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Common Mode ESD Filter	ICMEF112P350MFR	1

Data Sheet

- ITEM : COMMON MODE ESD FILTER
- PART NO : ICMEF112P350MFR
- CONDITION : 1. _____
2. _____
3. _____
4. _____

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1. Generals

- This specification covers the engineering requirements for the ICMEF112P350MFR (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 (1.27 x 1.00 x 0.60mm)
- Ceramic multilayer type SMD component
- Non-polarized product
- It is a product conforming to RoHS directive.
- 1210(0504) Multilayer array type

3. Applications

- LVDS lines in notebook computers
- USB2.0, UBS3.1 Gen 1, 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 number code

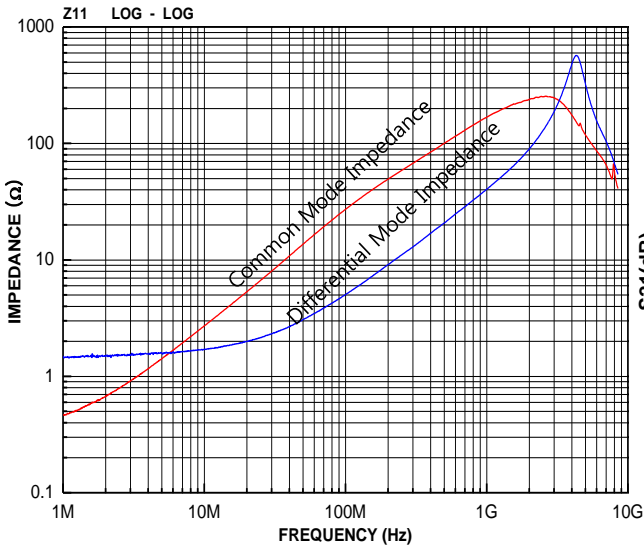
ICMEF 11 2P 350 M F R
 ① ② ③ ④ ⑤ ⑥ ⑦

- Series name of ICT's Common Mode ESD Filter
- Dimensions, 1.27mm (L) x 1.0mm (W)
- Number of lines, 2P= 2 lines
- Common Mode Impedance (at 100MHz), 350= 35Ω
- Tolerance of common mode impedance, M= ±25%
- Type of electrode plating: F= Lead Free
- Packing Type, R= Reel

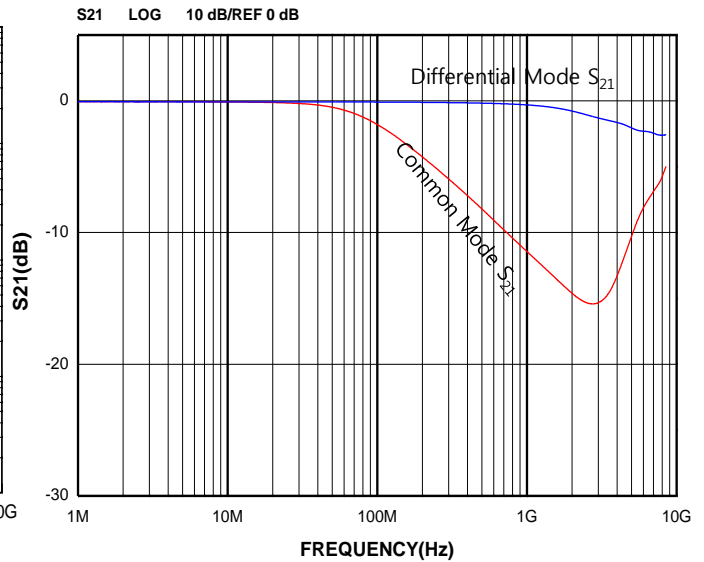
4. 2 Specification of electrical characteristics

Characteristics	Common Mode Impedance	Resistance	Leakage Current	Capacitance	Insulation Resistance	Rated Voltage	Rated Current
symbol	Z_{CM}	R_{DC}	I_L	C	IR_{CR}	V_R	I_R
Units	Ω	Ω	μA	pF	M Ω	Volt	mA
Test Condition	@100MHz	25°C±2°C	5V	0.5Vrms @1MHz	5V	25°C±2°C	25°C±2°C
Value	35(±25%)	Max 4.0	Max 1.0	Max 1.7	Min 10	5	Max100

- Impedance Curves



-Transmission characteristics (S-parameter)



