Data Sheet

Customer:	
Product:	**Multilayer Chip Common Mode Filter—CMX Series**
Sizes.:	**0504 / 0805 / 1206**
Issued Date:	**14-Apr-25**
Edition:	**REV.A3**

RoHS Compliant

HONG KONG HELISTO INDUSTRIAL LIMITED
香港海利斯特实业有限公司

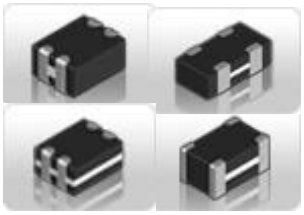
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Multilayer Chip Common Mode Filter

■Features And Application



For CMX04G

－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.
－MIPI, MHL or HDMI, etc., serial interface in mobile device

For CMX05G/CMX04B

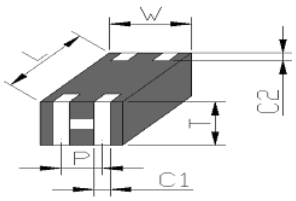
－Powerful components with composite co-fired materials to solve EMI problem for high speed differential signal transmission lines as USB, and LVDS, without distortion to high speed signal transmission.
－MIPI, MHL serial interface in mobile device

For CMX05B/CMX06B

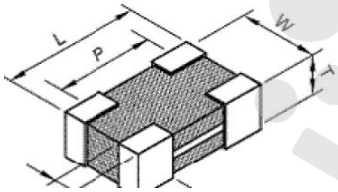
－Powerful components with composite co-fired materials to solve EMI problem for high speed differential signal transmission lines as USB, and LVDS, without distortion to high speed signal transmission.

■Dimensions

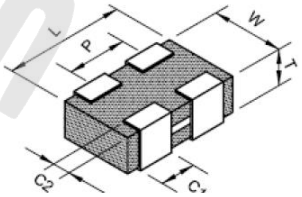
CMX04B



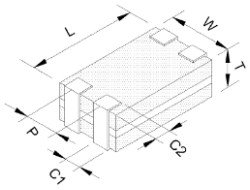
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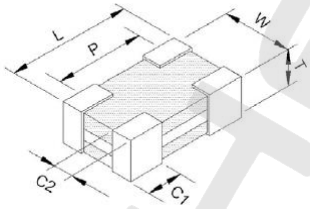
CMX06B



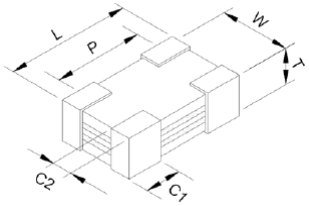
CMX04G



CMX05G



CMX05GYT500F



Type	Sizes (Inch)	L (mm)	W (mm)	T (mm)	P (mm)	C1 (mm)	C2 (mm)
CMX04B	0504	1.25±0.10	1.00±0.10	0.60±0.10	0.50±0.10	0.30±0.10	0.20±0.15
CMX05B	0805	2.00±0.20	1.25±0.20	1.00±0.10	1.60±0.20	0.40±0.20	0.30±0.20
CMX06B	1206	3.20±0.20	1.60±0.20	1.00±0.10	2.10±0.20	0.70±0.20	0.30±0.20
CMX04G	0504	1.25±0.10	1.00±0.10	0.50±0.10	0.55±0.10	0.30±0.10	0.20±0.15
CMX05G	0805	2.00±0.20	1.20±0.20	1.00±0.10	1.60±0.20	0.40±0.20	0.30±0.20

Multilayer Chip Common Mode Filter

■Part Numbering

CMX	05B	Y	T	900	
Product Type	Dimensions LxW	Impedance Tolerance	Packaging Code	Impedance	Function Code
	04B: 0504 05B: 0805 06B: 1206 04G: 0504 05G: 0805	Y: ±25%	T: Taping Reel	670: 67Ω 900: 90Ω 121: 120Ω	: General F: High Cut-off Frequency U: Ultra High Cut-off Frequency

■Standard Electrical Specifications

CMX04B Multilayer Chip Common Mode Filter / General Use

Part No.	Impedance (Ω)	Tolerance	Test Condition (MHz)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage Vdc (V)	Withstanding Voltage (V)	Insulation Resistance (MΩ) min.
CMX04BYT670	67	±25%	100	0.50	300	10	25	200
CMX04BYT900	90	±25%	100	0.60	300	10	25	200
CMX04BYT121	120	±25%	100	0.60	300	10	25	200

CMX05B Multilayer Chip Common Mode Filter / General Use

Part No.	Impedance (Ω)	Tolerance	Test Condition (MHz)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage Vdc (V)	Withstanding Voltage (V)	Insulation Resistance (MΩ) min.
CMX05BYT670	67	±25%	100	0.40	400	10	25	200
CMX05BYT900	90	±25%	100	0.40	400	10	25	200
CMX05BYT121	120	±25%	100	0.40	400	10	25	200
CMX05BYT161	160	±25%	100	0.50	400	10	25	200
CMX05BYT181	180	±25%	100	0.50	400	10	25	200
CMX05BYT221	220	±25%	100	0.50	300	10	25	200

