



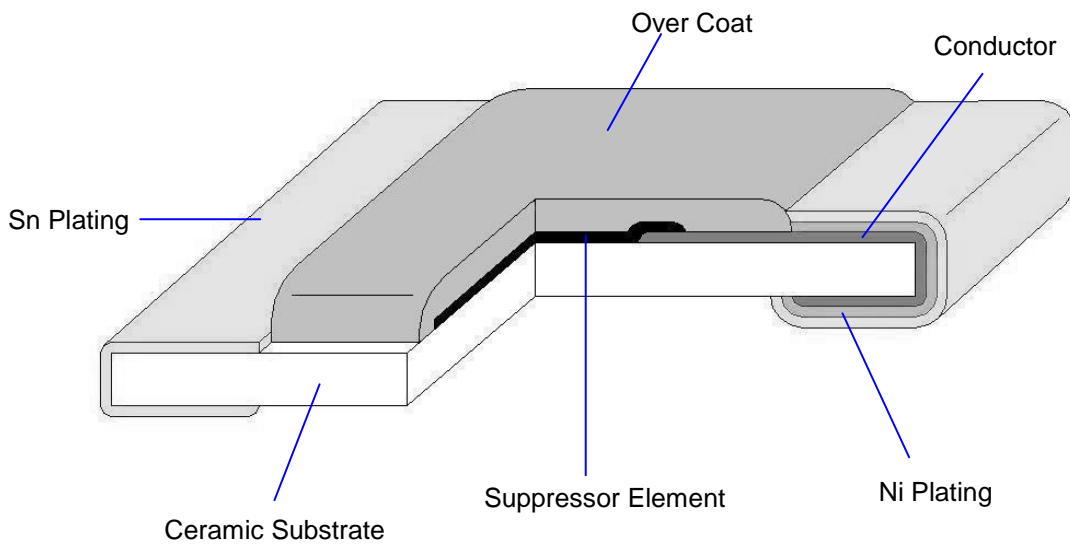
## Transient Voltage Suppressor (Low Capacitance)

Document No	TTVS-XX0S001B
Issued date	2012/10/17
Page	1/8

### 1. Scope

Bi-directional transient voltage suppressor(TVS) produced by Ta-I technology is designed for data line ESD protection in sensitive electronic circuit. This TVS is suitable for high data transmission applications because of its low device capacitance of lower than 1 pF.

### 2. Construction



### 3. Type Designation

TVS	06	A	12	T	30
Transient Voltage Suppressor	Size 04:0402(1005) 06:0603(1608)	A: Suit for IEC61000-4-2	Maximum Working Voltage 12:12V	Packaging T: Paper tape(5K/10K)	Typical Clamping Voltage 30



## Transient Voltage Suppressor (Low Capacitance)

Document No	TTVS-XX0S001B
Issued date	2012/10/17
Page	2/8

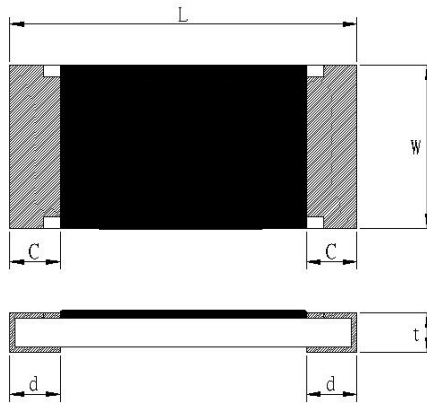
### 4. Rating and Characteristics:

Type	Maximum Working Voltage	ESD Capability <sup>1</sup>	Clamping Voltage (Typ.) <sup>2</sup>	Capacitance <sup>3</sup>	Leakage Current (Typ.)	Response Time
TVS06A12T30	12	Direct Discharge: 8KV Air Discharge: 15KV	30V	<1pF	<1 uA	<1 ns
TVS04A05T30	5					

Note:

- (1)The function meets with the requirement of IEC 61000-4-2 specification.
- (2)Trigger measurement made using Transmission Line Pulse method.
- (3)Capacitance measured at 1 M-1.8 GHz.