4. 3 Operating Temperature

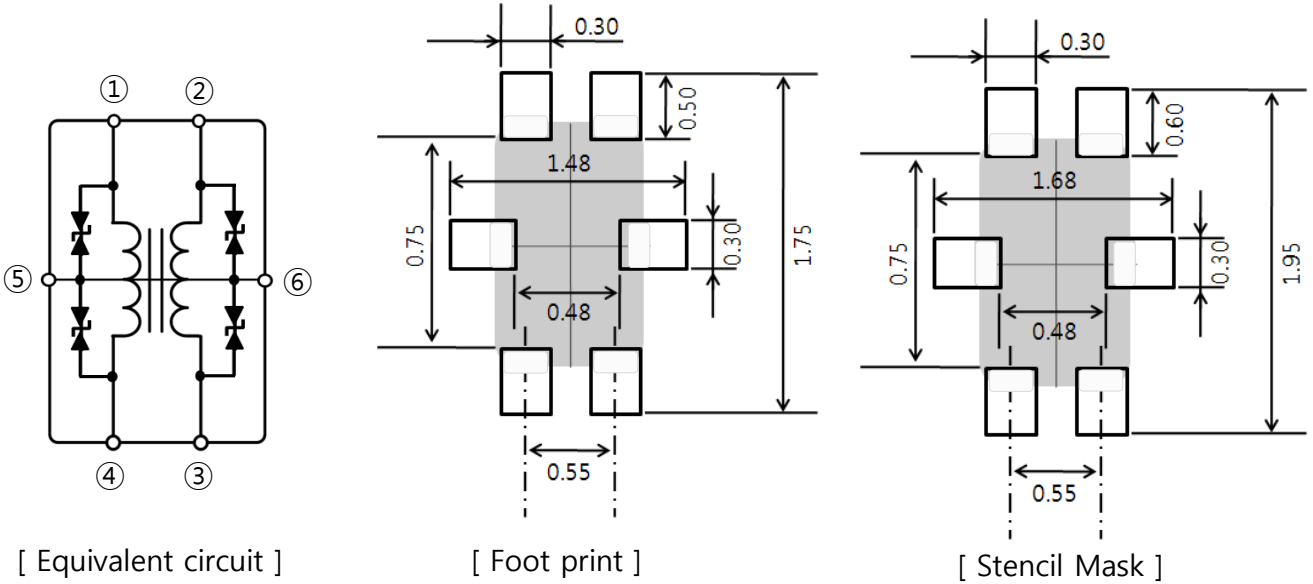
DESCRIPTION	REQUIREMENTS
Operating Temperature	-40°C ~ + 85°C (including self-temperature rise)

