO-27	
DO-41/15/27	Tape and Reel Pack	DO-41	DO-15	DO-27	N/A
		5000PCS	4000PCS	1200PCS	