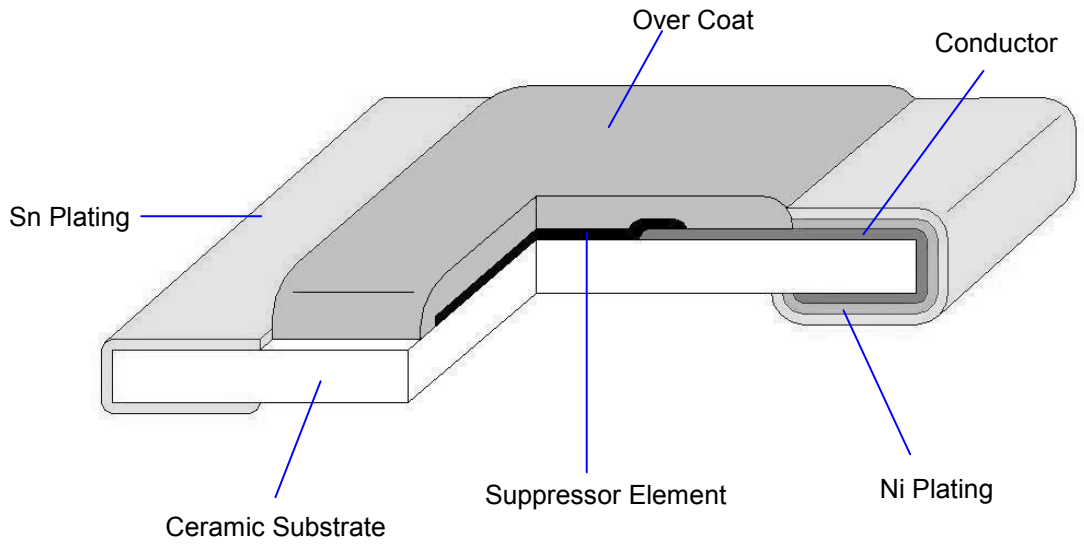
1. Scope

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

UGS	06	A	12	T	3	V3
Ultra-Low Capacitance MAX Guard Suppressor	Size 04:0402(1005) 06:0603(1608)	A:Suit for IEC61000-4-2	Operating Voltage 12:12V Max:24V	Packaging T:Paper tape(5K/10K)	Typical Clamping Voltage 3: 35V	Typical Trigger Voltage V3: 350V

4. Rating and Characteristics:

Type	Continuous Operating Voltage (Max.)	ESD Capability[1]	Trigger Voltage (Typ.)[2]	Clamping Voltage (Typ.)[2]	Capacitance (Typ.)[3]	Leakage Current (Typ.)	ESD Pulse Withstand (Typ.)[4]
UGS04A03T3V3	3.3 VDC	Direct Discharge: 8KV Air Discharge:15KV	350V	35V	<0.12 pF	<10nA	>500 pulses
UGS06A03T3V3							
UGS04A05T3V3	5.5 VDC						
UGS06A05T3V3							
UGS04A12T3V3	12 VDC						
UGS06A12T3V3							
UGS04A24T3V3	24 VDC						
UGS06A24T3V3							

Note:

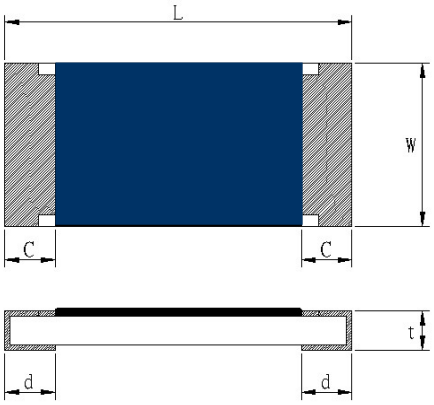
(1)The function meets with the requirement of IEC 61000-4-2 specification.

(2)Trigger measurement made using Transmission Line Pulse method.

(3)Capacitance measured at 1 M~3 GHz.

(4)Performing under IEC 61000-4-2 level 4 (8KV contact discharge, 15KV air discharge). Leakage current <1μA.

