



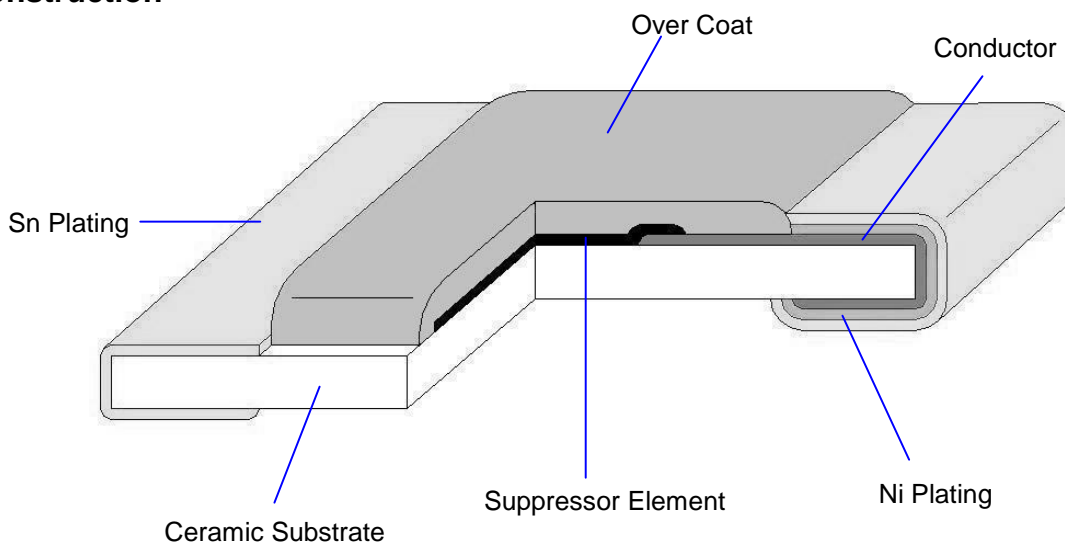
Ultra-Low Capacitance MAX Guard® ESD Suppressor (High Frequency Type)

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1. Scope

Bi-directional MAX Guard ESD suppressors are specifically designed for high frequency circuit applications (Ultra-low capacitance). They are specifically produced to protect sensitive electronic circuit high-speed data lines against electrostatic discharge (ESD, as specified in IEC61000-4-2 and MIL-STD-883C). The extremely low capacitances and leakage currents of these products are contributed by micro air space discharge technology developed by TA-I.

2. Construction



3. Type Designation

UMS	06	A	05	T	1	V1
Ultra-Low Capacitance MAX Guard Suppressor	Size 06:0603(1608)	A: Suit for IEC61000-4-2 C: Suit for IEC61000-4-2 & AEC-Q200	Operating Voltage 03:3.3V 05:5.5V 12:12V 24:24V	Packaging T: Paper tape (5K/10K)	Typical Clamping Voltage 1: 17V 2: 25V	Typical Trigger Voltage V1: 150V V2: 250V



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4. Rating and Characteristics:

Type	Continuous Operating Voltage (Max.)	ESD Capability ¹	Trigger Voltage (Typ.) ²	Clamping Voltage (Typ.) ²	Capacitance ³	Leakage Current (Typ.)	Response Time	ESD Pulse Withstand (Typ.) ⁴
UMS06A03T1V1	3.3 VDC	Direct Discharge: 8KV Air Discharge: 15KV	150 V	17V	<0.05 pF	<1nA	<1ns	>1000 pulses
UMS06A03T2V2			250V	25V				
UMS06A05T1V1	5.5VDC		150 V	17V				
UMS06A05T2V2			250V	25V				
UMS06A12T1V1	12 VDC		150 V	17V				
UMS06A12T2V2			250V	25V				
UMS06A24T2V2	24 VDC		250 V	25V				

Note:

- (1)The function meets with the requirement of IEC 61000-4-2 standard.
- (2)Trigger measurement made using Transmission Line Pulse method.
- (3)Capacitance measured at 1 M~1.8 GHz.
- (4)Performing under IEC 61000-4-2 level 4 (8KV contact discharge, 15KV air discharge).



