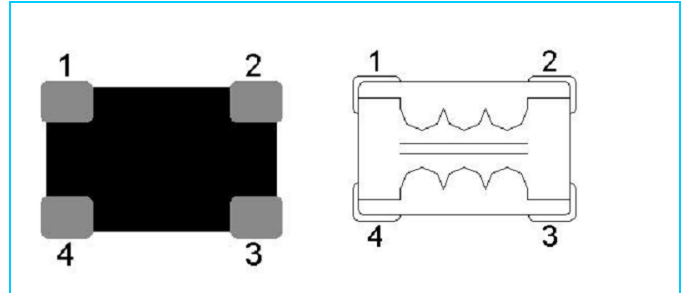


## (Chip Common Mode Filter) Engineering Specification

### MCM2012B Series

#### Features and Application

Powerful components with composite co-fired material to solve EMI problem for high speed differential signal transmission line as USB, and LVDS, without distortion to high speed signal transmission



### PRODUCT DETAIL

Part Number	Imp.Com. ( $\Omega$ ) $\pm 25\%$ @100MHz	DCR Max. ( $\Omega$ )	Rated Current Max.(m A)	Rated Voltage (V)	Withstand Voltage (V)	Insulation Resistance Min.(M $\Omega$ )
MCM2012B670GBE	67	0.40	400	10	25	200
MCM2012B900GBE	90	0.40	400	10	25	200
MCM2012B121GBE	120	0.40	400	10	25	200
MCM2012B161GBE	160	0.50	400	10	25	200
MCM2012B181GBE	180	0.50	400	10	25	200
MCM2012B221FBP	220	0.50	300	10	25	200
Test Instruments	<ul style="list-style-type: none"> <li>Agilent E4991A RF IMPEDANCE / MATERIAL ANALYZER</li> <li>HP4338 MILLIOHMMETER</li> <li>Agilent E5071C ENA SERIES NETWORK ANALYZER</li> <li>Keithley 2410 1100V SOURCE METER</li> </ul>					

### PART NUMBER CODE

**MCM 2012 B 90 0 G B E**

1      2      3      4      5      6      7      8

1: Series name

2: Size Code:the first two digitals:length(mm),the last two digitals:width(mm)

3: Material code

4: Impedance( $\Omega$ )  $\pm 25\%$

5: Fixed Decimal Point } (ex : 900=90 $\Omega$  ; 121=120 $\Omega$ )

6: Rated Current Code

A=50mA	B=80mA	C=100mA	D=150mA	E=200mA	F=300mA
G=400mA	H=500mA	I=600mA	J=700mA	K=800mA	

7: Soldering:Green Parts:A-Soldering Lead-Free B-Lead-Free for whole chip

8: Packaging style E – Embossed paper tape, 7" reel.

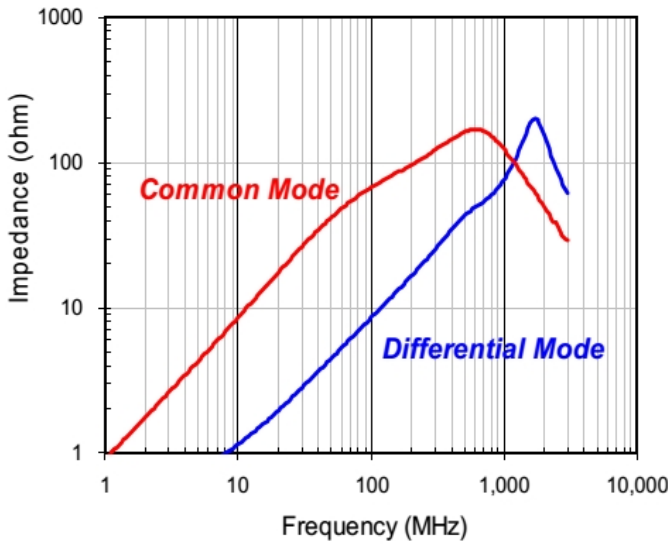
**(Chip Common Mode Filter) Engineering Specification**

