

## SMD Thyristor Surge Protector

### Features

- Low Capacitance for T1/E1 Trunk and Line Card Application
- High Surge Current Capability
- Peak Off-State Voltage from 6 to 320 volts
- Symmetrical Characteristics
- Glass Passivated Chip
- RoHS Compliant



SMB  
(DO-214AA)



### Applications

- AC Line Surge Protection
- Driver Circuit for SPS and Voltage Detection Circuits
- Pulse Generation in Gas Igniters



### Mechanical Data

<b>Case:</b>	JEDEC SMB (DO-214AA)
<b>Epoxy:</b>	Plastic package has UL flammability classification 94V-0
<b>Terminals:</b>	Solderable per MIL-STD-750, Method 2026
<b>Standard Packaging:</b>	12mm tape (EIA STD RS-481)
<b>Weight:</b>	0.003 ounce, 0.093 gram

# SMD Thyristor Surge Protector

## TSPB008A-TSPB350C

### Electrical Characteristics ( $T_{Ambient}=25^{\circ}C$ unless noted otherwise)

P/N	Marking Code	Repetitive Peak Off-State Voltage	Max. Breakover Voltage @I <sub>BO</sub>	Min. Holding Current	Breakover Current	Max. Leakage Current @V <sub>DRM</sub>	Max. On-State Voltage @I <sub>T</sub>	On-State Current	Max. Capacitance @2V, 1MHz
		V <sub>DRM</sub> (V)	V <sub>BO</sub> (V)	I <sub>H</sub> (mA)	I <sub>BO</sub> (mA)	I <sub>DRM</sub> (μA)	V <sub>T</sub> (V)	I <sub>T</sub> (A)	C <sub>o</sub> (pF)
TSPB008A	P008A	6	25	50	800	5	4	2.2	150
TSPB022A	P022A	15	32	50	800	5	4	2.2	150
TSPB030A	P030A	25	40	50	800	5	4	2.2	140
TSPB064A	P064A	58	77	150	800	5	4	2.2	60
TSPB072A	P072A	65	88	150	800	5	4	2.2	60
TSPB090A	P090A	75	98	150	800	5	4	2.2	55
TSPB110A	P110A	90	130	150	800	5	4	2.2	50
TSPB130A	P130A	120	160	150	800	5	4	2.2	45
TSPB150A	P150A	140	180	150	800	5	4	2.2	45
TSPB180A	P180A	170	220	150	800	5	4	2.2	50
TSPB210A	P210A	180	240	150	800	5	4	2.2	50
TSPB230A	P230A	190	260	150	800	5	4	2.2	50
TSPB260A	P260A	220	300	150	800	5	4	2.2	50
TSPB310A	P310A	275	350	150	800	5	4	2.2	45
TSPB350A	P350A	320	400	150	800	5	4	2.2	45
TSPB008B	P008B	6	25	50	800	5	4	2.2	80
TSPB022B	P022B	15	32	50	800	5	4	2.2	100
TSPB030B	P030B	25	40	50	800	5	4	2.2	140
TSPB064B	P064B	58	77	150	800	5	4	2.2	80
TSPB072B	P072B	65	88	150	800	5	4	2.2	75
TSPB090B	P090B	75	98	150	800	5	4	2.2	70
TSPB110B	P110B	90	130	150	800	5	4	2.2	70
TSPB130B	P130B	120	160	150	800	5	4	2.2	70
TSPB150B	P150B	140	180	150	800	5	4	2.2	70
TSPB180B	P180B	170	220	150	800	5	4	2.2	70
TSPB210B	P210B	180	240	150	800	5	4	2.2	70

