

# Thyristor Surge Suppressors : TSSxxxxTA Series

SMD Type, SMA/DO-214AC @10/700 $\mu$ S, 3KV



## ■ Features

1. Precious and stable voltage
2. Low leakage current
3. Low on-state voltage
4. Low capacitance
5. Component fails short circuit when surged in excess of ratings
6. Component properties do not degrade after multiple surge events within its limits
7. RoHS Compliant and Halogen-Free



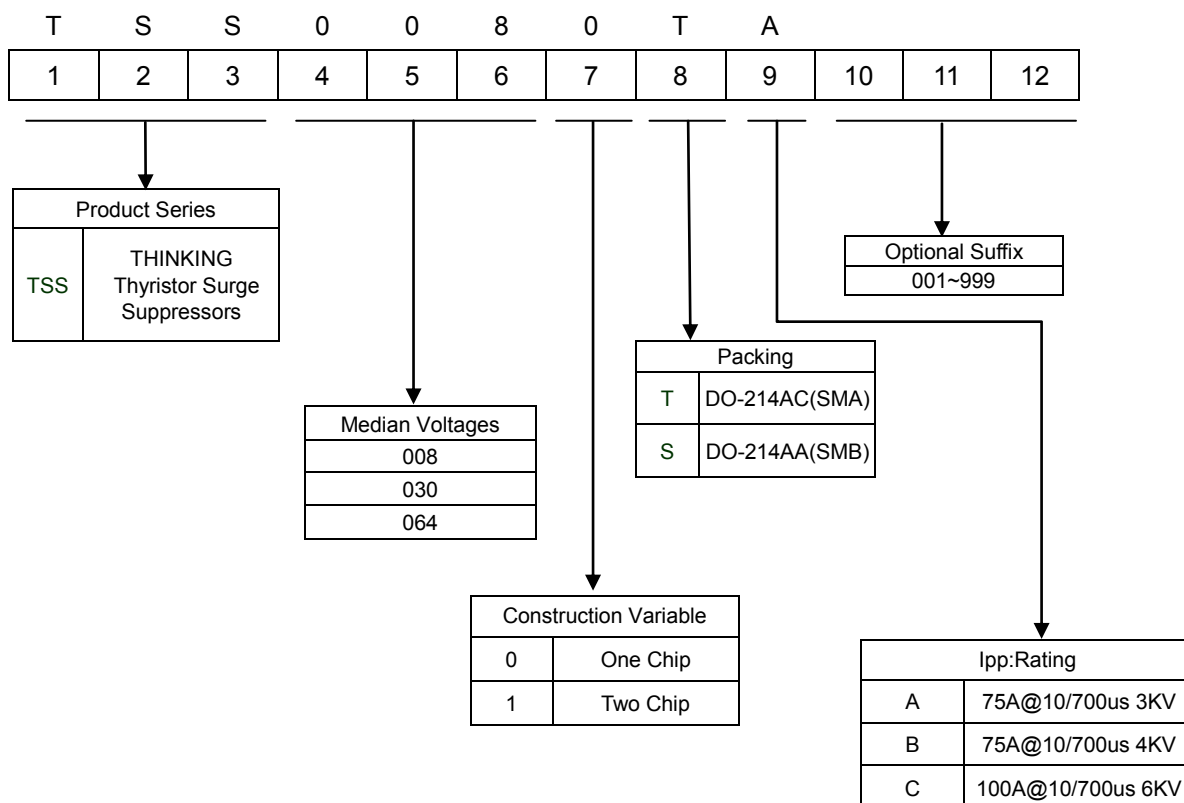
## ■ Recommended Applications

1. Communications equipment (RS232/RS485/RJ45/RJ11/COAXIAL)
2. Alarm/Camera
3. Component is used in series with an appropriate overvoltage clamp device to protect a power supply from damage due to an overvoltage condition on its AC input lines.