5. Equivalent Circuit & Recommended Foot print & Stencil mask

PIN NUMBER	DESCRIPTION
①~④	DATA LINE
⑤, ⑥	GROUND

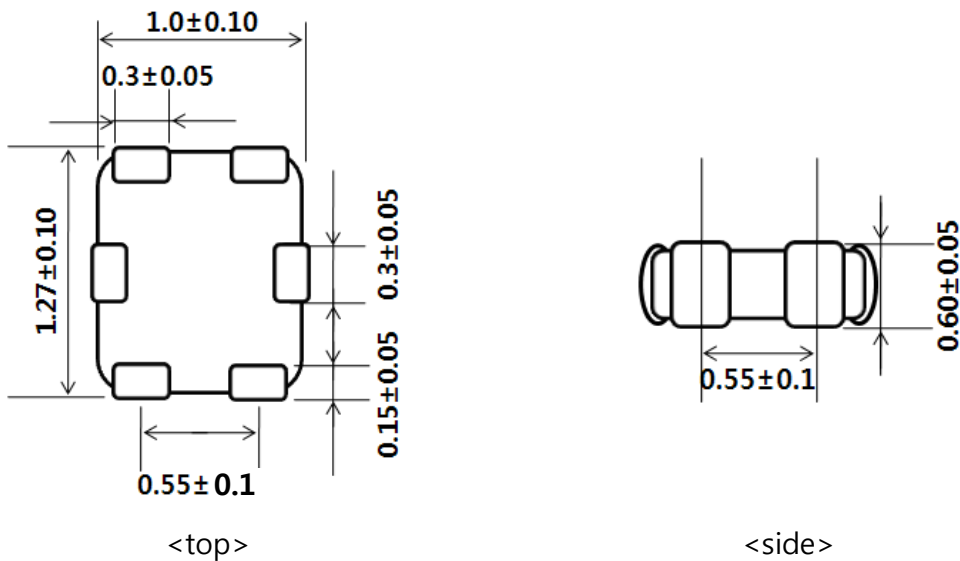
Unit : mm

Stencil Mask T : 0.10mm



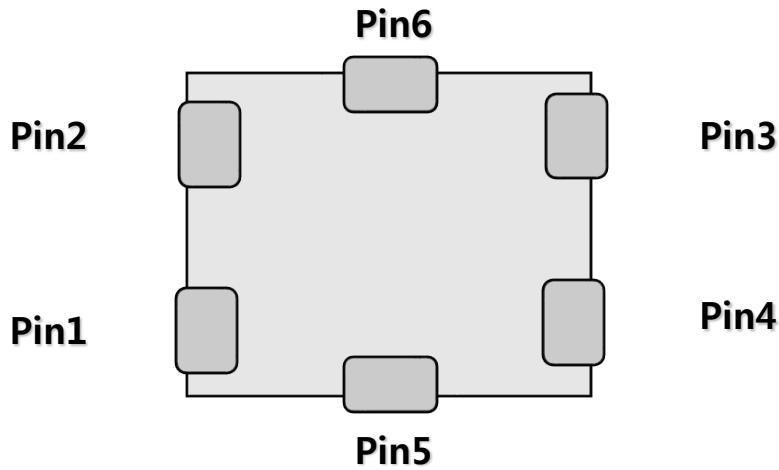
6. Appearance and Dimension

Unit : mm



7. Test method of Electrical property

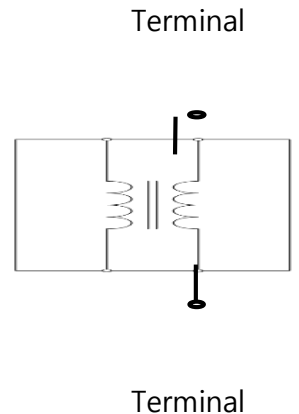
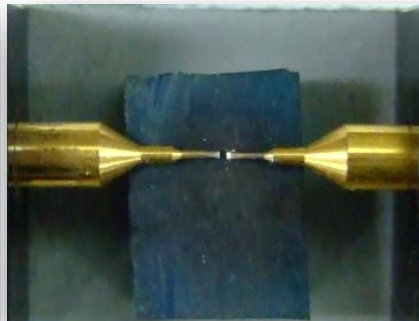
- PIN INDEX



ITEM	DESCRIPTION	SOURCE	EQUIPMENT
Rdc	Pin 1-4, 2-3	10mA DC Source	Source Meter
CM Impedance	Pin 1-2(Short) to Pin 3-4(Short)	500mV	LCR Meter (3GHz)
IL	Pin 5 or 6 to Pin 1, 2, 3, 4	5V DC Source	Source Meter
IR _{CR}	Pin1 -2 or Pin3-4	5V DC Source	Source Meter

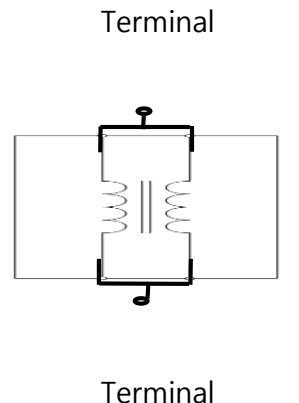
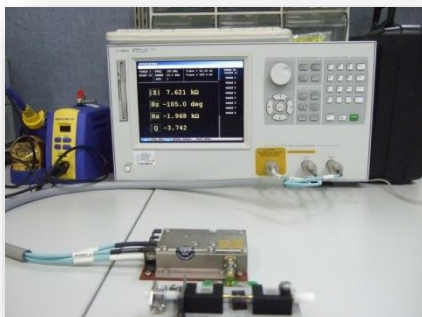
7. 1 Rdc (Model: KEITHLEY 2400)

- Off power and On power.
- Press button 'Ω' of MEAS.
- Measure Rdc value using test fixture.