CMX06B Multilayer Chip Common Mode Filter / General Use

Part No.	Impedance (Ω)	Tolerance	Test Condition (MHz)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage Vdc (V)	Withstanding Voltage (V)	Insulation Resistance (MΩ) min.
CMX06BYT900	90	±25%	100	0.50	500	10	25	200

CMX04G Multilayer Chip Common Mode Filter / High Cut-off Frequency Use

Part No.	Impedance (Ω)	Tolerance	Test Condition (MHz)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (V)	Insulation Resistance (MΩ) min.
CMX04GYT500F	50	±25%	100	1.5	100	10	100
CMX04GYT670F	67	±25%	100	1.5	100	10	100
CMX04GYT900F-1	90	±25%	100	3.0	100	10	100

CMX05G Multilayer Chip Common Mode Filter / High Cut-off Frequency Use

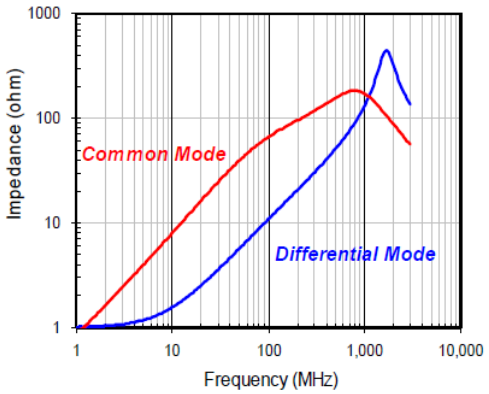
Part No.	Impedance (Ω)	Tolerance	Test Condition (MHz)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (V)	Insulation Resistance (MΩ) min.
CMX05GYT500F	50	±25%	100	1.0	100	10	100
CMX05GYT900F	90	±25%	100	1.0	100	10	100
CMX05GYT121F	120	±25%	100	1.2	100	10	100

CMX04G Multilayer Chip Common Mode Filter / Ultra High Cut-off Frequency Use

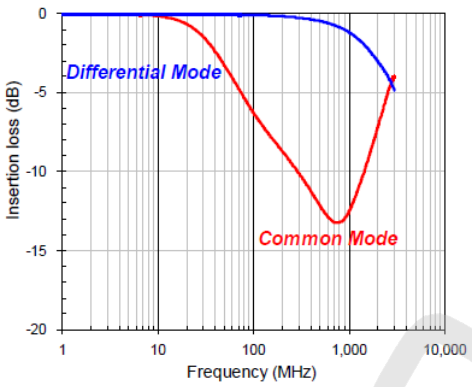
Part No.	Impedance (Ω)	Tolerance	Test Condition (MHz)	DCR (Ω) max.	Rated Current (mA) max.	Rated Voltage (V)	Insulation Resistance (MΩ) min.
CMX04GYT150U	15	±25%	100	0.8	100	10	100

■Characteristics

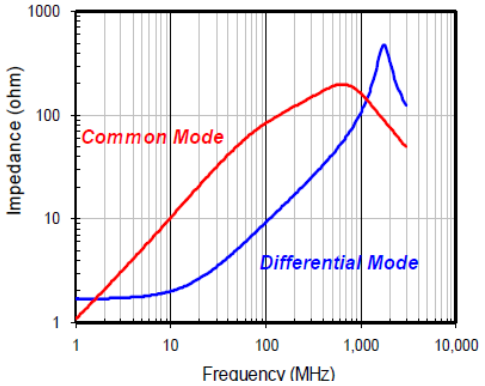
CMX04BYT670 Impedance vs. Frequency



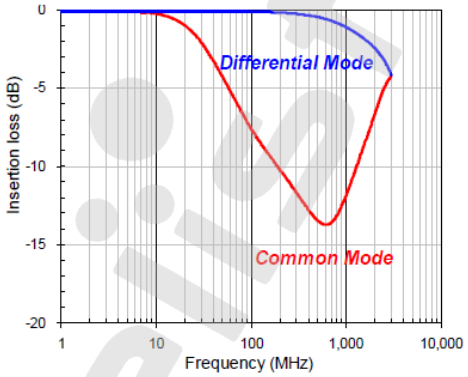
CMX04BYT670 Insertion Loss vs. Frequency