## ■ Mechanical Data

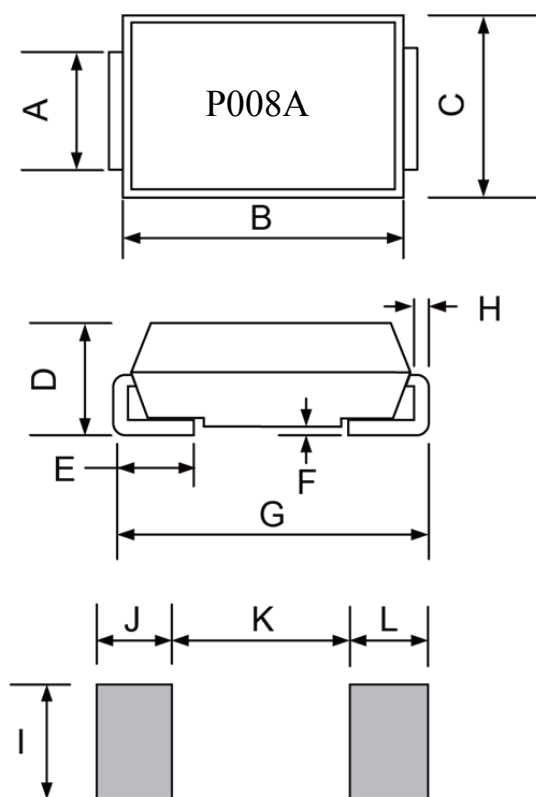
1. Case: DO-214AC molded plastic
2. Epoxy: UL 94V-0 rate flame retardant

## ■ Part Number Code

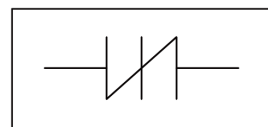


### Structures and Dimensions

#### SMA/DO-214AC



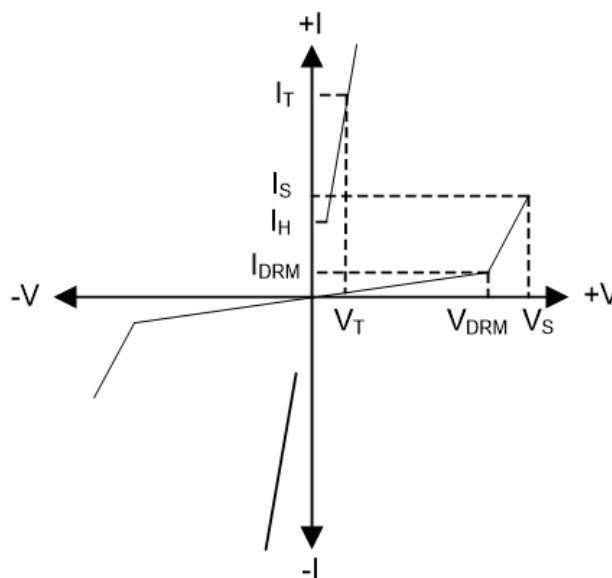
#### Schematic Symbol



Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.80	0.055	0.071
B	3.90	4.60	0.154	0.181
C	2.50	2.80	0.100	0.110
D	1.90	2.45	0.075	0.096
E	0.76	1.52	0.030	0.060
F	-	0.203	-	0.008
G	4.80	5.28	0.188	0.208
H	0.145	0.255	0.006	0.010
I	1.800	-	0.070	-
J/L	2.100	-	0.082	-
K	-	2.300	-	0.090

### Electrical Parameters

Parameter	Definition
VDRM	Peak Off-state Voltage: maximum voltage that can be applied while maintaining off state
VS	Switching Voltage: maximum voltage prior to switching to on state
VT	On-state Voltage: maximum voltage measured at rated on-state current
IDRM	Leakage Current: maximum peak off-state current measured at VDRM
IS	Switching Current: maximum current required to switch to on state
IT	On-state Current: maximum rated continuous on-state current
IH	Holding Current: minimum current required to maintain on state
CO	Off-state Capacitance: typical capacitance measured in off state