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## TSPB008A-TSPB350C

P/N	Marking Code	Repetitive Peak Off-State Voltage	Max. Breakover Voltage @I <sub>BO</sub>	Min. Holding Current	Breakover Current	Max. Leakage Current @V <sub>DRM</sub>	Max. On-State Voltage @I <sub>T</sub>	On-State Current	Max. Capacitance @2V, 1MHz
		V <sub>DRM</sub> (V)	V <sub>BO</sub> (V)	I <sub>H</sub> (mA)	I <sub>BO</sub> (mA)	I <sub>DRM</sub> (μA)	V <sub>T</sub> (V)	I <sub>T</sub> (A)	C <sub>o</sub> (pF)
TSPB230B	P230B	190	260	150	800	5	4	2.2	70
TSPB260B	P260B	220	300	150	800	5	4	2.2	70
TSPB310B	P310B	275	350	150	800	5	4	2.2	65
TSPB350B	P350B	320	400	150	800	5	4	2.2	55
TSPB008C	P008C	6	25	150	800	5	4	2.2	100
TSPB022C	P022C	15	32	150	800	5	4	2.2	110
TSPB030C	P030C	25	40	150	800	5	4	2.2	80
TSPB064C	P064C	58	77	150	800	5	4	2.2	155
TSPB072C	P072C	65	88	150	800	5	4	2.2	150
TSPB090C	P090C	75	98	150	800	5	4	2.2	140
TSPB110C	P110C	90	130	150	800	5	4	2.2	115
TSPB130C	P130C	120	160	150	800	5	4	2.2	115
TSPB150C	P150C	140	180	150	800	5	4	2.2	115
TSPB180C	P180C	170	220	150	800	5	4	2.2	110
TSPB210C	P210C	180	240	150	800	5	4	2.2	110
TSPB230C	P230C	190	260	150	800	5	4	2.2	120
TSPB260C	P260C	220	300	150	800	5	4	2.2	120
TSPB310C	P310C	275	350	150	800	5	4	2.2	110
TSPB350C	P350C	320	400	150	800	5	4	2.2	110

# SMD Thyristor Surge Protector

## TSPB008A-TSPB350C

### Surge Ratings

Series	IPP 2*10 $\mu$ S (A)	IPP 8*20 $\mu$ S (A)	IPP 10*160 $\mu$ S (A)	IPP 10*560 $\mu$ S (A)	IPP 10*1000 $\mu$ S (A)	ITSM 50/60Hz (A)	di/dt (A/ $\mu$ S)
TSPBxxxA	150	150	90	50	50	20	500
TSPBxxxB	250	250	150	100	75	25	500
TSPBxxxC	500	400	200	150	100	30	500

Note: 1. Peak pulse current rating (Ipp) is nonrepetitive and guaranteed for the life of the product.

2. Ipp ratings applicable over temperature range of -40 °C to +85 °C.

3. The device must initially be in thermal equilibrium with -40 °C < Tj < +150 °C.

4. Current waveform and voltage waveform in  $\mu$ S.

### Thermal Characteristics

Symbol	Rating	Value	Unit
TSTG	Storage Temperature Range	-65 to +150	° C
TJ	Operating Junction Temperature Range	-40 to +150	° C
R $\theta$ -JA	Thermal Resistance Junction to Ambient	90	° C/W

# SMD Thyristor Surge Protector

## TSPB008A-TSPB350C

### Typical Characteristics Curves

Fig.1- Exponential Decay Pulse Waveform

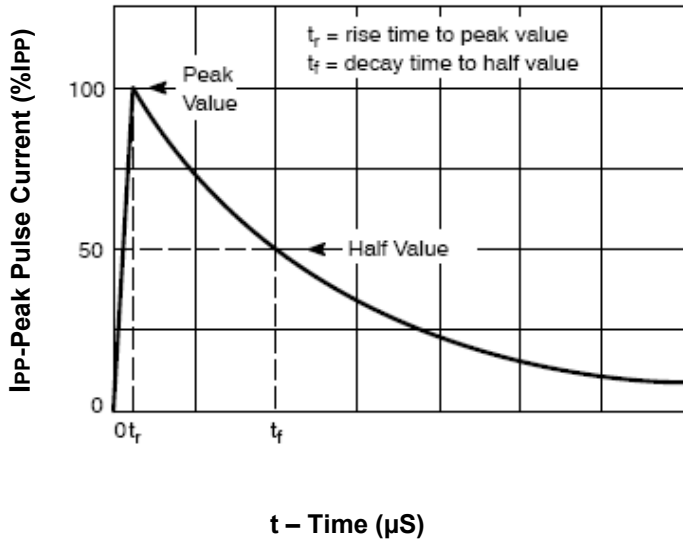
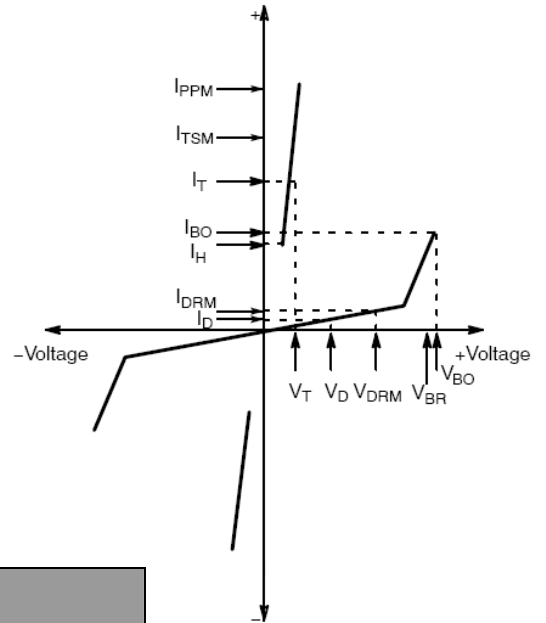