**MCM2012B Series**

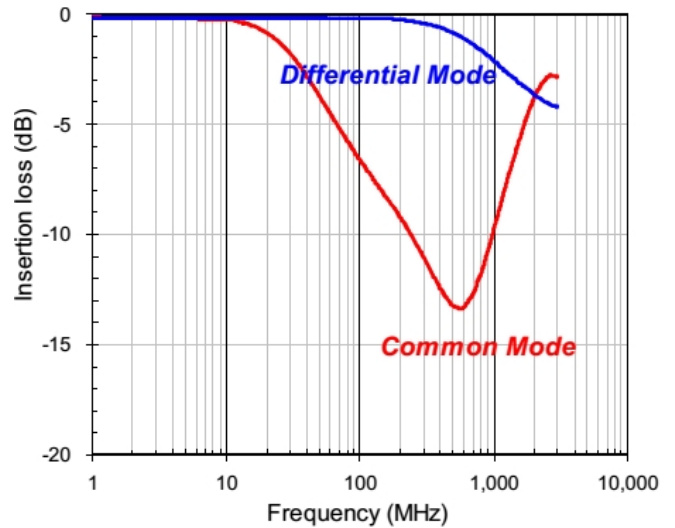
**TYPICAL CHARACTERISTIC**

**MCM2012B670**

**Fig1. IMPEDANCE vs. FREQUENCY CHARACTERISTICS**

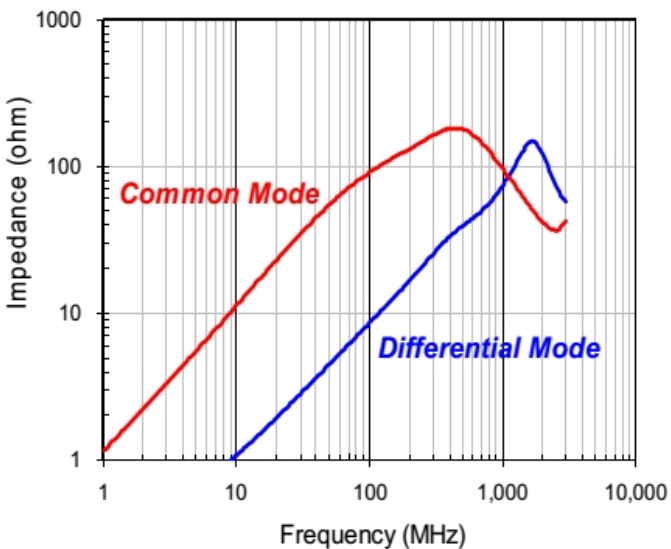


**Fig2. INSERTION LOSS vs. FREQUENCY CHARACTERISTICS**

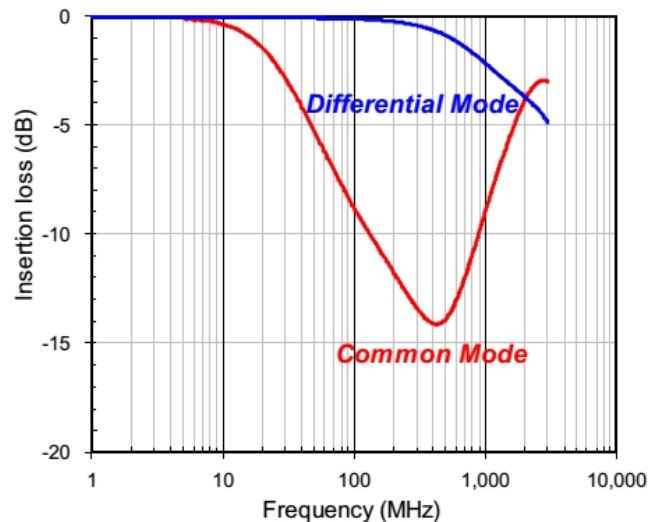


**MCM2012B900**

**Fig3. IMPEDANCE vs. FREQUENCY CHARACTERISTICS**



**Fig4. INSERTION LOSS