

1. Generals

- This specification covers the engineering requirements for the CMF2012DH900MFR (Common Mode Filter)

2. Features

- Effective for suppressing common mode noise and almost no effect for high speed differential data line
- Ultra low profile (2.0 × 1.2 × 1.0mm)
- Ceramic multilayer type SMD component
- Non-polarized product
- It is a product conforming to RoHS directive.

3. Applications

- High speed interfaces (IEEE1394, USB2.0, and LVDS) in electronic devices
- PDP, LCD TV, DVD Player, PC, Audio player, DSC

4. Product specifications

4. 1 PART NUMBER CODE

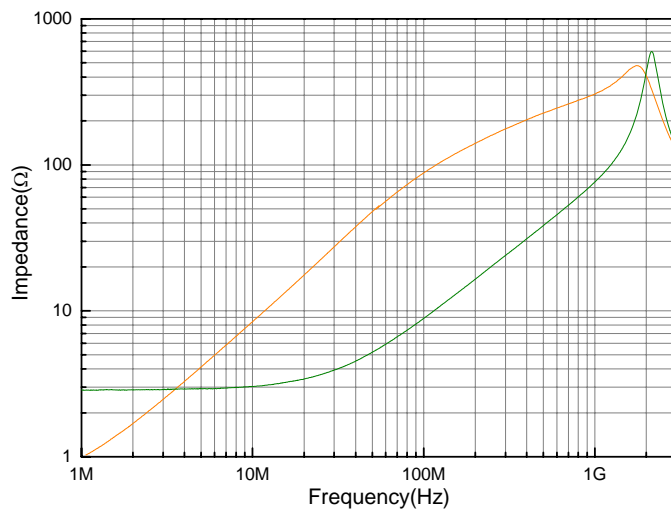
CMF 2012 DH 900 MFR
 ① ② ③ ④ ⑤

- ① Series name of ASIM's Common Mode Filter
- ② Dimensions, 2.00mm (L) × 1.20mm (W)
- ③ Number of lines, DH= 2 lines
- ④ Common Mode Impedance (at 100MHz), 900 = 90 Ω
- ⑤ Tolerance of common mode impedance, MFR= ±25%

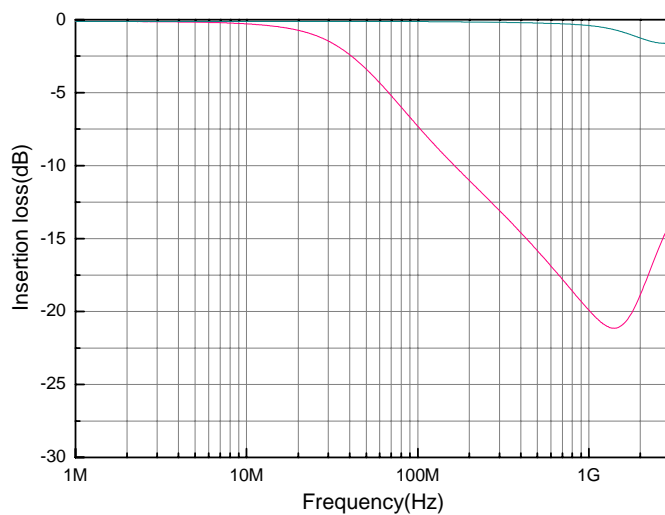
4. 2 Specification of electrical characteristics

Part Number	Characteristics	Common Mode Impedance ◊ CTQ ◊	Resistance ◊ CTQ ◊	Rated Current	Rated Voltage	Insulation Resistance (Min)
	symbol	Z_{CM}	R_{DC}	I_R	V_C	IR_{CR}
	Units	Ω	Ω	mA (Max)	Volt (typ)	Ω
	Test Condition	@100MHz	$25^\circ C \pm 2^\circ C$	2V	$25^\circ C \pm 2^\circ C$	10V
CMF2012DH900MFR	Value	$90\Omega \pm 25\%$	4.0Ω	$\leq 120mA$	$\leq 12V$	$\geq 10M\Omega$