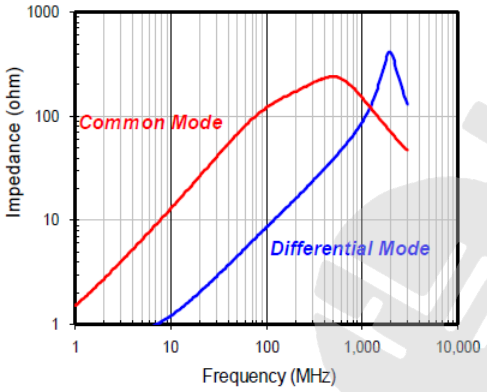
CMX04BYT900 Impedance vs. Frequency



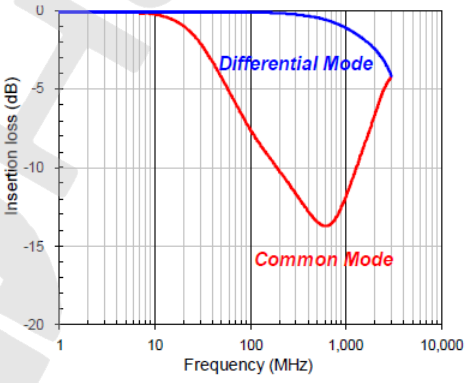
CMX04BYT900 Insertion Loss vs. Frequency



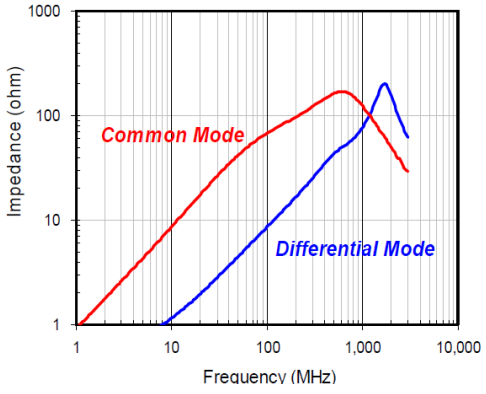
CMX04BYT121 Impedance vs. Frequency



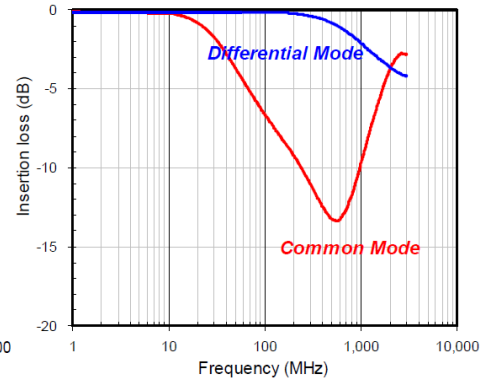
CMX04BYT121 Insertion Loss vs. Frequency