### 5. Dimensions



Type (Inch Size Code)	Dimensions (mm)				
	L	W	C	d	t
TVS04 (0402)	1.0±0.1	0.52±0.05	0.2±0.1	0.25±0.1	0.36±0.05
TVS06 (0603)	1.55±0.1	0.8±0.1	0.3±0.2	0.35±0.2	0.45±0.1



## Transient Voltage Suppressor (Low Capacitance)

Document No	TTVS-XX0S001B
Issued date	2012/10/17
Page	3/8

### 6. Reliability Test

Environmental Specification	Reference Standard	Test Condition	Specification
Operating temperature		-55°C to 125°C	IL<10 $\mu$ A <sup>1</sup>
Full load voltage		1000 hrs at 85°C	
Bending		3 mm deflection	
Resistance of solder heat	MIL-STD-202 Method 210	260 $\pm$ 5°C for 10 $\pm$ 1 sec	
Thermal shock	MIL-STD-202 Method 107	-55°C to 125°C, 5 cycles	
Moisture resistance, steady state	MIL-STD-883, Method 1004.7	85%RH, 85°C for 1000hrs	
Solderability	MIL-STD-202, Method 208	245 $\pm$ 5°C solder, 2 $\pm$ 0.5 sec dwell. Solder: Sn96.5/Ag3.0/Cu0.5	95% coverage

Note: 1. IL is the simplification of Leakage Current



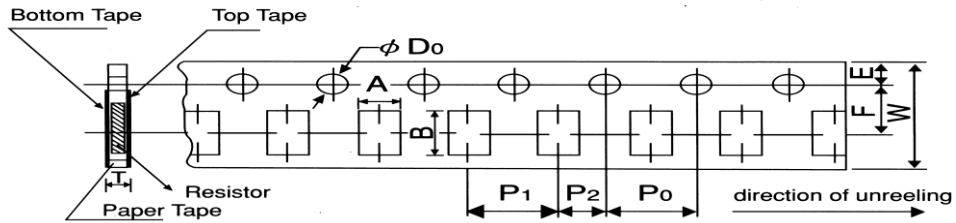
## Transient Voltage Suppressor (Low Capacitance)

Document No	TTVS-XX0S001B
Issued date	2012/10/17
Page	4/8

### 7. Taping and Reel

#### 7.1 Taping Dimensions

4 mm pitch paper



Packing	Type	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D <sub>0</sub>	T
Paper Tape	TVS04	0.7±0.05	1.2±0.05	8.0±0.2	3.5±0.05	1.75±0.1	2.0±0.1	2.0±0.05	4.0±0.1	$\psi 1.5^{+0.1}_0$	0.45±0.1
Paper Tape	TVS06	1.1±0.1	1.9±0.1	8.0±0.2	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.1	$\psi 1.5^{+0.1}_0$	0.64±0.1

Unit: mm

		Paper Tape
		2 mm Pitch
		180mm/R
TVS	04	10000

		Paper Tape
		4 mm Pitch
		180mm/R
TVS	06	5000

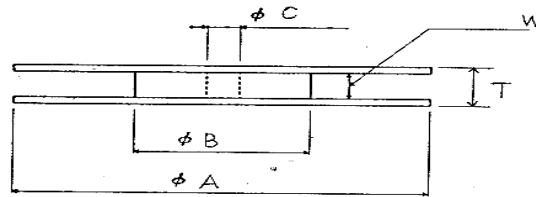
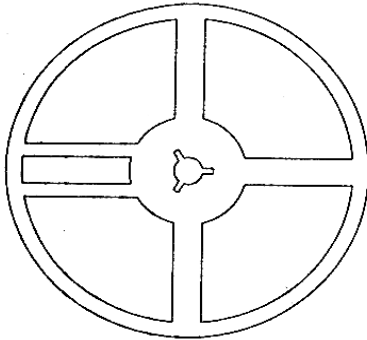
Unit: pcs