- Impedance Curves



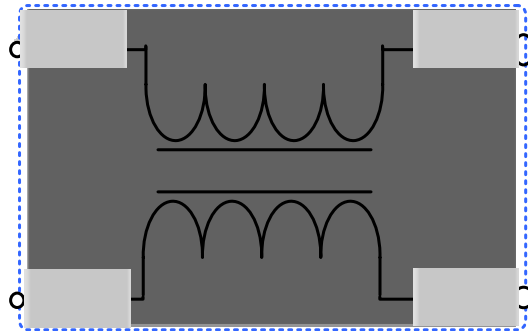
- Transmission characteristics (S-parameter)



4.3 Operating Temperature

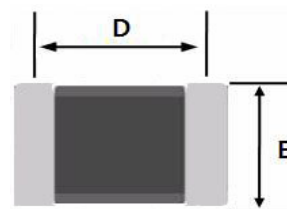
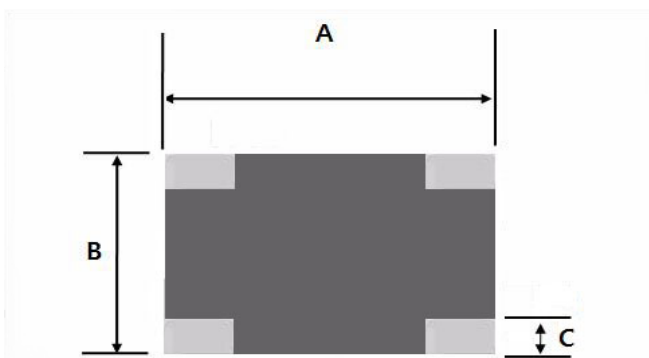
DESCRIPTION	REQUIREMENTS
Operating Temperature	-40℃ ~ + 85℃