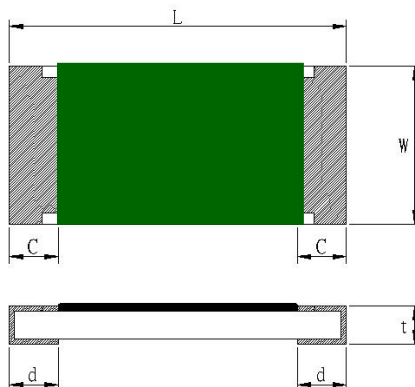
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5. Dimensions



Type (Inch Size Code)	Dimensions (mm)				
	L	W	C	d	t
UMS06 (0603)	1.6±0.1	0.8±0.1	0.3±0.2	0.35±0.2	0.45±0.1

6. Reliability Test

Environmental Specification	Reference Standard	Test Condition	Specification
Operating temperature		-55°C to 125°C	IL<1μA ¹
Full load voltage		1000 hrs at 85°C	
Bending		3 mm deflection	
Resistance of solder heat	MIL-STD-202 Method 210	260 ± 5°C for 10 ± 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 ± 5°C solder, 2 ± 0.5 sec dwell. Solder: Sn96.5/Ag3.0/Cu0.5	95% coverage

Note: 1. IL is the simplification of Leakage Current



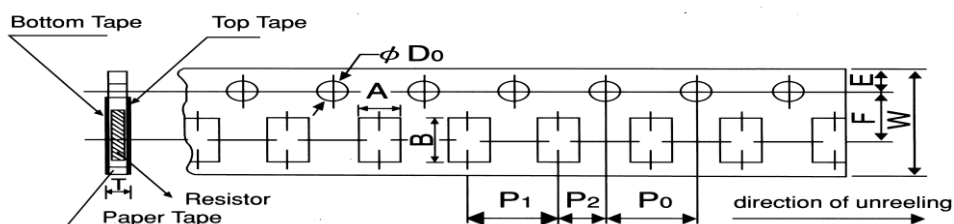
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7. Taping and Reel

7.1 Taping Dimensions

4 mm pitch paper



Unit: mm

Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Paper Tape	UMS04	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	UMS06	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

Type Series		Paper Tape
		4 mm Pitch
		180mm/R
UMS	06	5000

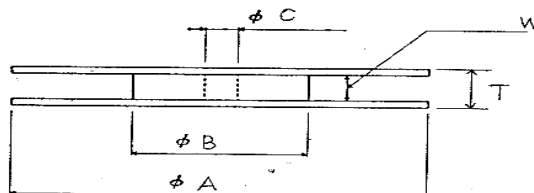
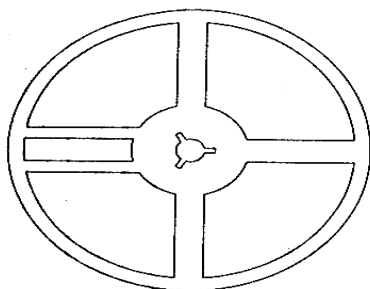
Unit: pcs



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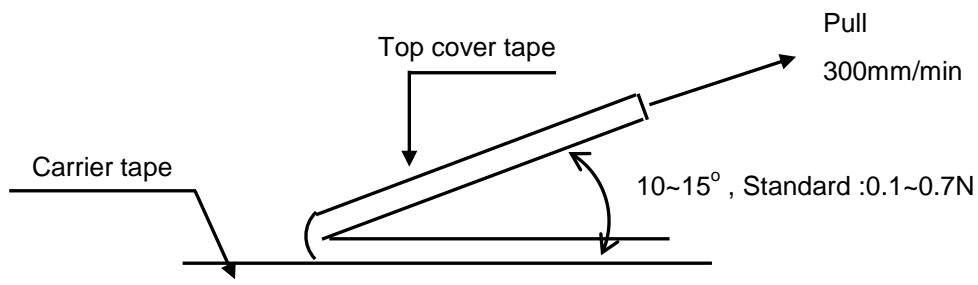
7.2 Reel Specifications