vs. FREQUENCY CHARACTERISTICS**



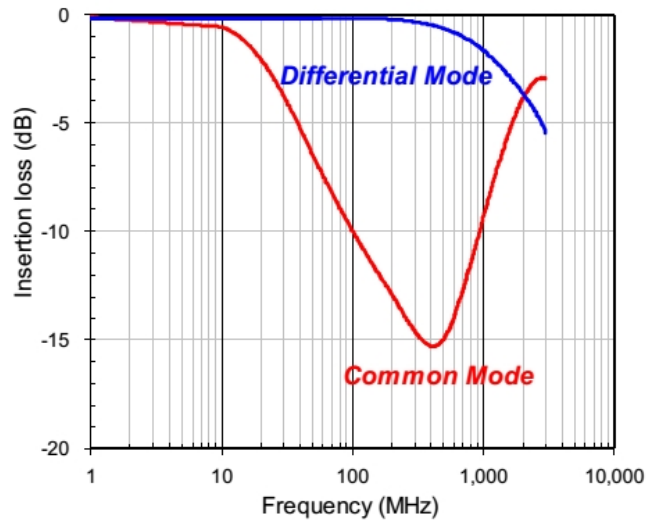
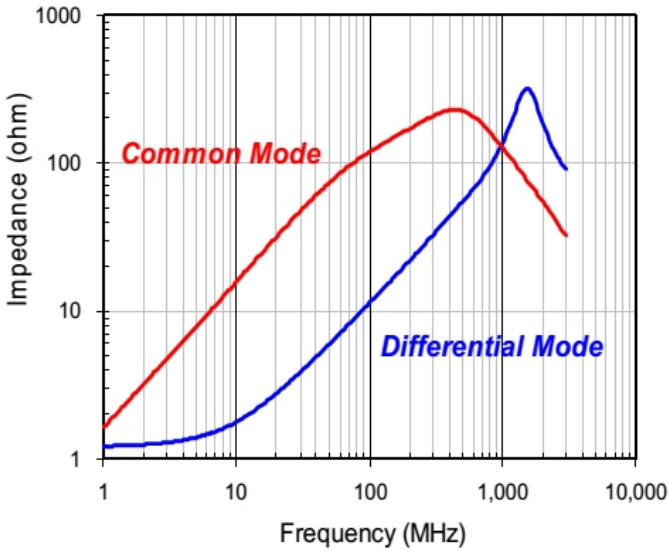
**(Chip Common Mode Filter) Engineering Specification**

**MCM2012B Series**

**MCM2012B121**

Fig5. IMPEDANCE vs. FREQUENCY CHARACTERISTICS

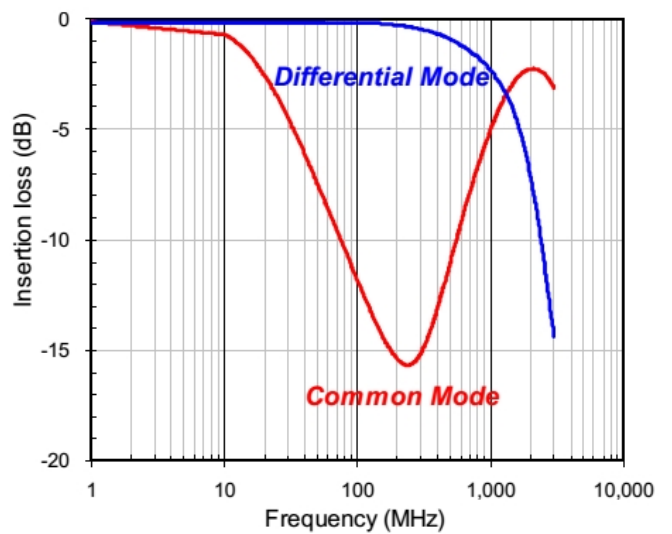
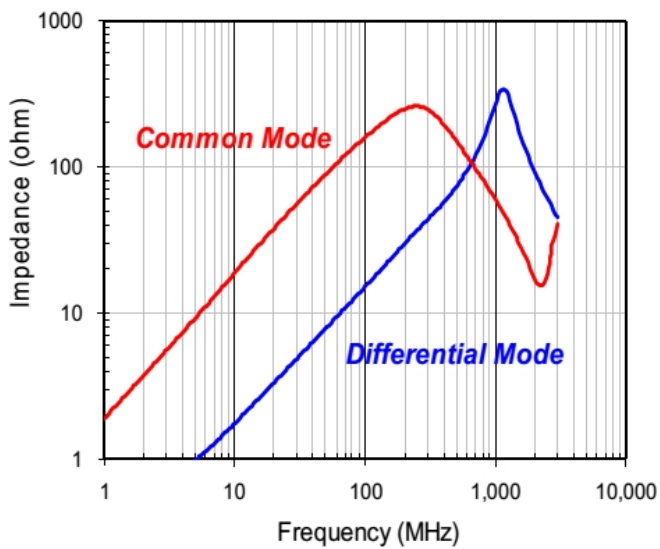
Fig6. INSERTION LOSS vs. FREQUENCY CHARACTERISTICS