Fig.2- V - I Voltage Current Characteristics



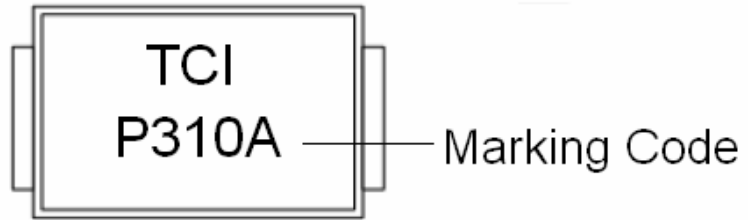
**Note:**

Symbol	Parameter
VBO	Breakover Voltage
IBO	Breakover Current
VDRM	Repetitive Peak Off-State Voltage
IDRM	Off-State Current
IH	Holding Current
VT	On-State Voltage
IT	On-State Current
VBR	Breakdown Voltage
IPPM	Nonrepetitive Peak Impulse Current
ITSM	Nonrepetitive Peak On-state Current
VD	Off-State Voltage
ID	Off-State Current

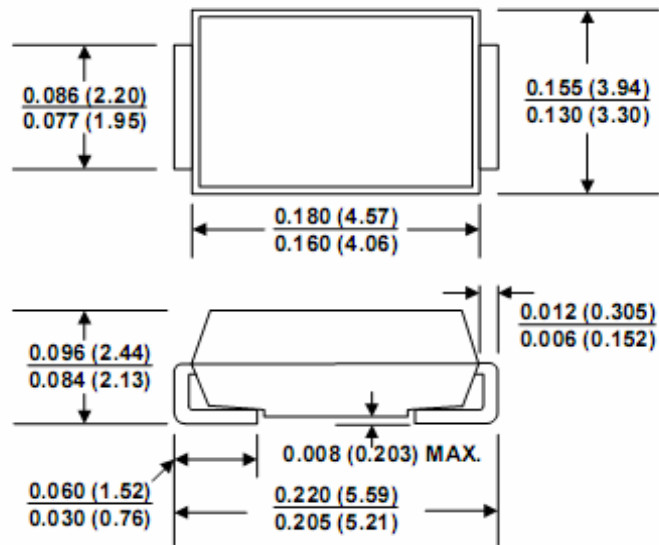
# SMD Thyristor Surge Protector

TSPB008A-TSPB350C

## Marking Information:



## Dimensions in inch (mm)

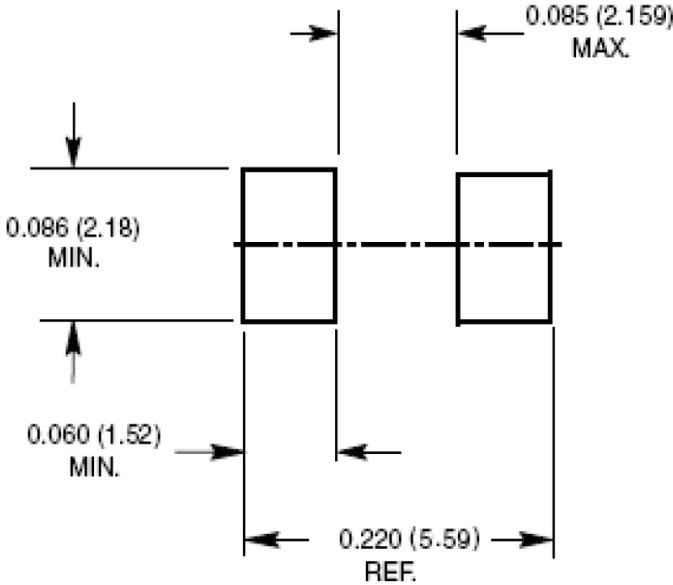


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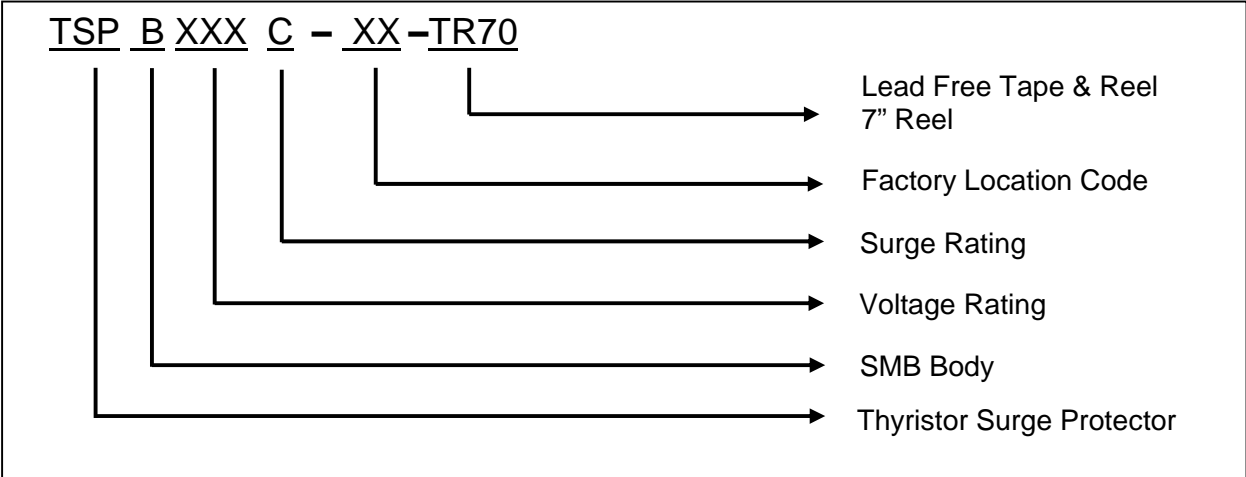
# SMD Thyristor Surge Protector

## TSPB008A-TSPB350C

### Soldering Pad in inch (mm)



### Ordering Information



# SMD Thyristor Surge Protector

## TSPB008A-TSPB350C

### How to contact us:

#### **US HEADQUARTERS**

28040 WEST HARRISON PARKWAY, VALENCIA, CA 91355-4162

