

TEF2012A4X101MT

COMMON MODE ESD FILTER

1. Generals

- This specification covers the engineering requirements for the TEF2012A4X101MT (Common Mode ESD Filter)

2. Features

- Effective for suppressing common mode noise and almost no effect for high speed differential data line
- Two common mode filters and four ESD suppression devices integrated
- Ultra low profile (2.0 × 1.2 × 0.8mm)
- Ceramic multilayer type SMD component
- Non-polarized product
- It is a product conforming to RoHS directive.

3. Applications

- LVDS lines in notebook computers
- USB2.0, IEEE1394, DVI, HDMI lines in PDP, LCD TV, DVD Player, PC, Audio player, DSC
- MDDI, MIPI in mobile phone

4. Product specifications

4. 1 Part Numbering System

T EF 2012A 4X 101 M T
① ② ③ ④ ⑤ ⑥ ⑦

- ① Company Name: TOP-EMC
- ② Product Function: ESD Filter
- ③ Dimensions, 2.0mm (L) × 1.2mm (W)
- ④ Number of lines, 4X = 4 lines
- ⑤ Common Mode Impedance (at 100MHz), 101= 100Ω
- ⑥ Tolerance of common mode impedance, M= ±20%
- ⑦ Packing : Tape & Reel

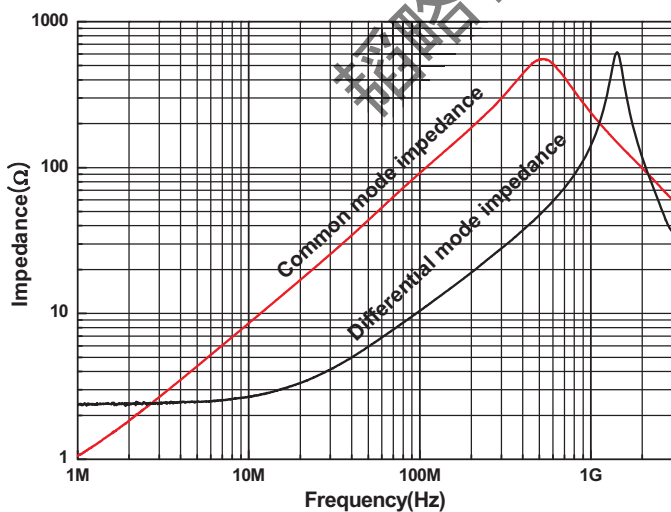
4. 3 Specification of electrical characteristics

Characteristics	Common Mode Impedance	Resistance	Rated Current	Insulation Resistance (Max)	Capacitance	Rated Voltage	Leakage Current	Trigger Voltage	Clamping Voltage
symbol	Z_{CM}	R_{DC}	I_R	IR_{CR}	C	V_R	I_L	V_t	V_c
Units	Ω	Ω	mA (Max)	Ω	pF	Volt (typ)	μA (max)	V (typ)	V (typ)
Test Condition	@100MHz	$25^\circ C \pm 2^\circ C$	2V	10V	0.5Vrms @1MHz	$25^\circ C \pm 2^\circ C$	5V	contact discharge mode	
Value	100($\pm 20\%$)	0.1~3.0	100	$\geq 10M$	0.8~1.7	10	5	200	70

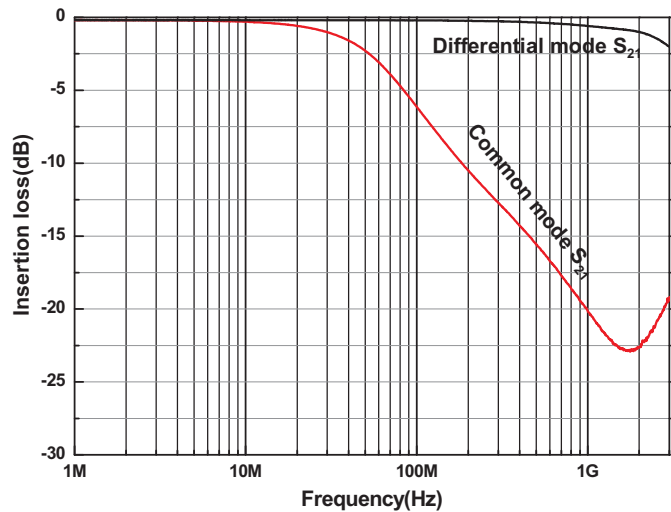
TERMINOLOGY

- V_t : Per IEC 61000-4-2, 30A@8kV, level 4, trigger voltage measured initiation of pulse, all test in contact discharge mode.
- 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.