**MCM2012B161**

Fig7. IMPEDANCE vs. FREQUENCY CHARACTERISTICS

Fig8. INSERTION LOSS vs. FREQUENCY CHARACTERISTICS



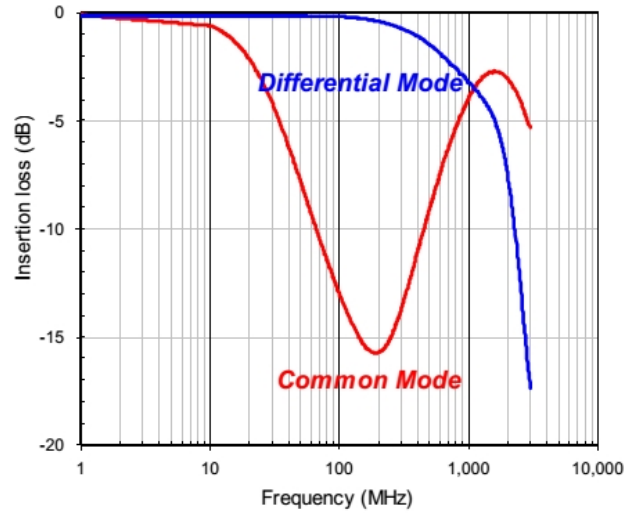
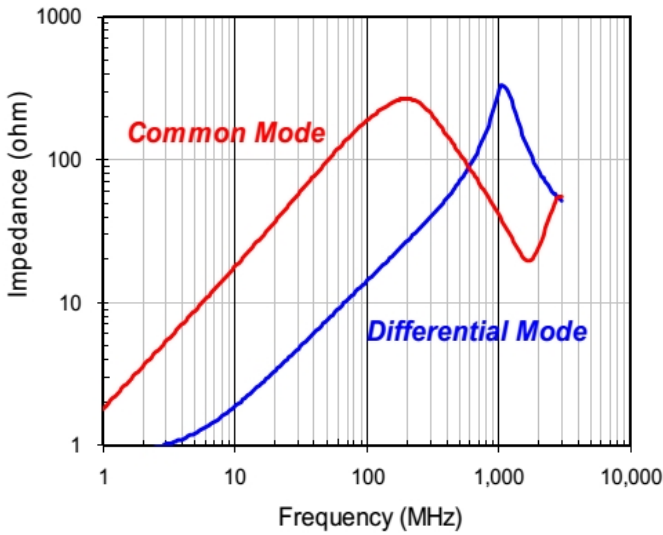
**(Chip Common Mode Filter) Engineering Specification**

**MCM2012B Series**

**MCM2012B181**

**Fig9. IMPEDANCE vs. FREQUENCY CHARACTERISTICS**

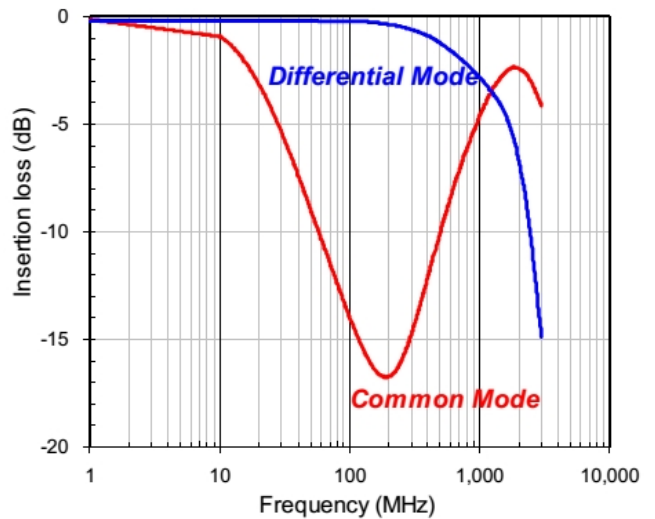
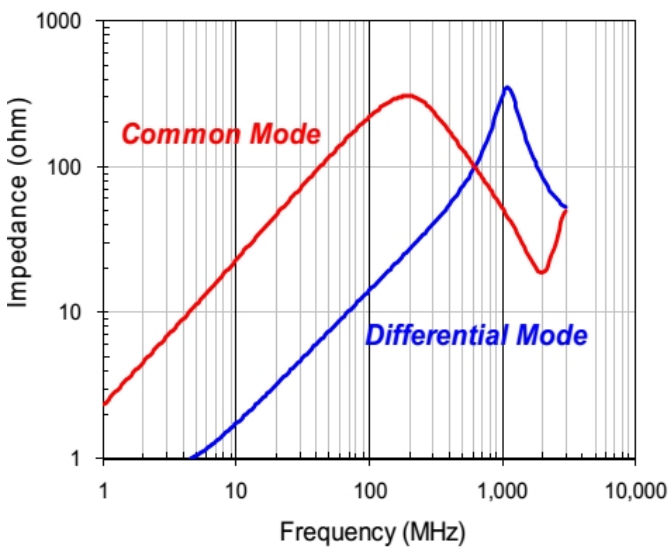
**Fig10. INSERTION LOSS vs. FREQUENCY CHARACTERISTICS**