CMX05BYT670 Impedance vs. Frequency

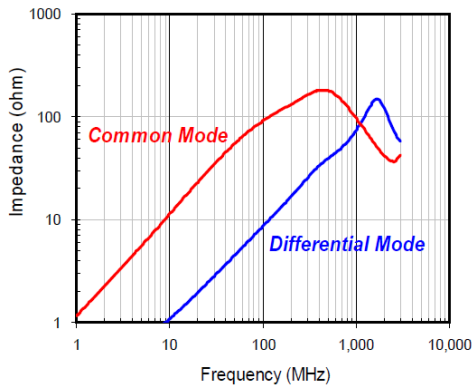


CMX05BYT670 Insertion Loss vs. Frequency

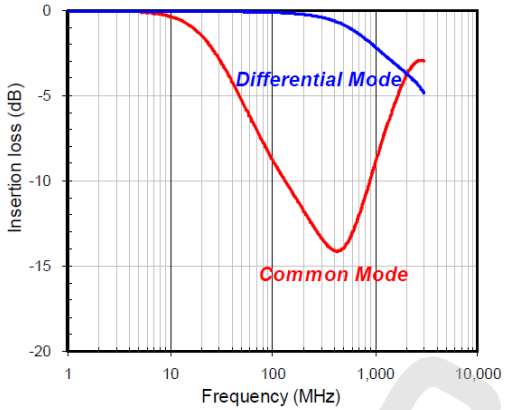


Multilayer Chip Common Mode Filter

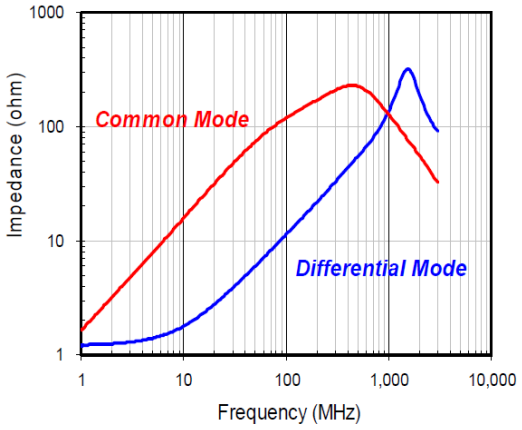
CMX05BYT900 Impedance vs. Frequency



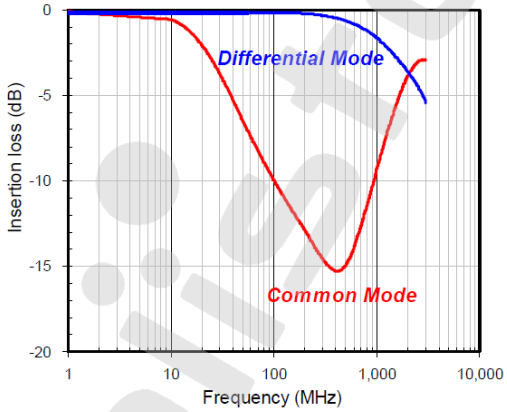
CMX05BYT900 Insertion Loss vs. Frequency



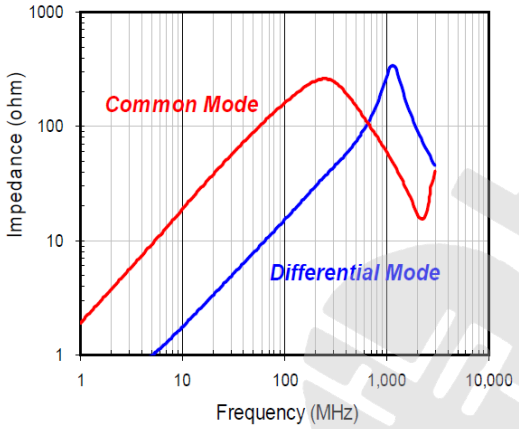
CMX05BYT121 Impedance vs. Frequency



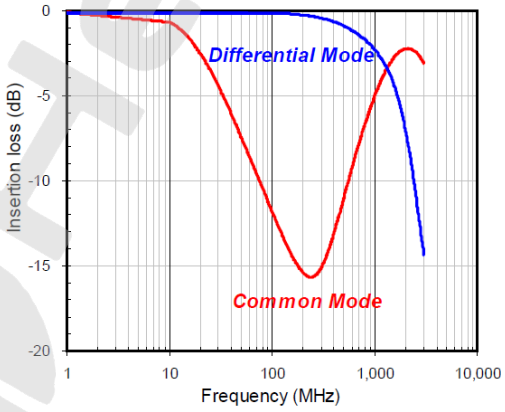
CMX05BYT121 Insertion Loss vs. Frequency



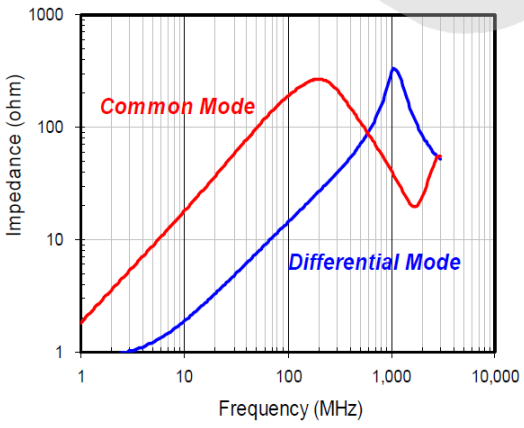
CMX05BYT161 Impedance vs. Frequency



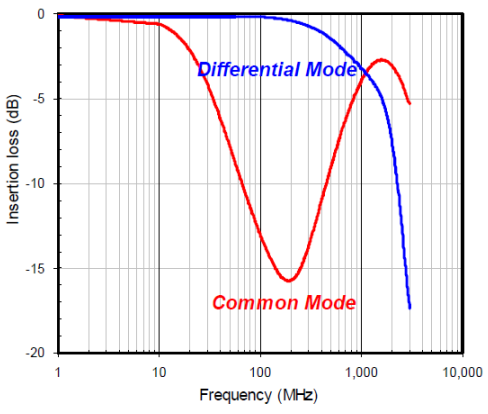
CMX05BYT161 Insertion Loss vs. Frequency