5. Equivalent Circuit



6. Mechanical Property

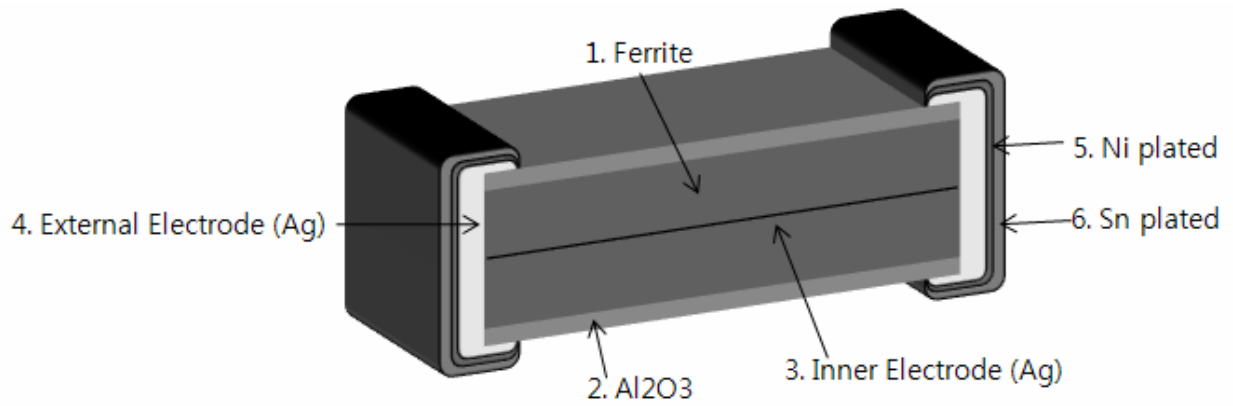
6.1 Appearance and Dimension



Unit : mm

Symbol	A	B	C	D	E
Dimension	2.0±0.15	1.20±0.15	0.30±0.05	0.90±0.05	1.0±0.15

6. 2 Structure of Product



7. TEST METHOD OF ELECTRICAL PROPERTY

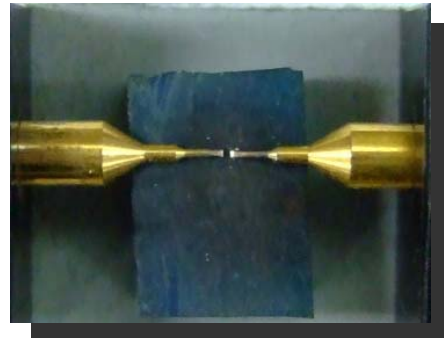
- PIN INDEX



ITEM	DESCRIPTION	SOURCE	EQUIPMENT
Rdc	Pin 1 to Pin 3 Pin 2 to Pin 4	100mA DC Source	Source Meter
CM Impedance	Pin1+Pin2(Short) to Pin3+Pin4(Short)		LCR Meter (3GHz)

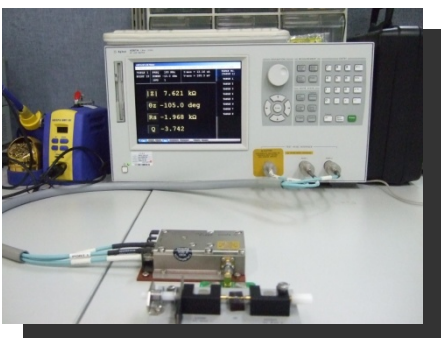
7. 1 Rdc (Model: KEITHLEY 2400)

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



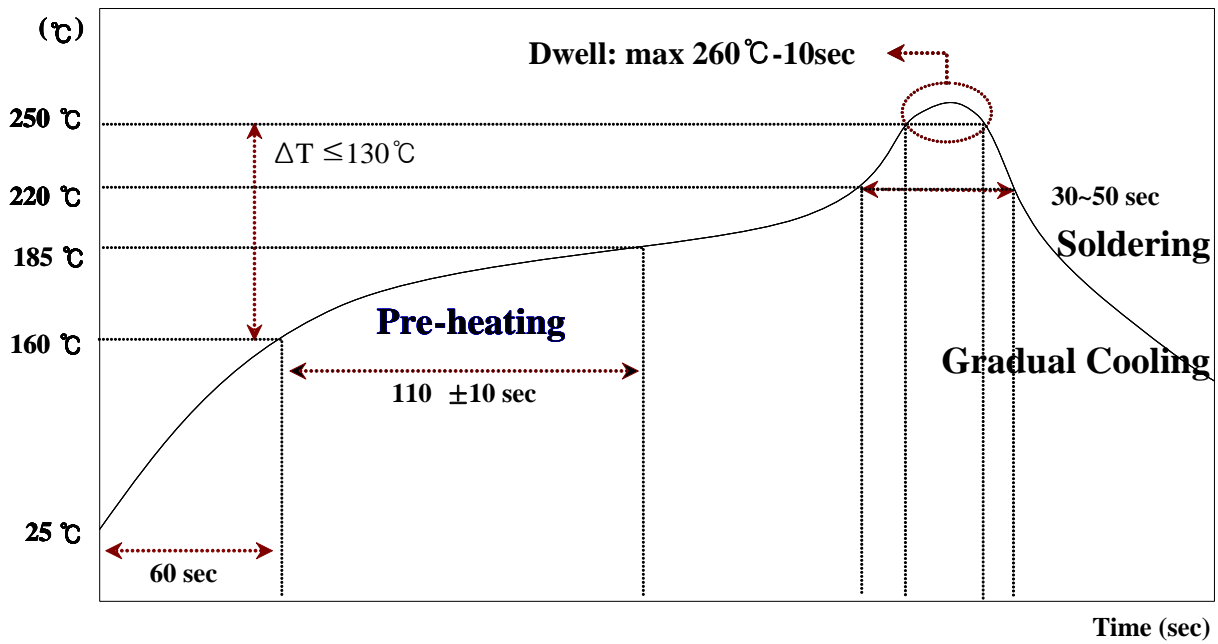
7. 2 Common Mode Impedance (Model: Agilent 4287A)