V-I Characteristic

# Thyristor Surge Suppressors : TSSxxxxTA Series



**SMD Type, SMA/DO-214AC @10/700μS, 3KV**

## ■ Electrical Characteristics

Part Number	Marking	Peak Off-state Voltage	Switching Voltage	On-state Voltage	Leakage Current	Switching Current	On-state Current	Holding Current	Off-state Capacitance	Peak Pulse Voltage	Peak Pulse Current
		VDRM@ IDRM=5uA	VS@ 100V/us	VT@ IT=2.2A	IDRM	IS	IT	IH	CO@ 1MHz	VPP@ 10/700us	IPP@ 10/700us
		(V)min	(V)max	(V)max	(uA)max	(mA)max	(A)max	(mA)min	(pF)max	(V)	(A)
TSS0080TA	P008A	6	25	4	5	800	2.2	50	50	3000	75
TSS0300TA	P030A	25	40	4	5	800	2.2	50	70	3000	75
TSS1300TA	P130A	120	160	4	5	800	2.2	150	45	3000	75
TSS2300TA	P230A	190	260	4	5	800	2.2	150	35	3000	75

Note:

- (1) Absolute maximum ratings measured at TA= 25°C (unless otherwise noted).
- (2) Devices are bi-directional.
- (3) IPP ratings are applicable to temperature ranged from -40°C to +85°C.
- (4) Off-state capacitance (CO) is measured at 1 MHz with a 2 V bias, and which is a typical value.

## ■ Thermal Considerations

Package	Symbol	Parameter	Value	Unit
SMA/DO-214AC	TJ	Operating Junction Temperature	-40 to +150	°C
	Ts	Storage Temperature Range	-40 to +150	°C
	RJA	Junction to Ambient on printed circuit	105	°C/W