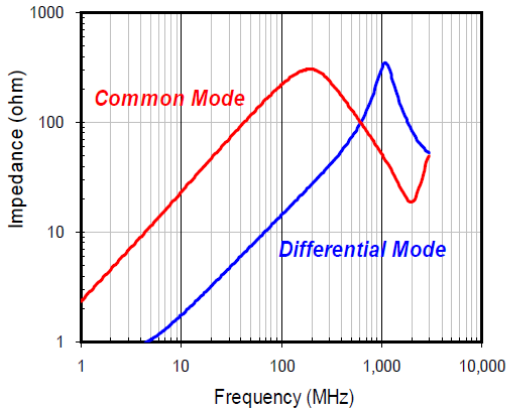
CMX05BYT181 Impedance vs. Frequency



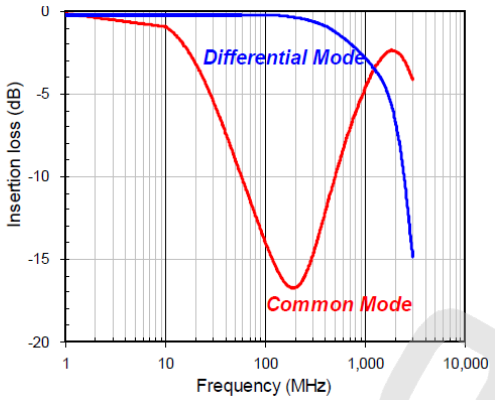
CMX05BYT181 Insertion Loss vs. Frequency



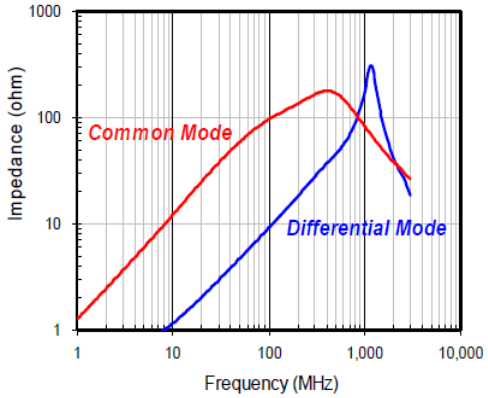
CMX05BYT221 Impedance vs. Frequency



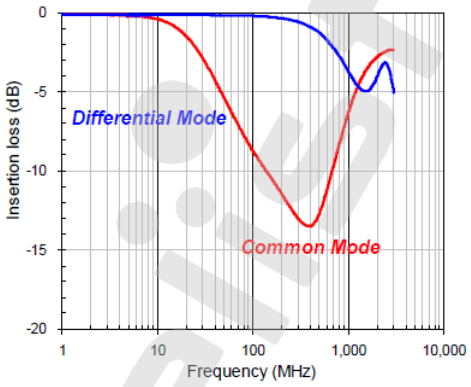
CMX05BYT221 Insertion Loss vs. Frequency



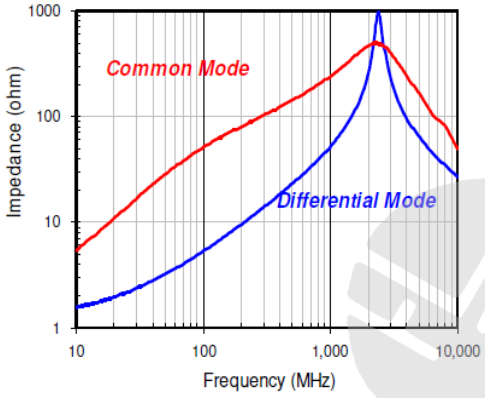
CMX06BYT900 Impedance vs. Frequency



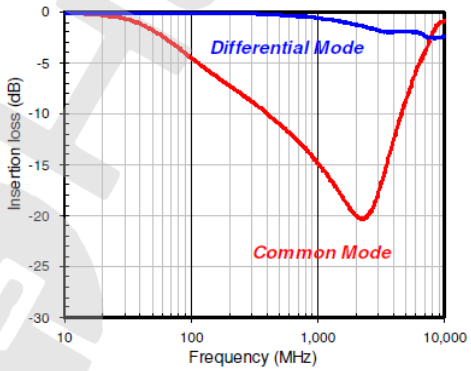
CMX06BYT900 Insertion Loss vs. Frequency



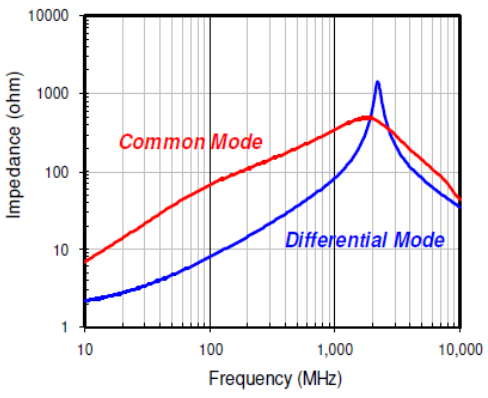
CMX04GYT500F Impedance vs. Frequency



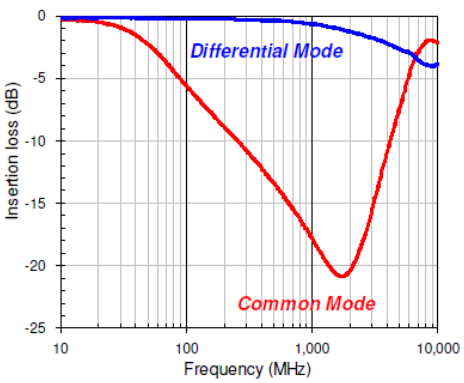
CMX04GYT500F Insertion Loss vs. Frequency