5. Dimensions



Type (Inch Size Code)	Dimensions (mm)				
	L	W	C	d	t
UGS04 (0402)	1.0±0.1	0.52±0.05	0.2±0.1	0.25±0.1	0.36±0.05
UGS06 (0603)	1.6±0.1	0.8±0.1	0.3±0.2	0.35±0.2	0.45±0.1

6. Reliability Test

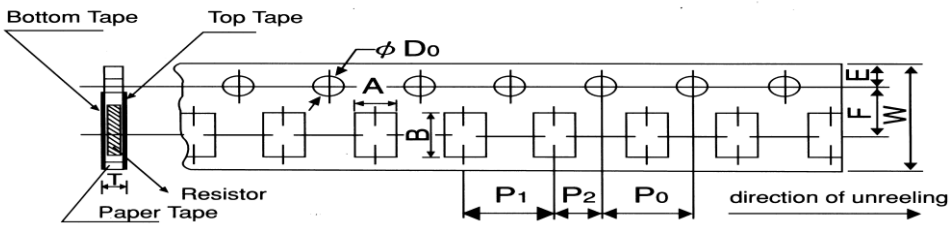
Environmental Specification	Reference Standard	Test Condition	Specification
Operating temperature		-55℃ to 125℃	IL<1μA[1]
Full load voltage		85℃ for 1000 hrs at working voltage	
Resistance of solder heat	MIL-STD-202 Method 210	260 ± 5℃ for 10 ± 1 sec	
Thermal shock	MIL-STD-202 Method 107	-55℃ to 125℃, 5 cycles	
Moisture resistance	MIL-STD-883, Method 1004.7	85%RH, 85℃ for 1000hrs at working voltage	
Solderability	MIL-STD-202, Method 208	245 ± 5℃ solder, 2 ± 0.5 sec dwell. Solder: Sn96.5/Ag3.0/Cu0.5	95% coverage

Note: 1. IL is the simplification of Leakage Current

7. Taping and Reel

7.1 Taping Dimensions

4 mm pitch paper



Packing	Type	A	B	W	F	E	P_1	P_2	P_0	D_0	T
Paper Tape	UGS04	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	ϕ1.5 +0.1 0	0.45±0.1
Paper Tape	UGS06	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	ϕ1.5 +0.1 -0	0.64±0.1

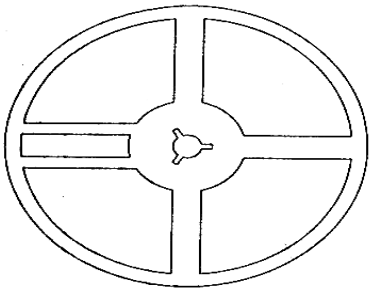
Unit: mm

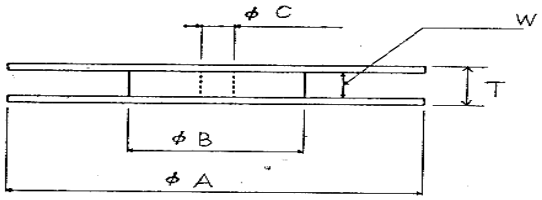
Type	Size	Paper Tape
		2 mm Pitch
		180mm/R
UGS	04	10000

