TESC0R15V05B1X

ESD SUPPRESSORS

1.Generals

- **This specification applies to chip (named ESD Suppressor) for use in RF electronic equipment.**

It can be possible to change the specification under document agreement between design engineers of each party.

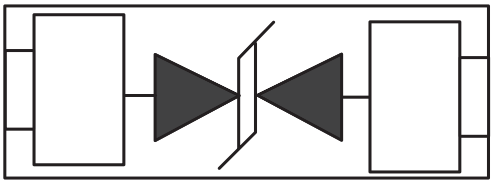
2.Features

- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge typical 8KV, max 15KV
- ESD air discharge typical 15KV, max 25KV
- Extremely low capacitance
- Very low leakage current
- Fast response time
- Bi-directional ESD protection
- Lead free solder termination
- The best ESD protection for high frequency, low voltage applications

3.Application

- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- Display Port Interface (DP)
- Unified Display Interface (UDI)
- Mobile Display Digital Interface (MDDI)
- Gigabit Ethernet
- USB2.0 and USB3.0
- IEEE1394 interface

Schematic and Pin configuration



Bidirectional

4.Part Number Code

T	E	S	C	0R15	V05	B	1X
①	②	③	④	⑤	⑥	⑦	⑧

(1) Company Name: TOP-EMC

(2) Product Function: ESD

(3) Material Type:fine ceramic

(4) Chip Size (EIA): B(0402),C(0603)

(5) Capacitance: 0R15=0.15PF,1R0=1.0PF,5R0=5.0PF

(6) Working Voltage: V05=5V,V12=12V,V24=24V

(7) Direction Type: Bidirectional

(8) Lines Protected: 1X=1 line

5.Specifications

■ ESD Suppressor

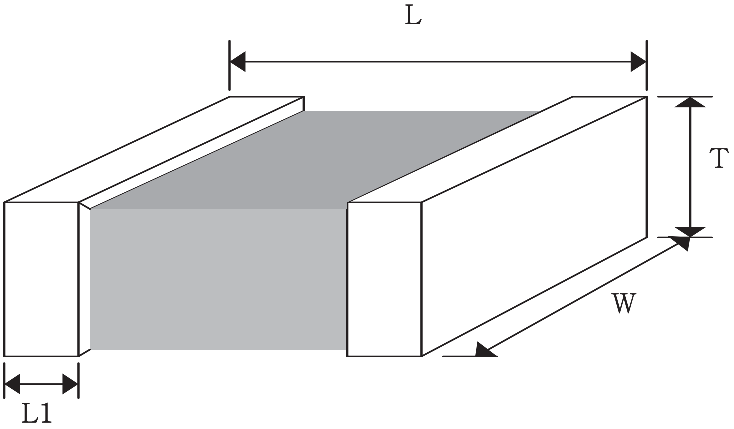
- Ultra Low capacitance(<0.5pF) is required for very high-speed data transmission or Antenna port.
- Low leakage current(I_L) is necessary for battery operated equipment

Characteristics	Unit	Typical	Max.
Clamping Voltage (Vc)	V	30	100
Capacitance, @1MHz (Cp)	pF	0.15	0.5
Response time	ns	0.6	1
ESD voltage capability, Contact discharge mode	kV	8	15
ESD voltage capability, Air discharge mode	kV	15	25
RF-Power testing, 0-2GHz	dBm		35
Insertion loss, 0-2GHz	dB		0.05
ESD pulse withstand	pulses	100	
Continuous operating voltage	V	5	
Leakage current (I_L)	uA	0.05	10
Trigger voltage (V_T)	V	1000	