- Impedance Curves



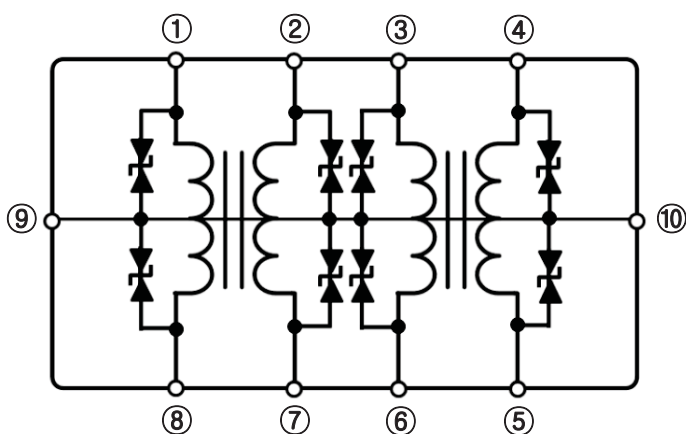
- Transmission characteristics (S-parameter)



4. 4 Operating Temperature

DESCRIPTION	REQUIREMENTS
Operating Temperature	-40°C ~ + 85°C

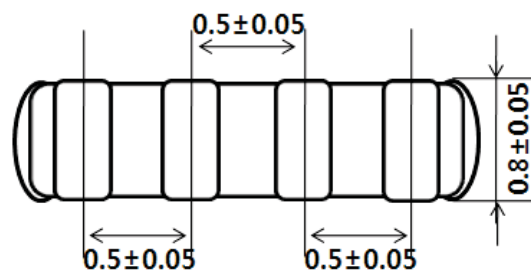
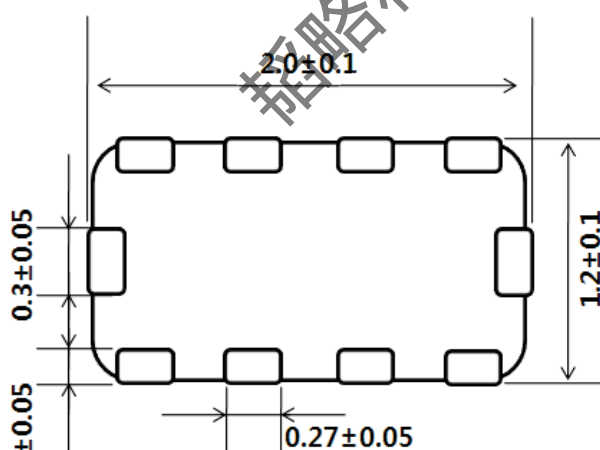
5. Equivalent Circuit