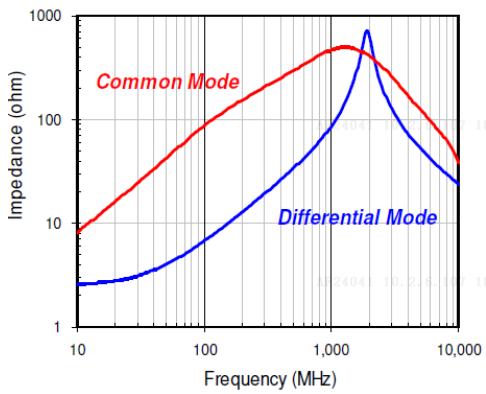
CMX04GYT670F Impedance vs. Frequency



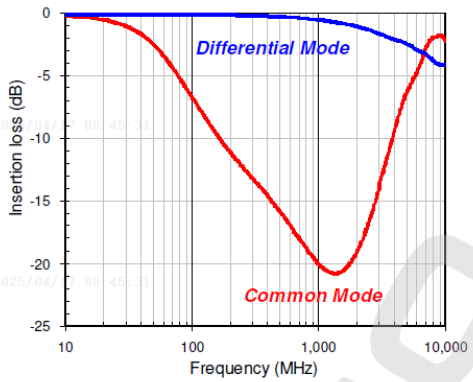
CMX04GYT670F Insertion Loss vs. Frequency



CMX04GYT900F-1 Impedance vs. Frequency

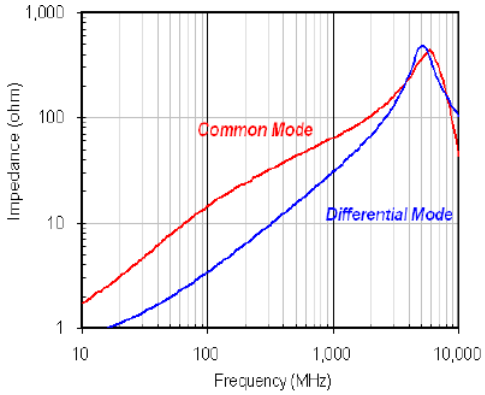


CMX04GYT900F-1 Insertion Loss vs. Frequency

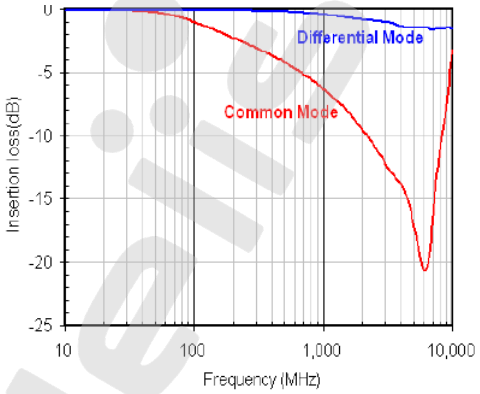


■Characteristics

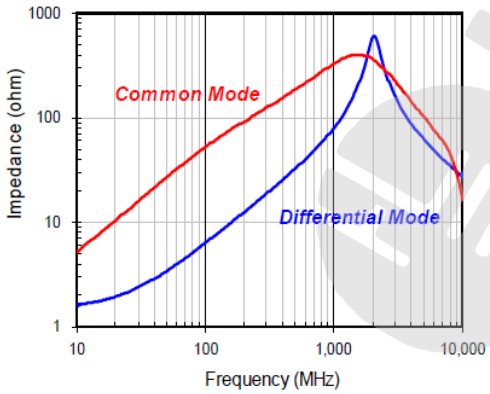
CMX04GYT150U Impedance vs. Frequency



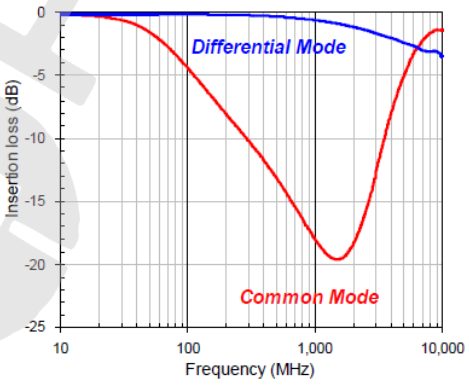
CMX04GYT150U Insertion Loss vs. Frequency