■ TERMINOLOGY

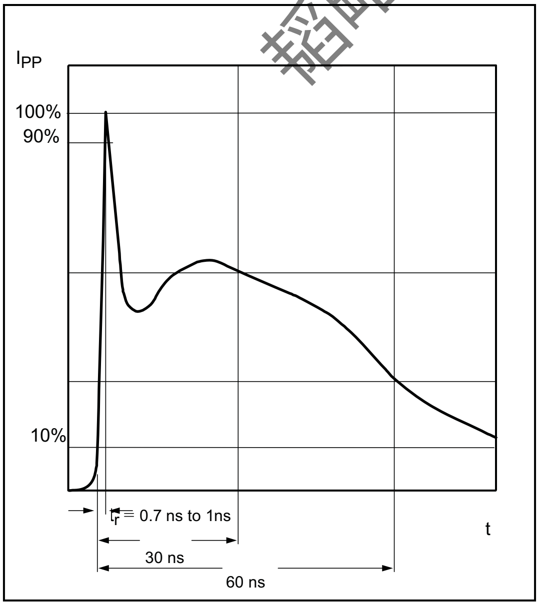
- **V_c** : Per IEC 61000-4-2, 30A@8kV, level 4, clamp measurement made 30ns after initiation of pulse, all test in contact discharge mode.
- **C_p** : Device capacitance measured with zero volt bias 1Vrms and 1MHz