**MCM2012B221**

**Fig11. IMPEDANCE vs. FREQUENCY CHARACTERISTICS**

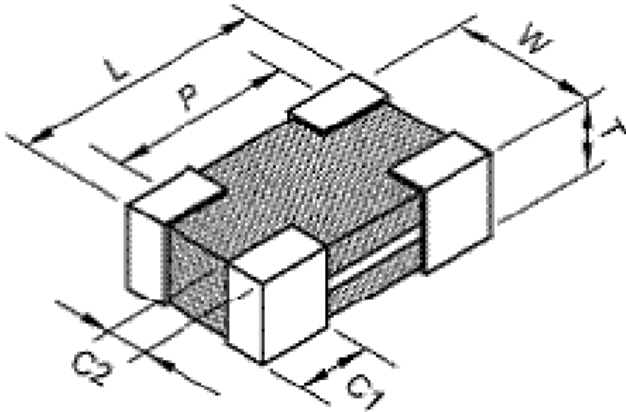
**Fig12. INSERTION LOSS vs. FREQUENCY CHARACTERISTICS**



**(Chip Common Mode Filter) Engineering Specification**

**MCM2012B Series**

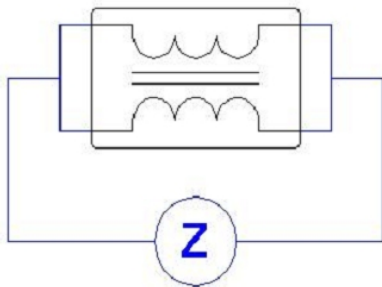
**SHARES AND DIMENSIONS**



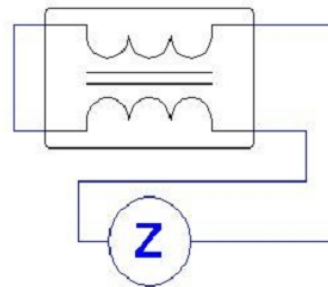
TYPE	Dimension
L	2.00±0.20
W	1.25±0.20
T	1.00±0.10
P	1.60±0.20
C1	0.40±0.20
C2	0.30±0.20
Unit : mm	