PIN NUMBER	DESCRIPTION
①~⑧	DATA LINE
⑨, ⑩	GROUND

6. Mechanical Property

6. 1 Appearance and Dimension



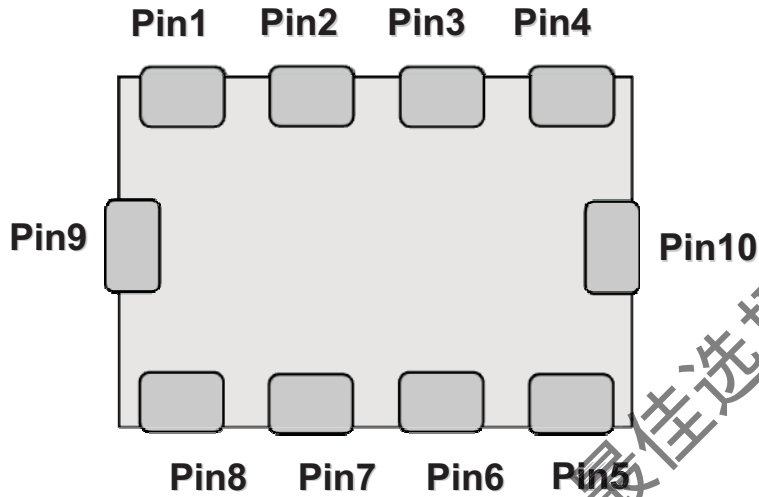
<top>

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Unit : mm

7. TEST METHOD OF ELECTRICAL PROPERTY

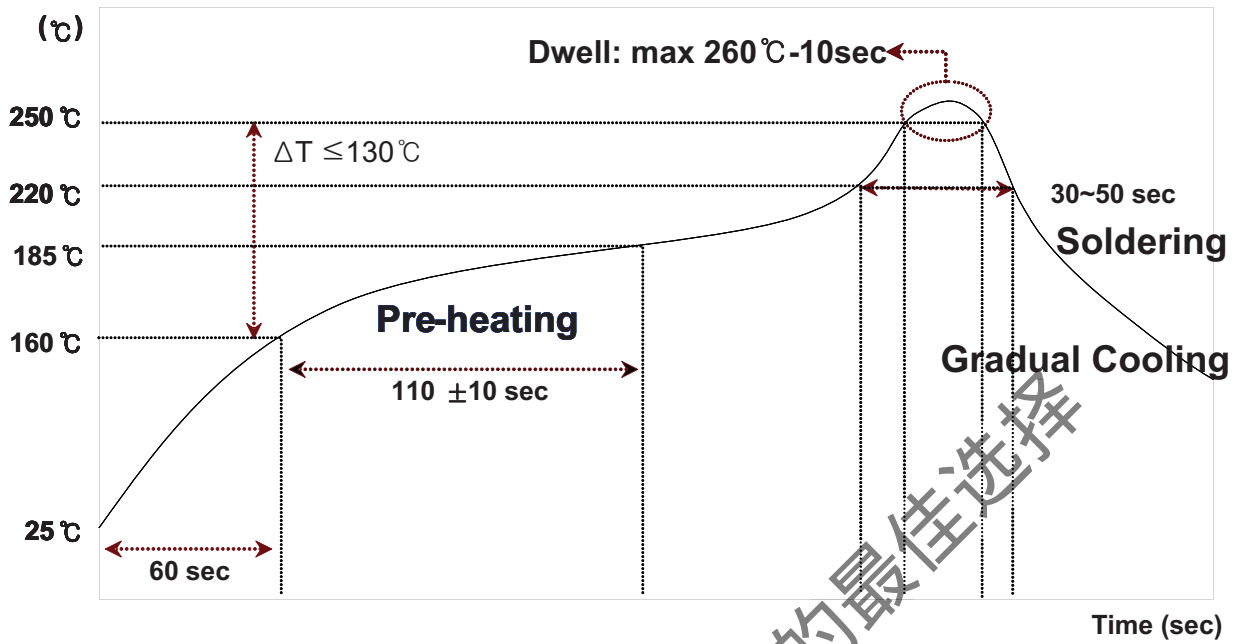
- PIN INDEX



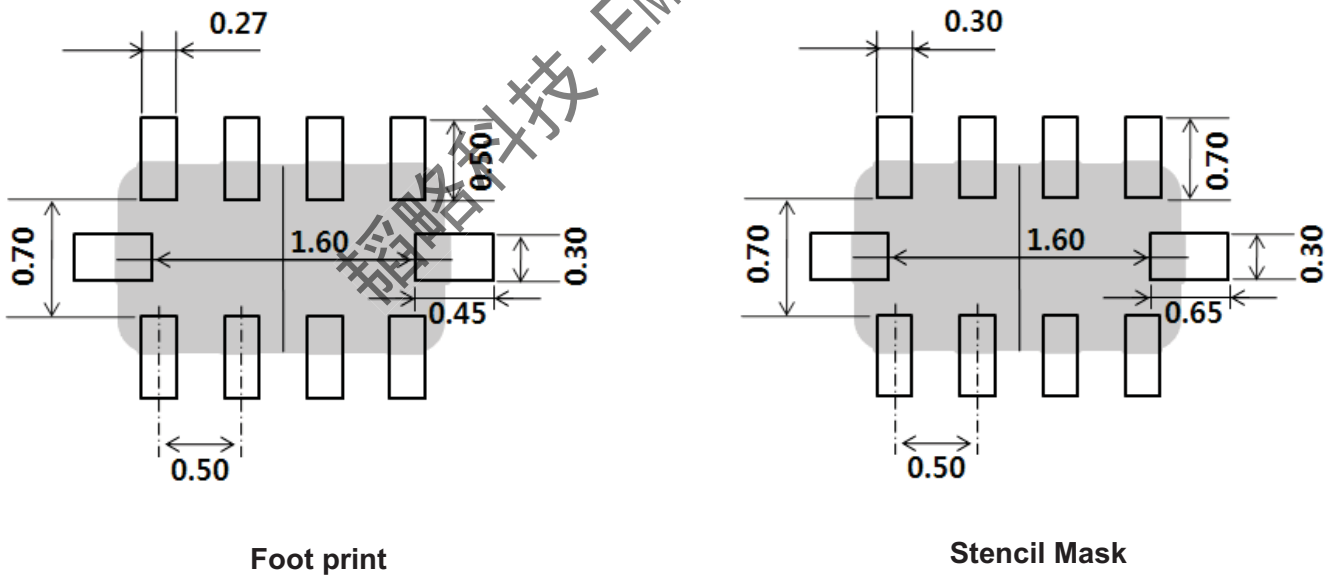
ITEM	DESCRIPTION	SOURCE	EQUIPMENT
Rdc	Pin 1-8, 2-7, 3-6, 4-5	10mA DC Source	Source Meter
CM Impedance	Pin 1-2(Short) to Pin 8-7(Short) Pin 3-4(Short) to Pin 6-5(Short)	500mV	LCR Meter (3GHz)
IL	Pin 9 or 10 to Pin 1~4 or 5~8	5V DC Source	Source Meter