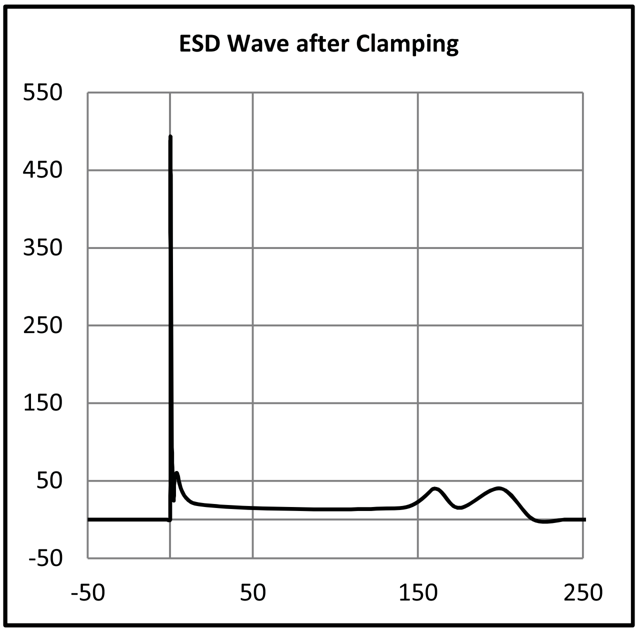
6.Configuration and Dimensions



CODE	DIMENSION (㎜)			
	L	W	T	L1
1608	1.6±0.1	0.8±0.1	0.8±0.1	0.3±0.2

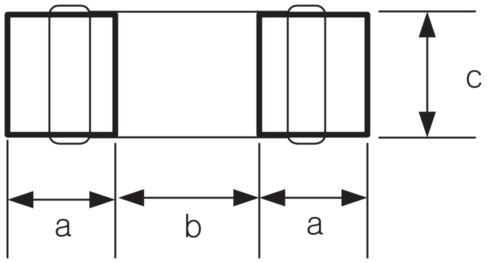
7.ESD Clamping Test Waveforms





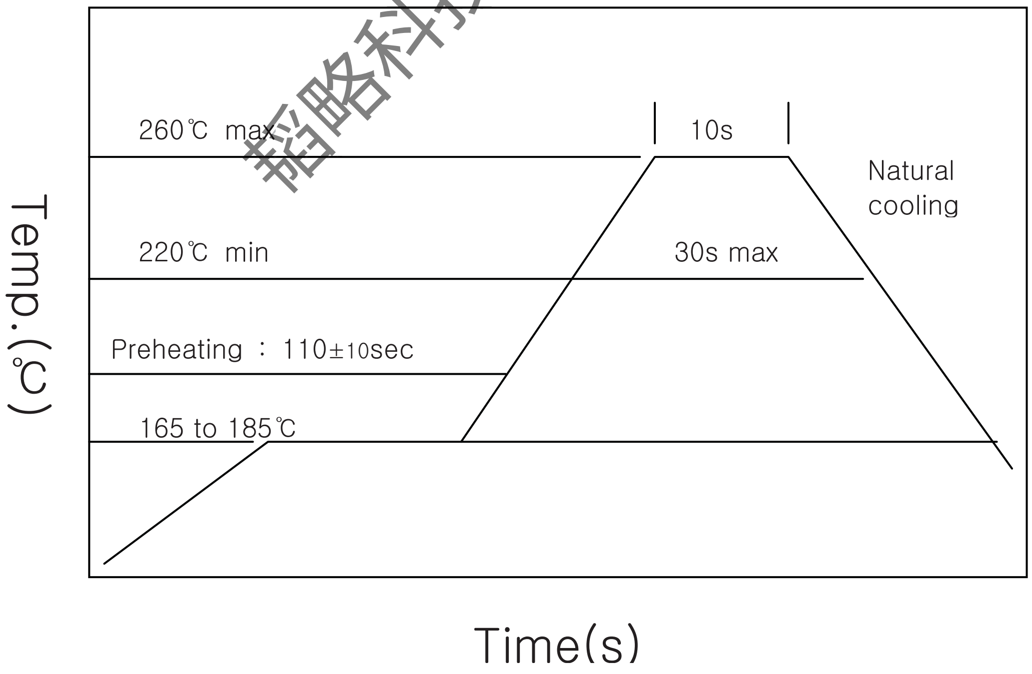
8.Land Pattern and Reflow Soldering

- Land Pattern



Size	a	b	c
1608	0.7~0.9	0.7~0.8	0.6~0.8

- Reflow Soldering Profile



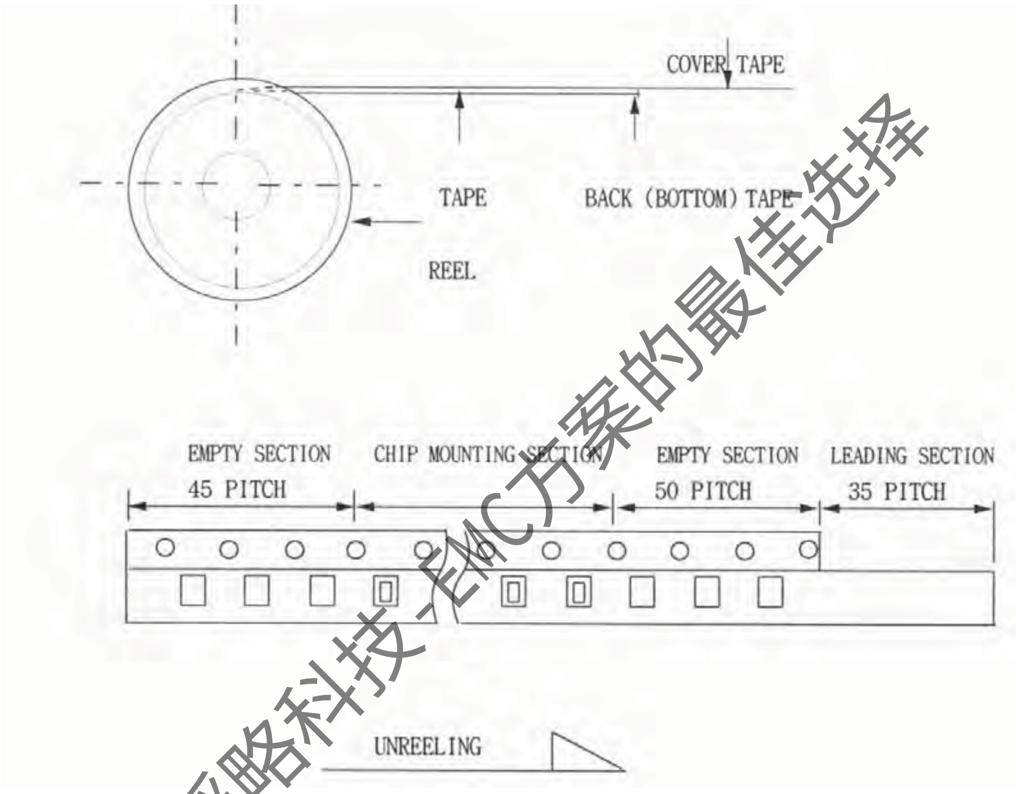
Taping

Scope

This specification applies to taping of chip varistor

It can be possible to change the specification under document agreement between design engineers of each party.