CMX05GYT500F Impedance vs. Frequency



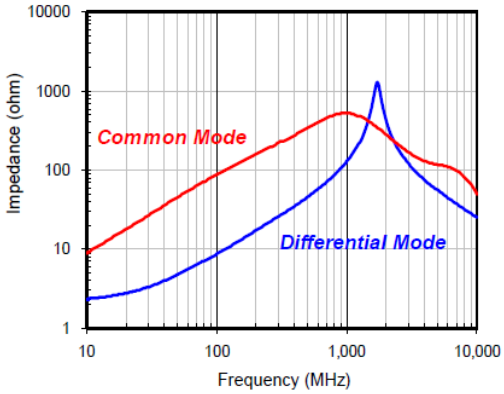
CMX05GYT500F Insertion Loss vs. Frequency



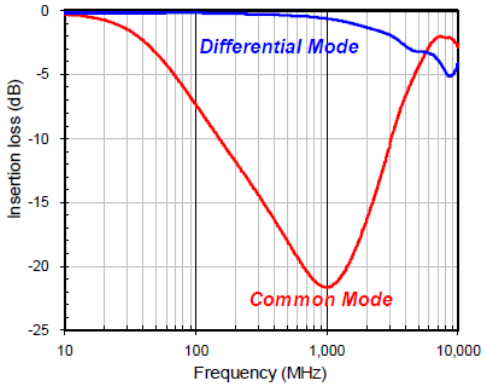
CMX05GYT900F Impedance vs. Frequency

CMX05GYT900F Insertion Loss vs. Frequency

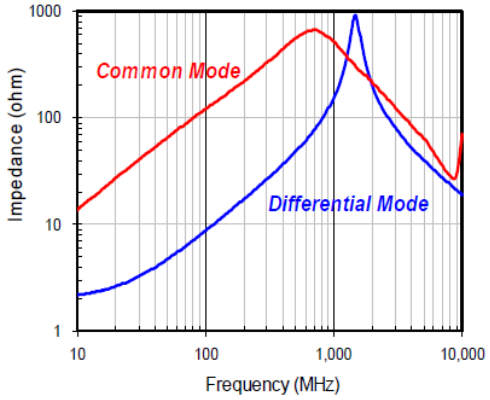
Multilayer Chip Common Mode Filter

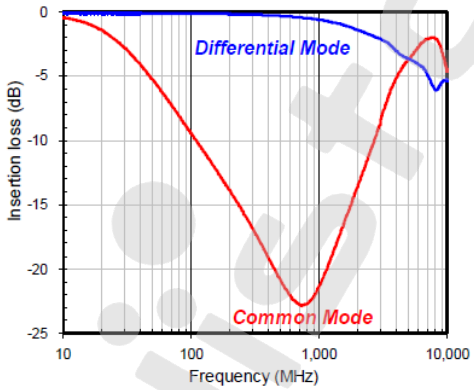


CMX05GYT121F Impedance vs. Frequency



CMX05GYT121F Insertion Loss vs. Frequency

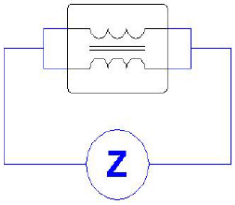




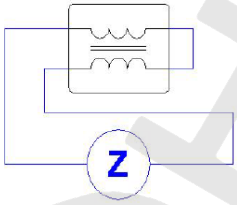
■Measuring Circuits

CMX04B

(A):Common mode

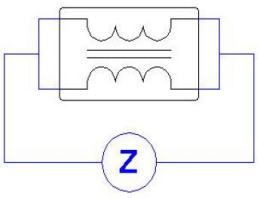


(B):Differential mode

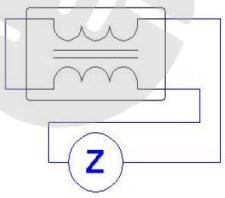


CMX05B / CMX05G

(A):Common mode

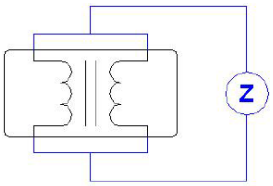


(B):Differential mode

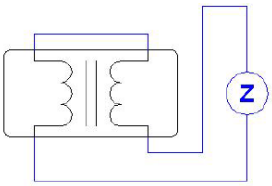


CMX06B

(A):Common mode



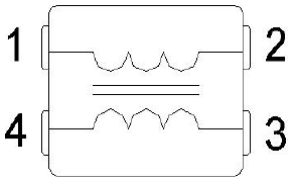
(B):Differential mode



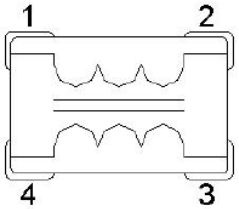
Multilayer Chip Common Mode Filter

■Circuits Configuration

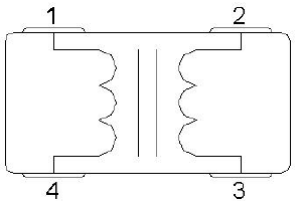
CMX04B / CMX04G



CMX05B / CMX05G

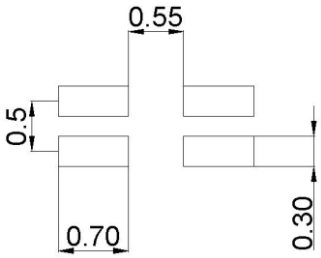


CMX06B

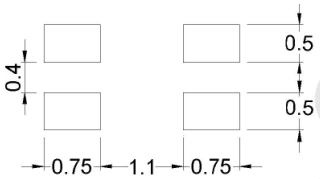


■Recommend Land Pattern unit: mm

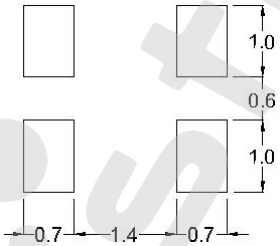
CMX04B



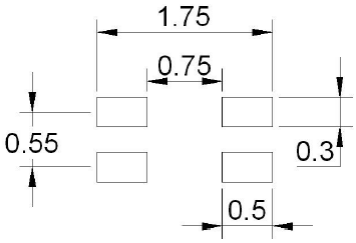
CMX05B / CMX05G



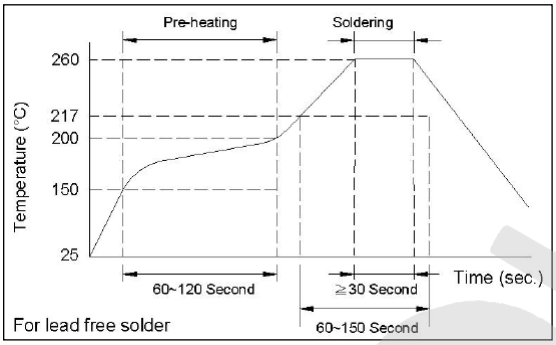
CMX06B



CMX04G



■Recommended Soldering Conditions



■Environmental Characteristics

Electrical Performance Test

Items	Requirement	Test Conditions