### ■ Characteristics Curves

Figure 1.V-I Characteristic

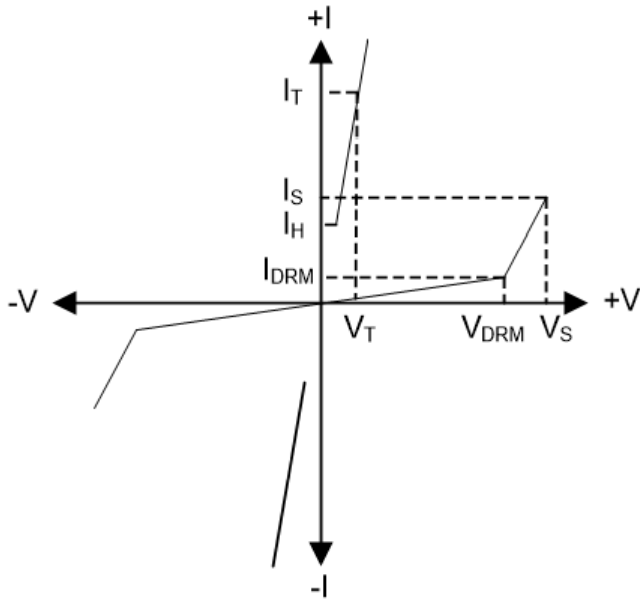


Figure 2. tr x td Pulse Wave-form

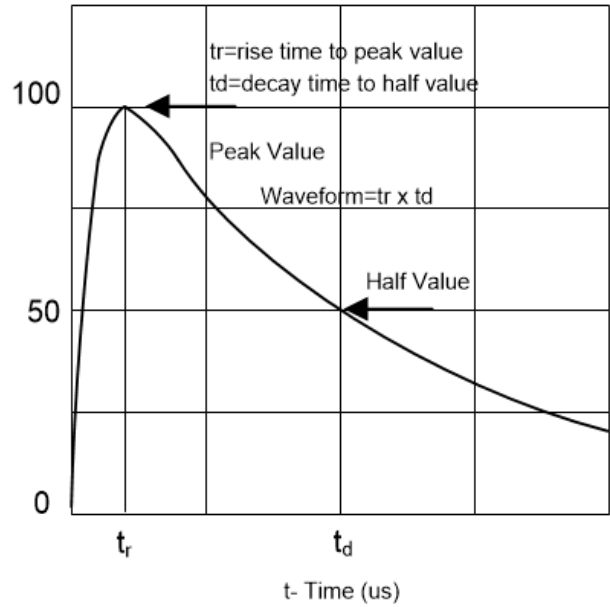


Figure 3. Normalized  $V_S$  Change versus Junction Temperature

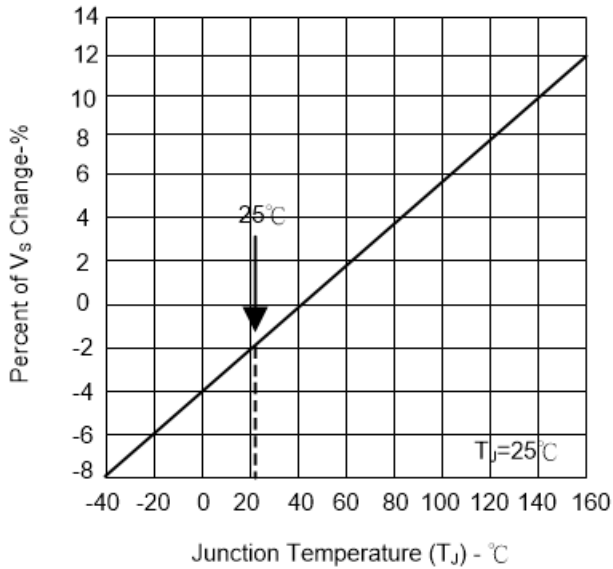
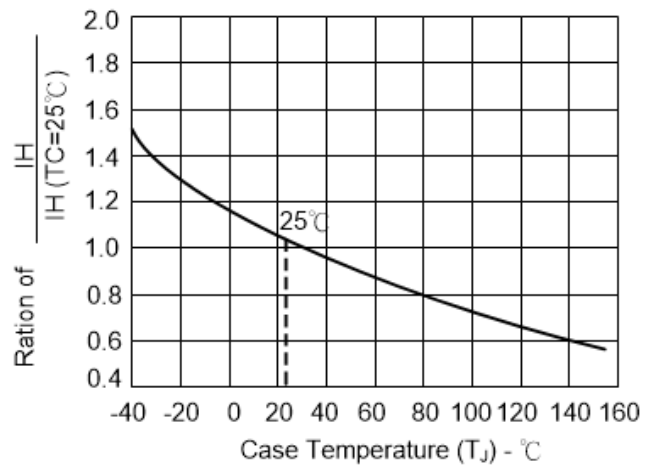
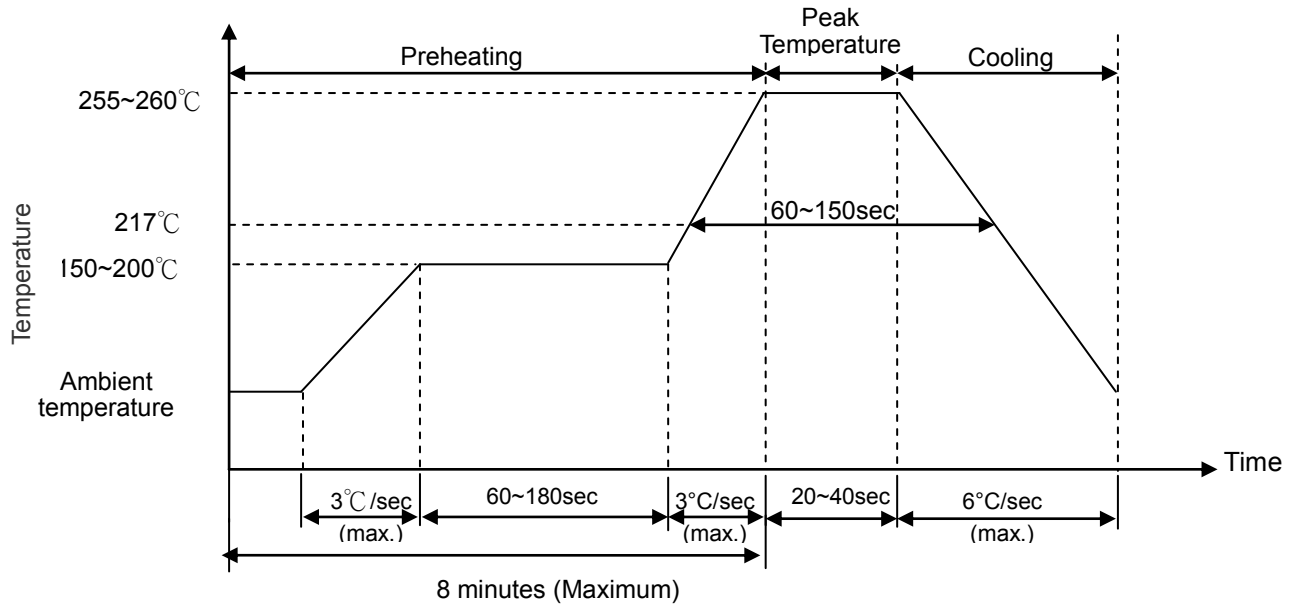