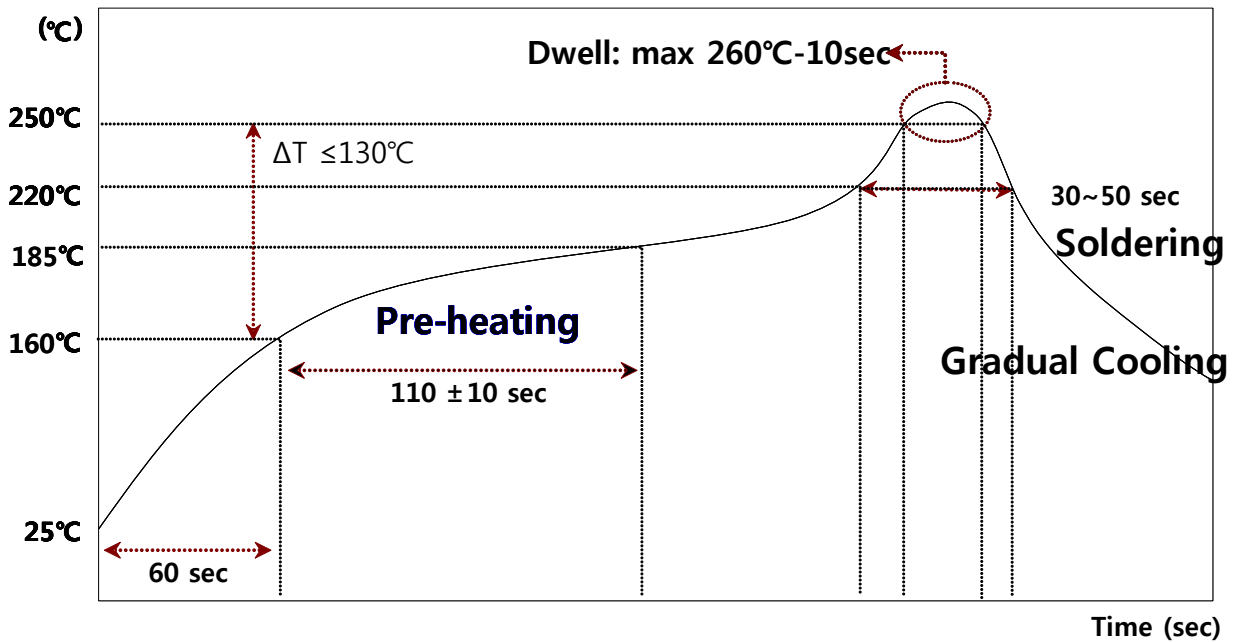
7. 2 Common Mode Impedance (Model: Agilent 4287A)

- Calibrate equipment
- Measure CM Impedance (at 100MHz) using test fixture.



8. Reflow condition

8. 1 Recommended soldering profile (Lead-free condition)



8. 2 Recommended Lead-free solder paste

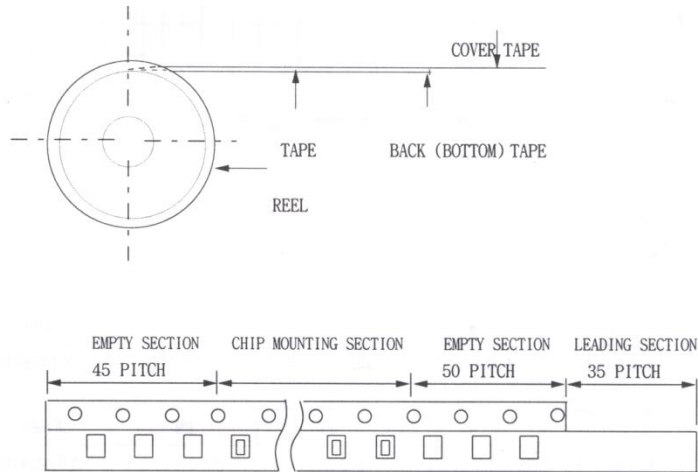
- Supplier : Tamura Donghwa
- Main composition : Sn-Ag-Cu
- Ratio of composition : 96.5%-3.0%-0.5%

8. 3 Recommended hand solder

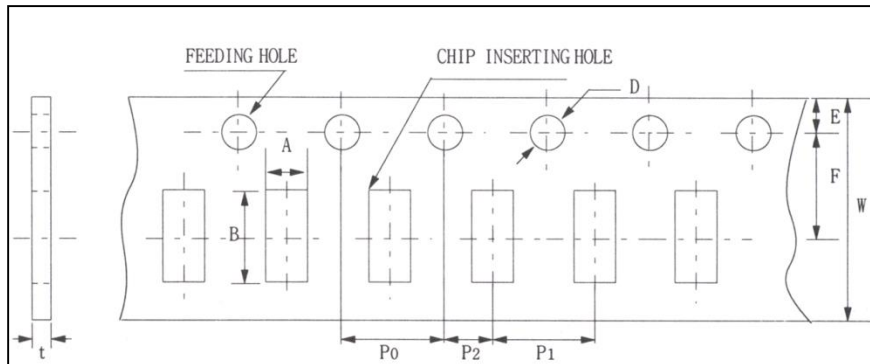
- Max Temperature: Max 380 °C(Max 5sec)