## Transient Voltage Suppressor (Low Capacitance)

Document No	TTVS-XX0S001B
Issued date	2012/10/17
Page	5/8

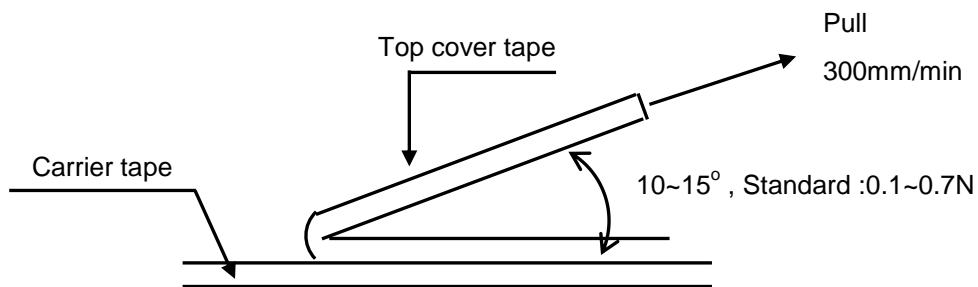
### 7.2 Reel Specifications



Unit: mm

Series	$\psi A$	$\psi B$	$\psi C$	W	T
TVS04 TVS06	$180^{+0}_{-3}$	60 min	$13.0 \pm 1.0$	$9.0 \pm 1.0$	$11.4 \pm 2.0$

### 7.3 Peel -off force



### 8. Storage Conditions:

Temperature: 5°C~35°C, Humidity: 40%~75%

### 9. Shelf Life:

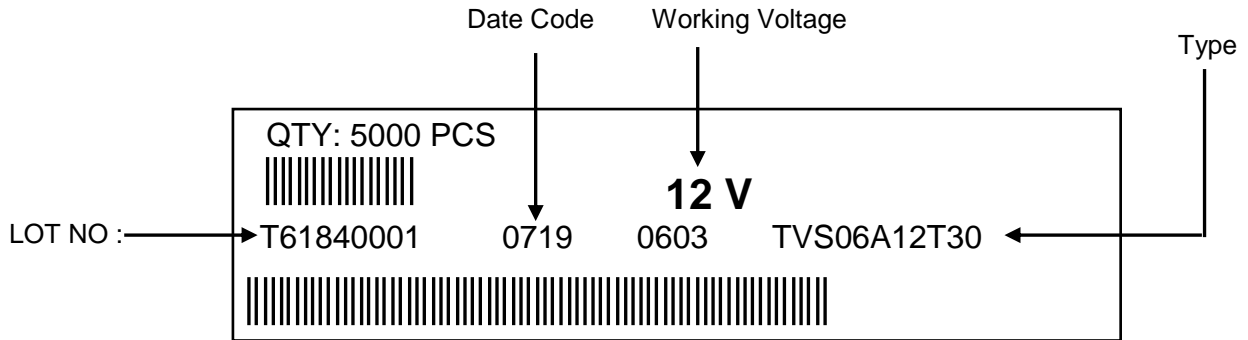
2 years from manufacturing date



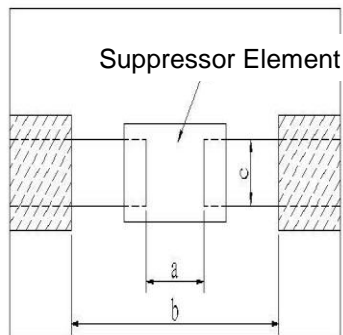
## Transient Voltage Suppressor (Low Capacitance)