**MEASURING CIRCUITS**

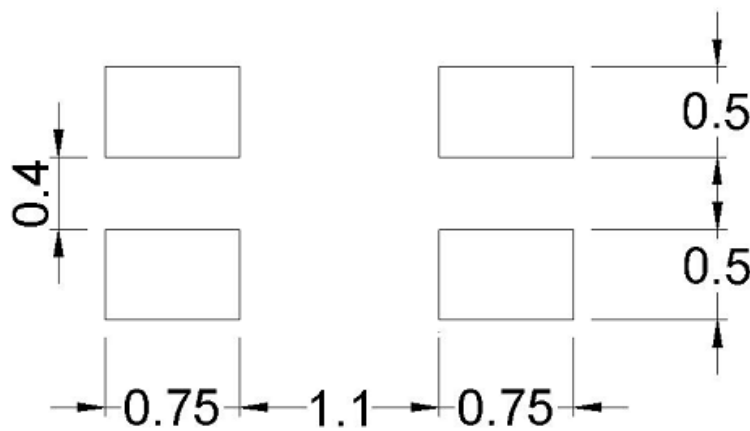
(A): Common mode



(B): Differential mode



**CIRCUIT CONFIGURATION & LAYOUT PAD**

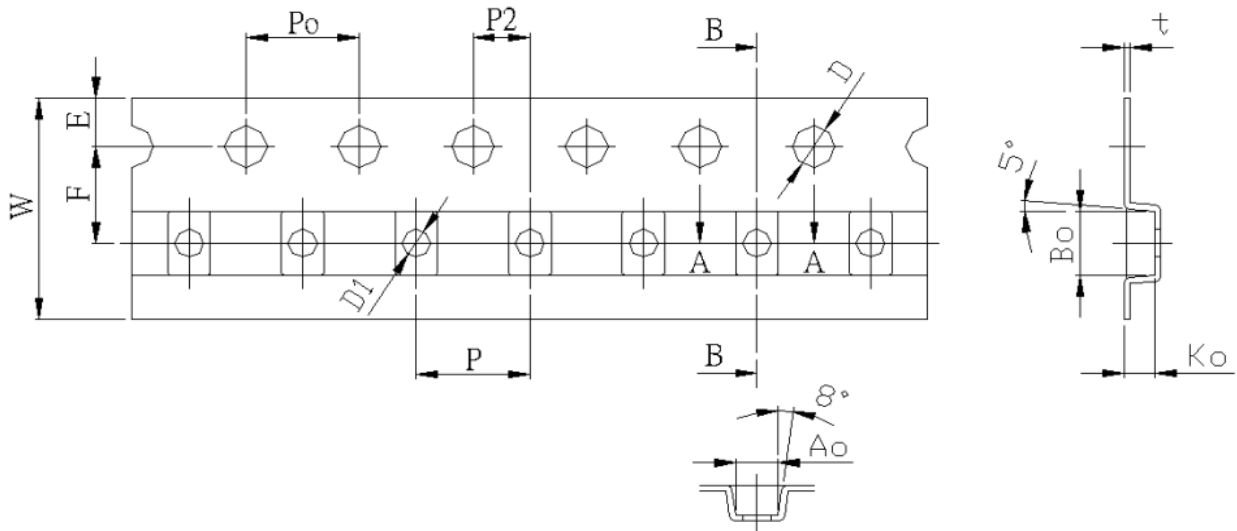


## (Chip Common Mode Filter) Engineering Specification

### MCM2012B Series

#### TAPE AND REEL SPECIFICATIONS / TAPING DIMENSIONS

Type : Paper Carrier



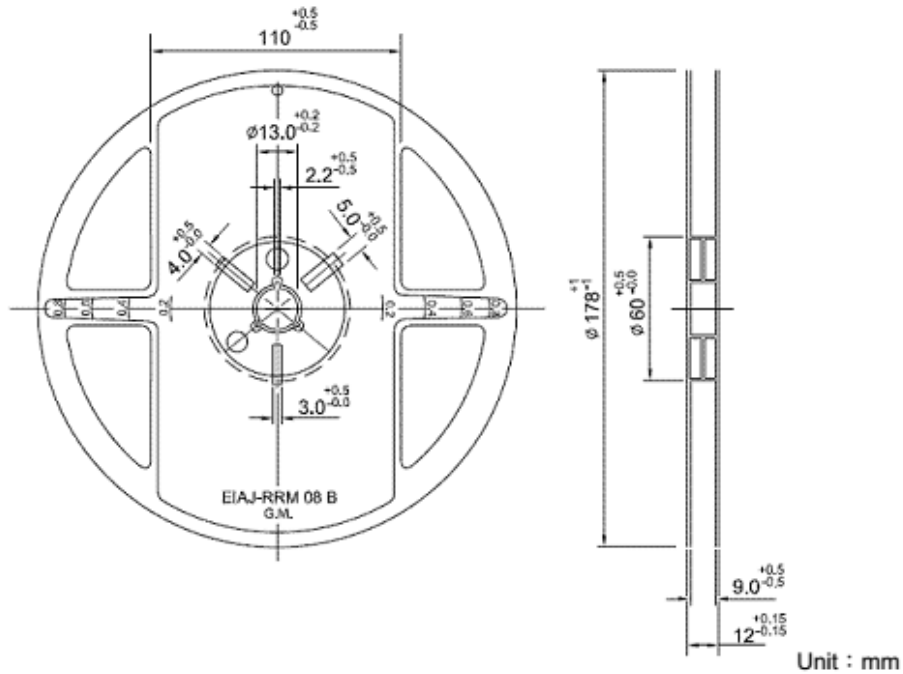
Unit : mm

Symbol	size	symbol	size
W	8.00±0.10	D1	1.00±0.10
P	4.00±0.10	P <sub>0</sub>	4.00±0.10
E	1.75±0.10	A <sub>0</sub>	1.40±0.10
F	3.50±0.05	B <sub>0</sub>	2.30±0.10
P2	2.00±0.05	K <sub>0</sub>	1.13±0.10
D	1.50+0.1/-0	t	0.22±0.05