Type series		Paper Tape
		4 mm Pitch
		180mm/R
UGS	06	5000

Unit: pcs

7.2 Reel Specifications

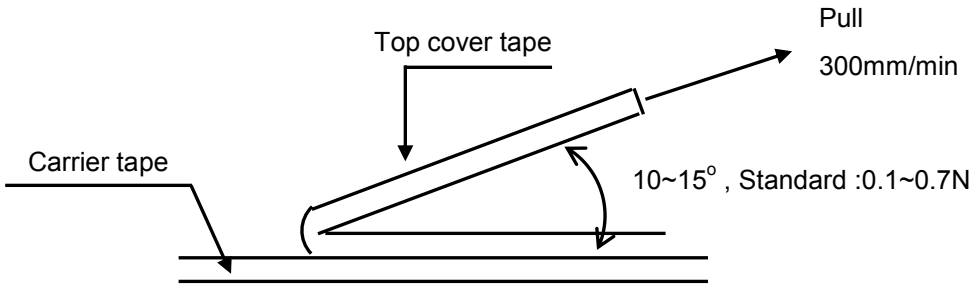




Unit: mm

Series	ϕA	ϕB	ϕC	W	T
UGS04 UGS06	180^{+0}_{-3}	60 min	13.0±1.0	9.0±1.0	11.4±2.0

7.3 Peel –off force



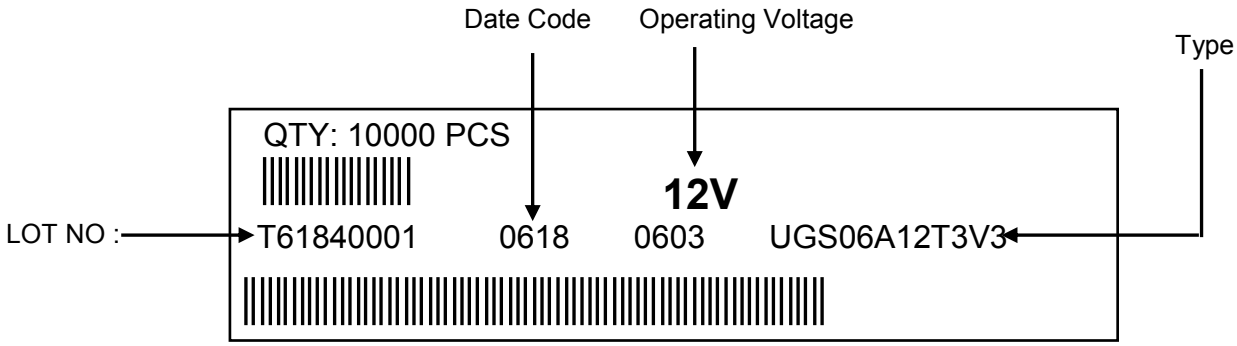
8. Storage Conditions:

Temperature: 5℃~35℃, Humidity: 40%~75%

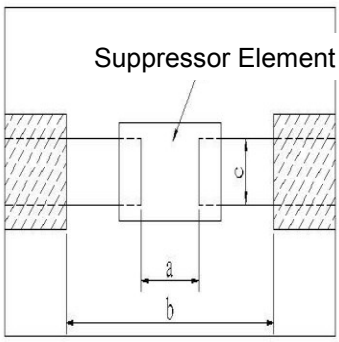
9. Shelf Life:

2 years from manufacturing date

10. Label



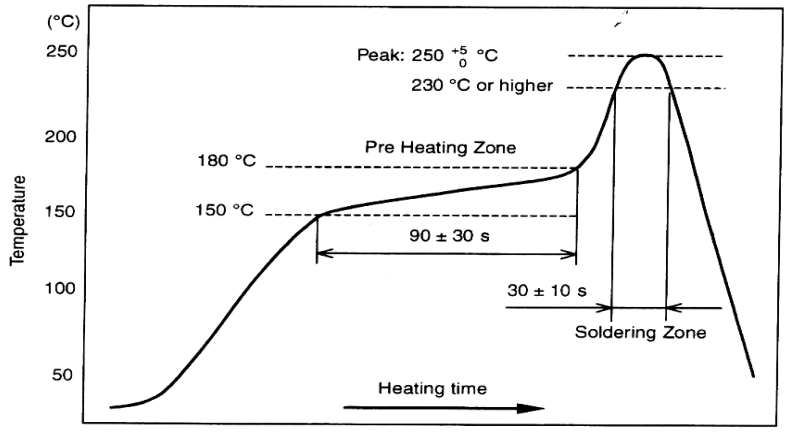
11. Recommended land patterns



Unit: mm

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

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



Peak : 250 $^{+5}_{-0}$ ℃ , 5 sec

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

Soldering Zone : 230℃ 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 :

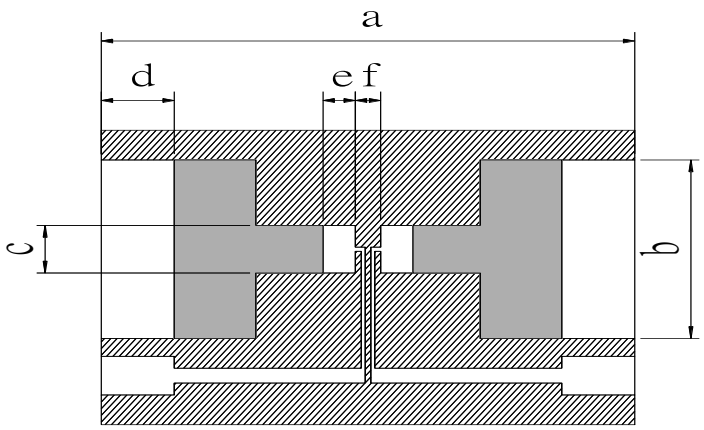
(1) FORTUNE TASK RESISTOR FACTORY (China – Dong Guan)
Tel : 86-769-83394790 Fax : 86-769-83394794

(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

15. Test Circuit Board



Type	a	b	c	d	e	f
UGS0402	19	6	0.84	2.6	0.61	0.6
UGS0603	19	6	1.6	2.6	1.15	0.9

Unit: mm