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

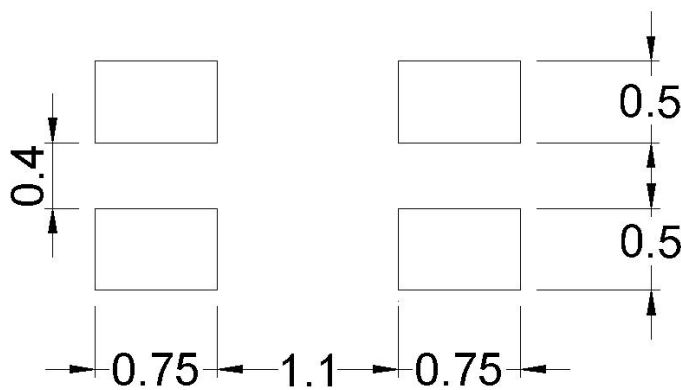


8. REFLOW CONDITION

8. 1 RECOMMENDED SOLDERING PROFILE (Lead-free condition)



8. 2 RECOMMENDED FOOT PRINT



Unit : mm

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)

ITEM	P/N	Page
Chip Common Mode Filter	CMF2012C101MFR	7

9. WARRANTY OF RELIABILITY

9.1 OUTGOING INSPECTION

Size	Inspection Level	Sample size	AQL	Ac	Re
10,001~35,000	G-1 (K)	80	0.15	0	1

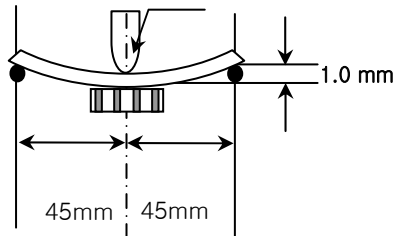
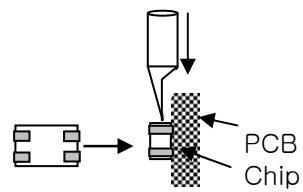
ITEM	R(LSL)	R(USL)	Cross I.R(MIN)	Z(LSL)	Z(USL)	DEC
SPEC(Ω)	1	4	MIN 10M Ω	67.5	112.5	PASS

9.2 PART FAILURE RATE

- FAILURE RATE : 1.0×10^{-5} /hrs @85°C*(confidence level 60%)