## (Chip Common Mode Filter) Engineering Specification

### MCM2012B Series

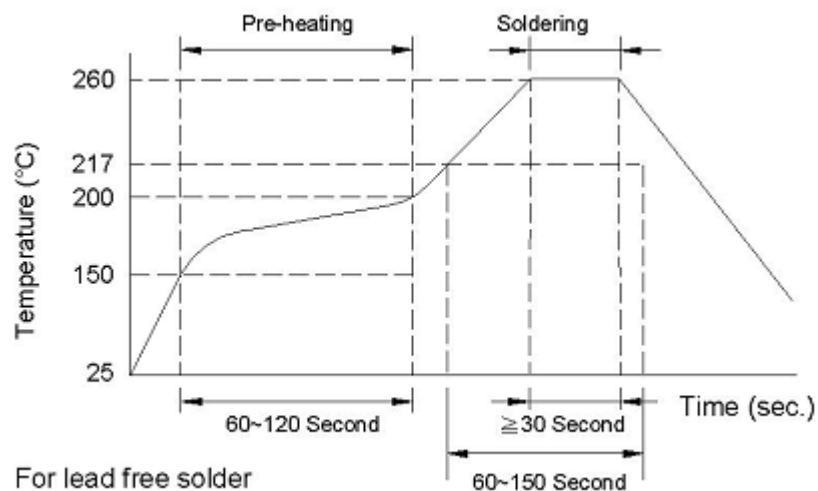
#### REEL DIMENSIONS



#### STANDARD QUANTITY FOR PACKAGING

Packaging style : Taping  
Reel packaging quantity : 3000 pcs/reel  
Inner box : 5 reel/inner box

#### RECOMMENDED SOLDERING CONDITIONS



#### GENERAL TECHNICAL DATA

Operation temperature range : -40°C ~ +85°C  
Storage Condition : Less than 40°C and 70% RH  
Storage Time: 6 months Max.  
Soldering method: Reflow or Wave Soldering

**(Chip Common Mode Filter) Engineering Specification**
**MCM2012B Series**
**RELIABILITY AND TEST CONDITION**

Test item	Test condition	Criteria
<b>Temperature Cycle</b>	A. Temperature : -40 ~ +85°C B. Cycle : 100 cycles C. Dwell time : 30minutes  Measurement : at ambient temperature 24 hrs after test completion	A. No mechanical damage B. Impedance value should be within $\pm 20\%$ of the initial value
<b>Operational Life</b>	A. Temperature : 85°C $\pm 5^\circ\text{C}$ B. Test time : 1000 hrs C. Apply current : full rated current  Measurement : at ambient temperature 24 hrs after test completion	A. No mechanical damage B. Impedance value should be within $\pm 20\%$ of the initial value
<b>Biased Humidity</b>	A. Temperature : 40 $\pm 2^\circ\text{C}$ B. Humidity : 90 ~ 95 % RH C. Test time : 1000 hrs D. Apply current : full rated current  Measurement : at ambient temperature 24 hrs after test completion	A. No mechanical damage B. Impedance value should be within $\pm 20\%$ of the initial value
<b>Resistance to Solder Heat</b>	A. Solder temperature : 260 $\pm 5^\circ\text{C}$ B. Flux : Rosin C. DIP time : 10 $\pm 1$ sec	A. More than 95 % of terminal electrode should be covered with new solder B. No mechanical damage C. Impedance value should be within $\pm 20\%$ of the initial value
<b>Steam Aging Test</b>	A. Temperature : 93 $\pm 2^\circ\text{C}$ B. Test time : 4 hrs(MCA) Others : 8 hrs C. Solder temperature : 235 $\pm 5^\circ\text{C}$ D. Flux : Rosin E. DIP time : 5 $\pm 1$ sec	More than 95 % of terminal electrode should be covered with new solder