8. REFLOW CONDITION

8.1 RECOMMENDED SOLDERING PROFILE (Lead-free condition)



8.2 RECOMMENDED FOOT PRINT



Unit : mm

Stencil Mask T : 0.10mm

8. 3 RECOMMENDED LEAD-FREE SOLDER PASTE

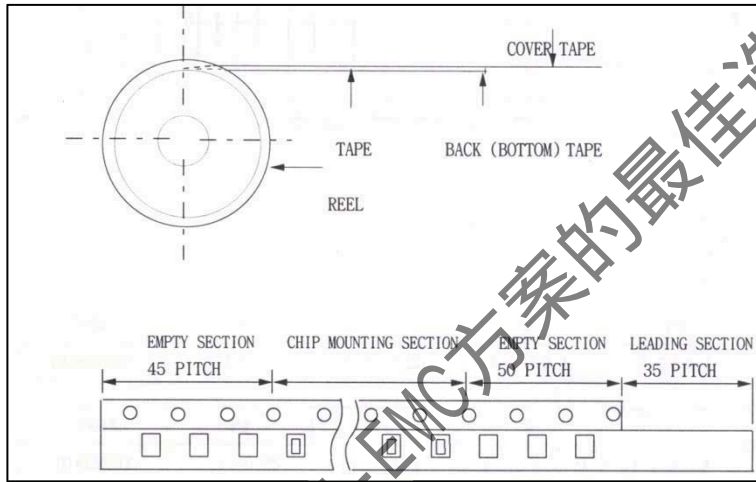
- Supplier : Tamura Donghwa
- Main composition : Sn-Ag-Cu
- Ratio of composition : 96.5%-3.0%-0.5%

8. 4 RECOMMENDED HAND SOLDER

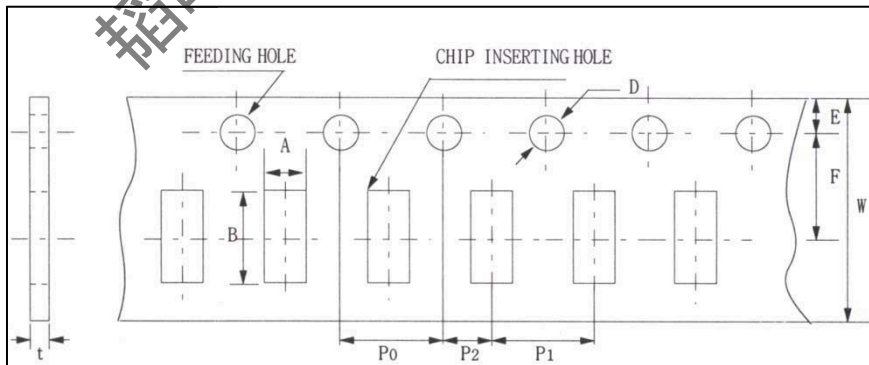
- Max Temperature: Max 380 °C (Max 5sec)

9. PACKING SPECIFICATION

TAPING FIGURE



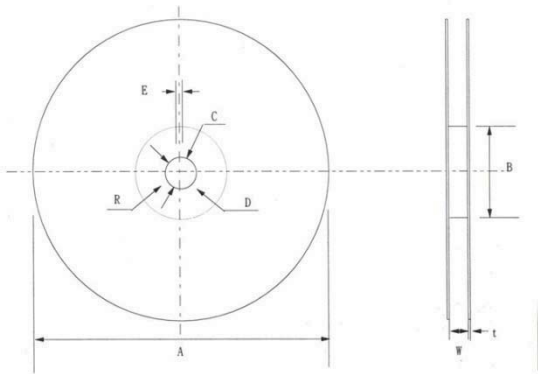
CARRIER TAPE DIMENSIONS



Unit : mm

SYMBOL		A	B	W	F	E	P ₁	P ₂	P ₀	D	T
DIMENSION	21	1.55 ±0.05	2.3 ±0.05	8.0 ±0.1	3.5 ±0.05	1.75 ±0.05	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	1.55 ±0.03	0.95 ±0.05

REEL DIMENSIONS



- (1) Reel Materials: Polystyrene
- (2) Label
- (3) Taping
 - Standard Packing Quantity per Reel ($\phi 178$)

Unit : mm

CODE	A	B	C	D	E	W	t	R
DIMENSION	$\phi 178 \pm 2$	Min. $\phi 50$	$\phi 13 \pm 0.5$	$\phi 21 \pm 0.8$	2.0 ± 0.5	10 ± 1.5	0.8 ± 0.2	1.0

韬略科技-EMC方案的最佳选择

10. Contact Information

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