Unit: mm

Series	ψA	ψB	ψC	W	T
UMS06	180^{+0}_{-3}	60 min	13.0 ± 1.0	9.0 ± 1.0	11.4 ± 2.0

7.3 Peel –off force



8. Storage Conditions:

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

9. Shelf Life:

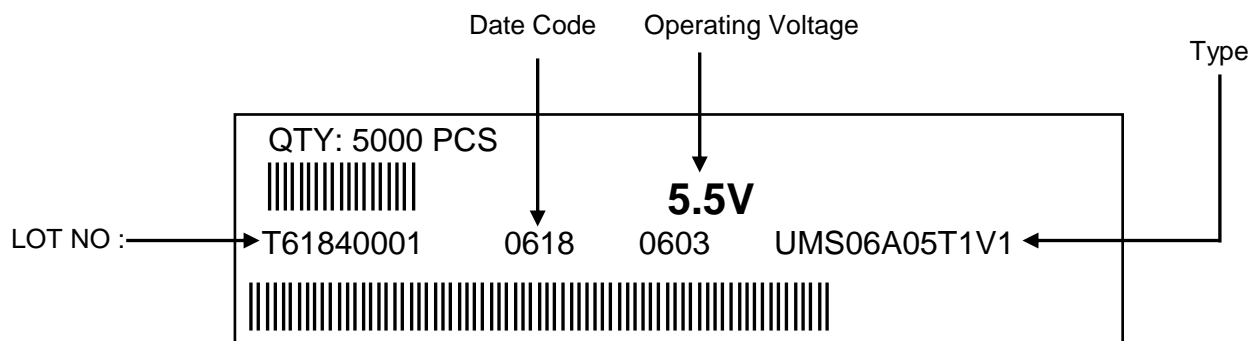
2 years from manufacturing date



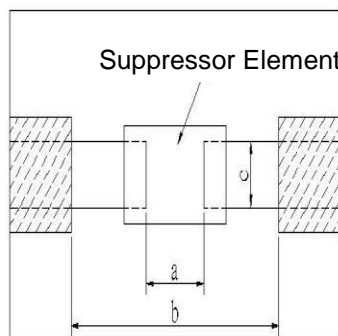
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10. Label



11. Recommended land patterns



Unit: mm

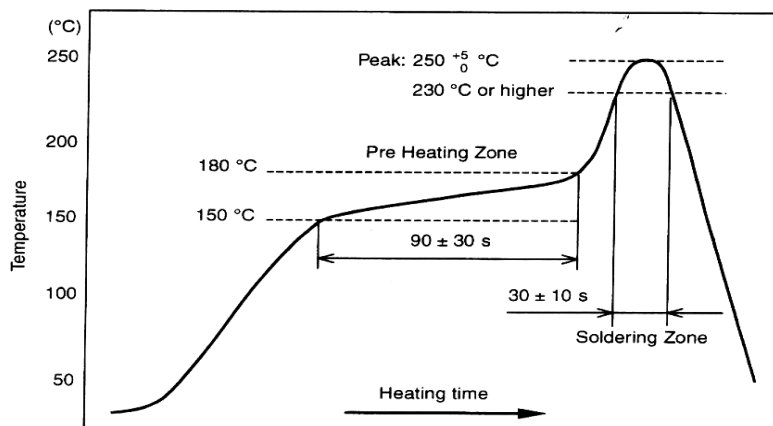
Type	Land Pattern Size	Dimension		
		a	b	c
UMS	06 (0603)	0.7~0.9	2.0~2.2	0.8~1.0



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



Peak : $250 \pm 5 \text{ } ^\circ\text{C}$, 5 sec

Pre – heat Zone : $150 \text{ to } 180 \text{ } ^\circ\text{C}$, $90 \pm 30 \text{ sec}$

Soldering Zone : $230 \text{ } ^\circ\text{C}$ or higher , $30 \pm 10 \text{ sec}$

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 – Penang)

Tel : (+604)- 3900480 Fax : (+604)-3901481

(4) P.T.TAI ELECTRONICS Indonesia (Indonesia – Jakarta)

Tel : 62-21-89830123 Fax : 62-21-89830703



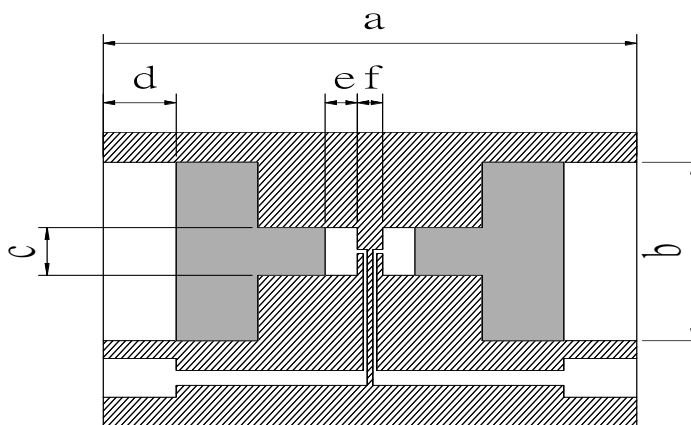
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15. Test Circuit Board



Type	a	b	c	d	e	f
UMS0603	19	6	1.6	2.6	1.15	0.9

Unit: mm