Tel: (800) TAITRON (800) 824-8766 (661) 257-6060

Fax: (800) TAITFAX (800) 824-8329 (661) 257-6415

Email: [taitron@taitroncomponents.com](mailto:taitron@taitroncomponents.com)

Http://[www.taitroncomponents.com](http://www.taitroncomponents.com)

#### **TAITRON COMPONENTS MEXICO, S.A .DE C.V.**

BOULEVARD CENTRAL 5000 INTERIOR 5 PARQUE INDUSTRIAL ATITALAQUIA, HIDALGO C.P.  
42970 MEXICO

Tel: +52-55-5560-1519

Fax: +52-55-5560-2190

#### **TAITRON COMPONENTS INCORPORATED REPRESENTAÇÕES DO BRASIL LTDA**

RUA DOMINGOS DE MORAIS, 2777, 2.ANDAR, SALA 24 SAÚDE - SÃO PAULO-SP 04035-001 BRAZIL

Tel: +55-11-5574-7949

Fax: +55-11-5572-0052

#### **TAITRON COMPONENTS INCORPORATED, SHANGHAI REPRESENTATIVE OFFICE**

METROBANK PLAZA, 1160 WEST YAN' AN ROAD, SUITE 1503, SHANGHAI, 200052, CHINA

Tel: +86-21-5424-9942

Fax: +86-21-5424-9931