9. Packing specification

9.1 Taping figure



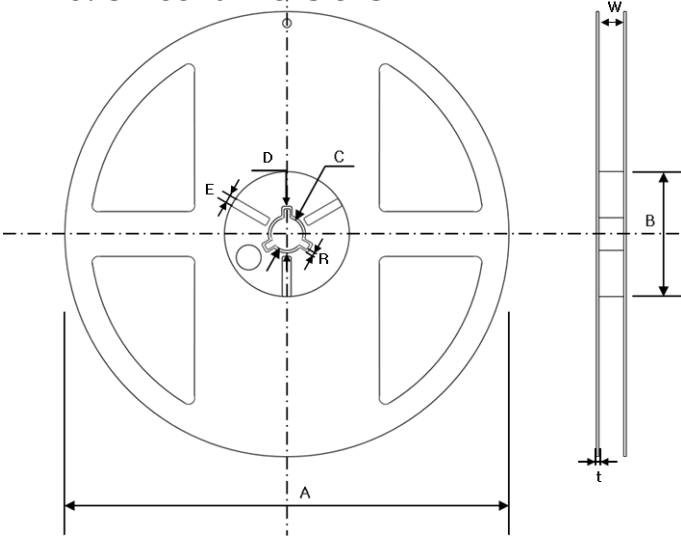
9.2 Carrier tape dimensions



Unit : mm

SYMBOL	A	B	W	F	E	P ₁	P ₂	P ₀	D	t	
DIMENSION	11	1.15 ±0.05	1.5 ±0.05	8.0 +0.30 -0.10	3.5 ±0.05	1.75 ±0.05	4.0 ±0.10	2.0 ±0.05	4.0 ±0.10	1.55 ±0.03	0.75 ±0.05

9. 3 Reel dimensions

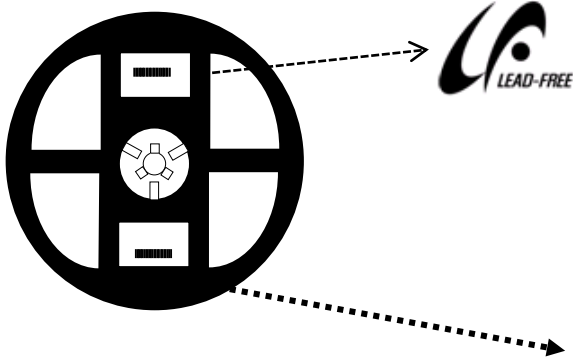


- (1) Reel Materials: Polystyrene
- (2) Label
- (3) Taping
 - Standard Packing Quantity per Reel ($\phi 178$)
 - Paper Tape: 4,000pcs

Unit : mm

CODE	A	B	C	D	E	W	t	R
DIMENSION	$\phi 178 \pm 2$	Min. $\phi 50$	$\phi 13 \pm 0.5$	$\phi 20 \pm 0.8$	3.0 ± 0.5	10 ± 1.5	1.3 ± 0.2	1.0 ± 0.2

9. 4 Label code



- P/N : Part Number
- L/N : Lot Number
- C/N : Customer Number
- SPEC : Size, Line numbers & CM Impedance
- DATE : Date code
- Q'TY : Quantity

9. 5 Reel packing



- (1) Product box material : Card board
- (2) 5 Reels in each SPQ Box
- (3) PQ Box contains 10 SPQ Boxes (50 Reels)

Packing box + Product weight

Size			S-box + 5reel		M-box + 5S-box		L-box + 10S-box	
Product	L x W x H(mm)		185 x 70 x 185		370 x 190 x 200		380 x 370 x 200	
	Size	weight(g)	Total(g)	Chip(g)	Total(g)	Chip(g)	Total(g)	Chip(g)
		/1 unit						
Common Mode Filter	0806	0.00124	643	62	3215	310	6147	620
	1210	0.00480	750	96	3758	480	7503	960
	2012	0.00750	804	150	4028	750	8043	1500
Common Mode ESD Filter	0806	0.00128	646	65	3230	325	6177	650
	1210	0.00490	752	98	3768	490	7523	980
	1608	0.00237	701	47	3515	237	7017	474
	2012	0.00760	806	152	4038	760	8063	1520