Document No	TTVS-XX0S001B
Issued date	2012/10/17
Page	6/8

### 10. Label



### 11. Recommended land patterns



Unit: mm

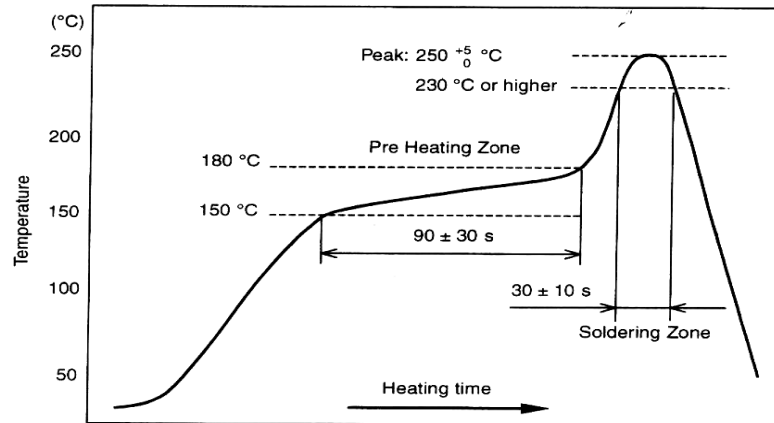
Type	Land Pattern Size	Dimension		
		a	b	c
TVS	04 ( 0402 )	0.5~0.6	1.4~1.6	0.4~0.6
TVS	06 ( 0603 )	0.7~0.9	2.0~2.2	0.8~1.0



## Transient Voltage Suppressor (Low Capacitance)

Document No	TTVS-XX0S001B
Issued date	2012/10/17
Page	7/8

### 12. Recommend IR – Reflow profile : (solder : Sn96.5 / Ag3 / Cu0.5)



Peak :  $250 \begin{matrix} +5 \\ -0 \end{matrix} \text{ }^{\circ}\text{C}$  , 5 sec

Pre – heat Zone : 150 to 180°C , 90±30 sec

Soldering Zone : 230°C or higher , 30±10 sec

### 13. ECN

Engineering Change Notice: The customer will be informed with ECN if there is significant modification on the characteristics and materials described in Approval Sheet.

### 14. Manufacturing Country & City :

TA-I TECHNOLOGY CO., LTD. ( Taiwan – Tao Yuan )  
Tel: 886-3-3246169 Fax : 886-3-3246167

#### Associated companies :

(1) FORTUNE TASK RESISTOR FACTORY ( China – Dong Guan )  
Tel : 86-769-83394790 Fax : 86-769-83394794

(2) TA-I TECHNOLOGY ( SU ZHOU ) CO., LTD. ( China – Su Zhou )  
Tel :86- 512-63457879 Fax : 86-512-63457869

(3) TAI OHM ELECTRONICS ( M ) SDN. BHD. ( Malaysia – Pulaupinang )  
Tel :604- 3900480 Fax : 604-3901481

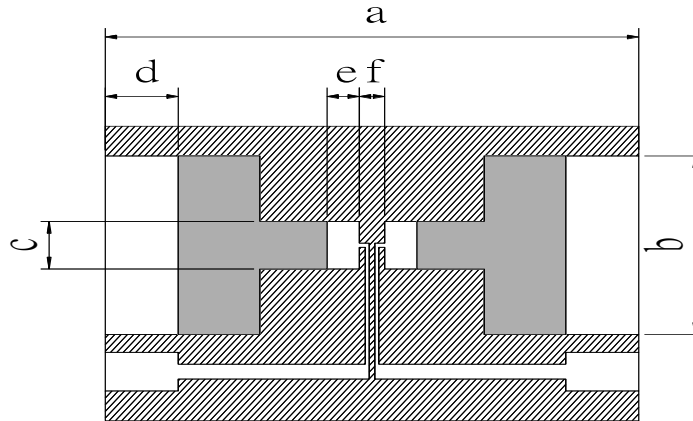
(4) P.T.TAI ELECTRONICS Indonesia ( Indonesia – Jakarta )  
Tel :62-21-89830123 Fax : 62-21-89830703



# Transient Voltage Suppressor (Low Capacitance)

Document No	TTVS-XX0S001B
Issued date	2012/10/17
Page	8/8

## 15. Test Circuit Board



Type	a	b	c	d	e	f
TVS0402	19	6	0.84	2.6	0.61	0.6
TVS0603	19	6	1.6	2.6	1.15	0.9

Unit: mm