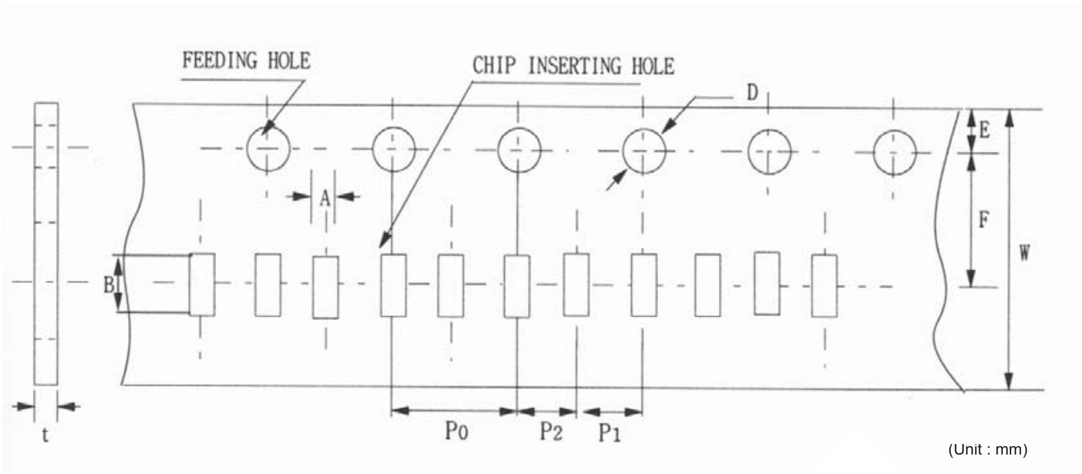
Taping Figure



Material and Quantity

Type / Material	1005	1608	2012
Paper	10,000 pcs/reel	4,000 pcs/reel	4000 pcs/reel

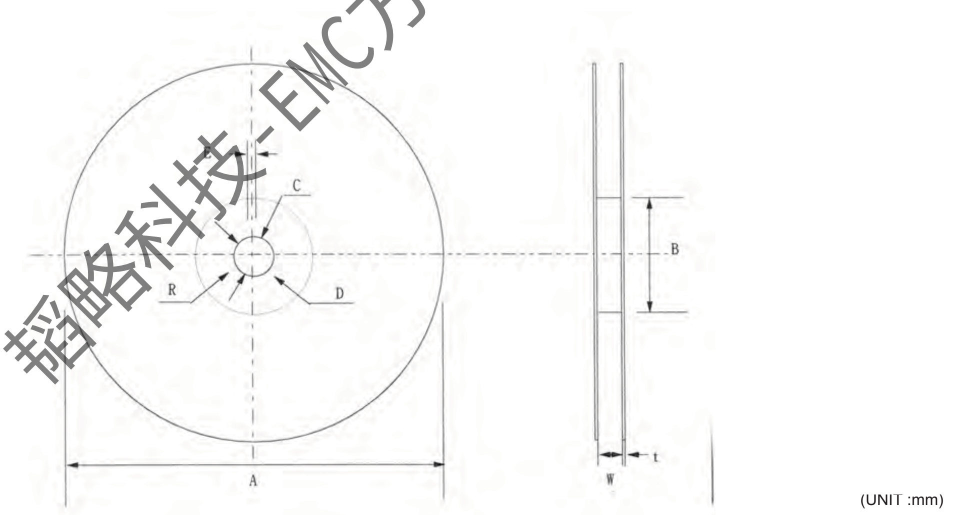
■ Carrier Tape Dimensions



(Unit : mm)

Symbol		A	B	W	F	E	P₁	P₂	P₀	D	t
Dimension	05	0.65 +0.05 -0.10	1.15 +0.05 -0.10	8.0 ±0.3	3.5 ±0.05	1.75 ±0.1	2.0 ±0.05	2.0 ±0.05	4.0 ±0.1	1.5 ±0.1 -0	1.1 below
	10	1.10 ±0.2	1.90 ±0.2				4.0 ±0.1				
	21	1.65 ±0.2	2.4 ±0.2								

■ Reel Dimensions



(UNIT :mm)

Code	A	B	C	D	E	W	t	R
Dimension	ϕ178±2	Min. ϕ50	ϕ13±0.5	ϕ21±0.8	2.0±0.5	10±1.5	0.8±0.2	1.0

■ Contact Information

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