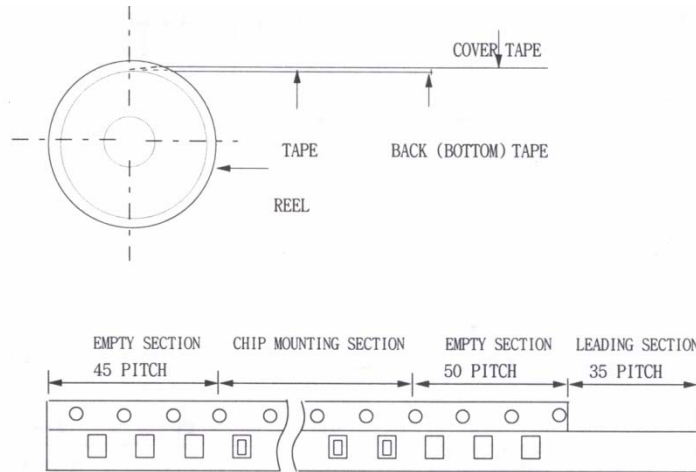
10. RELIABILITY TEST AND SPECIFICATION

- METHOD OF RELIABILITY TEST

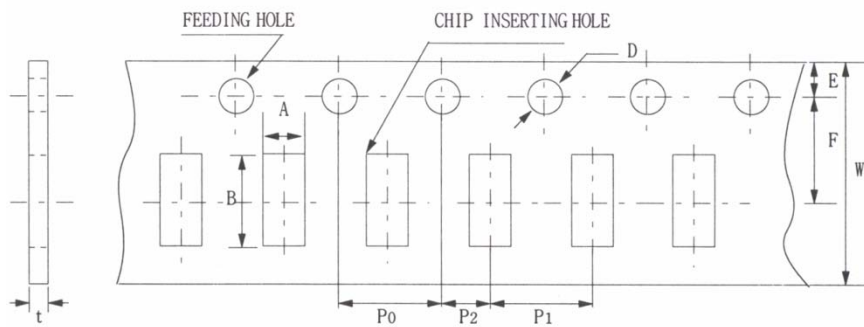
No	ITEM	REQUIREMENT	TEST CONDITION
1	Reflow soldering	No mechanical damage. More than 50% of the terminal Electrode shall be covered with new solder.	-Pre-heating temperature : 160 ~ 185℃ time : 110 ±10 sec -Soldering temperature : 220℃ 이상 time : 40 ±10 sec -Peak temperature : max 260℃ time : max 10sec.
2	Bending Strength test	No mechanical damage. impedance change: within ±30%	
3	Adhesive strength of Terminal electrode	Adhesion strength should be over 1kgf	
4	Thermal shock (Temperature cycle)	No mechanical damage. impedance change: within ±30%	Step 1: -40 ±2℃ 30 ±3min. Step 2: 85 ±2℃ 30 ±3min. Number of cycle : 100 times Then measured after exposure in the room condition for 24±2hrs
5	Heat Load resistance	No mechanical damage. impedance change: within ±30%	Temperature : 85 ±2℃ Applied Current : Rated Current Time: 1000hrs Then measured after exposure in the room condition for 24±2hrs
6	Humidity load resistance	No mechanical damage. impedance change: within ±30%	Temperature : 40 ±2℃ Humidity : 90 ~ 95%RH Applied Current : Rated Current Time: 500hrs Then measured after exposure in the room condition for 24±2hrs

11. PACKING SPECIFICATION

11. 1 TAPING FIGURE



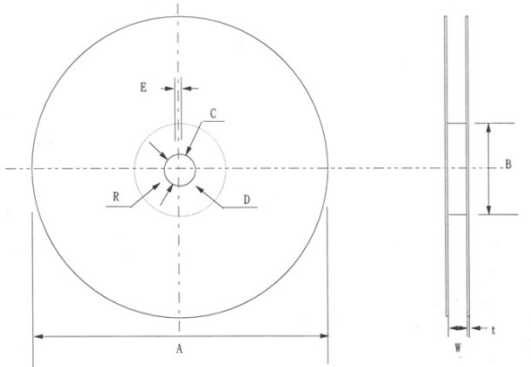
11. 2 CARRIER TAPE DIMENSIONS



Unit : mm

SYMBOL		A	B	W	F	E	P ₁	P ₂	P ₀	D	t
DIMENSION	21	1.65	2.4	8.0	3.5	1.75	4.0	2.0	4.0	1.5	1.1
		±0.2	±0.2	±0.3	±0.05	±0.1	±0.1	±0.05	±0.1	±0.01	below

11. 3 REEL DIMENSIONS

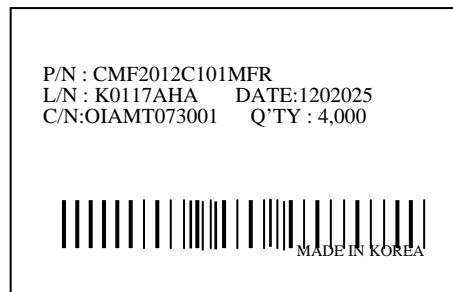
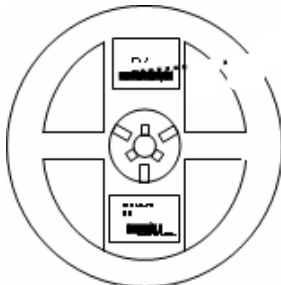


- (1) Reel Materials: Polystyrene
- (2) Label
- (3) Taping
 - Standard Packing Quantity per Reel ($\phi 178$)
 - Paper Tape: 4,000pcs

Unit : mm

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

11. 4 LABEL CODE



- P/N : Part Number
- L/N : Lot Number
- C/N : Customer Number
- DATE : Date code
- Q'TY : Quantity