Figure 4. Normalized DC Holding Current versus Case Temperature



### ■ Soldering Recommendation

#### ● IR-reflow soldering profile



#### ● Recommended Reworking Conditions with Soldering Iron

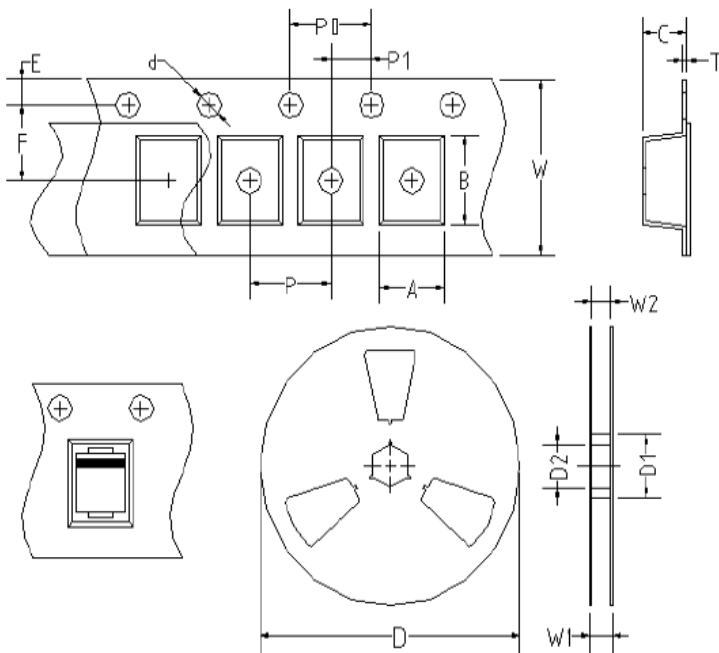
Item	Conditions
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	3 sec (max.)
Diameter of Soldering Iron-tip	Φ 3mm (max.)

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## ■ Packaging



Item	Symbol	SMA/DO-214AC
		Unit: mm
Carrier width	A	3.77±0.15
Carrier length	B	5.70±0.15
Carrier depth	C	2.45±0.15
Sprocket hole	d	1.55±0.10
Reel outside diameter	D	330±1.0
Reel inner diameter	D1	75±1.0
Feed hole diameter	D2	13.5±1.0
Sprocket hole position	E	1.75±0.1
Punch hole position	F	5.50±0.05
Sprocket hole pitch	P	8.00±0.10
Carrier pitch	P0	4.00±0.10
Embossment center	P1	2.00±0.10
Tape thickness	T	0.30±0.10
Tape width	W	12.00±0.15
Reel width	W1	18.1±1.5
Reel inner width	W2	13.5±1.0

## ■ Quantity

**MPQ: 5,000pcs**

Package Type	Reel Diameters	Reel
	(mm)	PCS
SMA/DO-214AC	330	5,000

## ■ Warehouse Storage Conditions of Product

- Storage Condition:
  - 1.Storage Temperature: -10°C~+40°C
  - 2.Working Temperature:- 40°C~+85°C
  - 3.Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year