Impedance	Refer to standard electrical characteristic spec.	Agilent E4991A RF Impedance / Material Analyzer
DCR		HP4338 Milliohmmeter

Mechanical Performance Test

Items	Requirement	Test Conditions
Temperature Cycle	No mechanical damage Impedance value should be within±20% of the initial value	Temperature: -40~85℃ Cycle: 1000cycles Dwell time: 30min Measurement: at ambient temperature 24hrs after test completion
Operational Life		Temperature: 85±5℃ Time: 1000hrs Apply current: full rated current Measurement: at ambient temperature 24hrs after test completion
Biased Humidity		Temperature: 40±5℃ Humidity: 90~95% RH Time: 1000hrs Apply current: full rated current Measurement: at ambient temperature 24hrs after test completion
Resistance to Solder Heat	More than 95% of terminal electrode Should be covered with new solder No mechanical damage Impedance value should be within±20% of the initial value	Solder temperature: 260±5℃ Flux: rosin Dip time: 10±1 sec
Steam Aging Test	More than 95% of terminal electrode Should be covered with new solder	Temperature: 93±2℃ Test time: 8hrs (04B/05B/06B), 4hrs(04G/05G) Solder temperature: 235±5℃ Flux: rosin Dip time: 5±1 sec

■Operating temperature range: -40~85℃

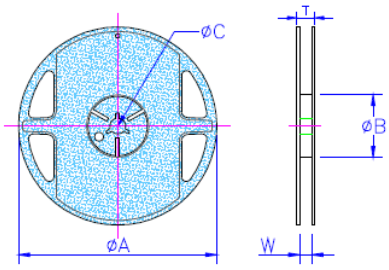
■Storage temperature: <40℃; Humidity70%RH

■Shelf life: 1 years Max

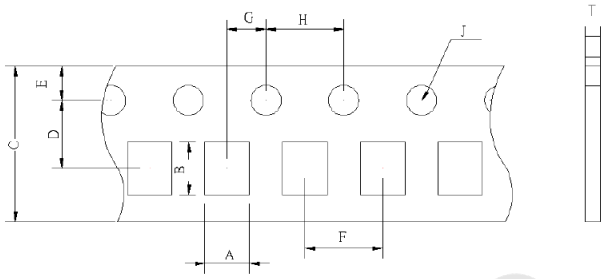
■Packaging

Packaging Quantity & Reel Specifications

Type	ØA (mm)	ØB (mm)	ØC (mm)	W (mm)	T (mm)	Quantity (EA)
CMX04	178±1	60+0.5/-0	13.0±0.2	9.0±0.5	12.0±0.15	4000
CMX05	178±1	60+0.5/-0	13.0±0.2	9.0±0.5	12.0±0.15	3000
CMX06	178±1	60+0.5/-0	13.0±0.2	9.0±0.5	12.0±0.15	3000

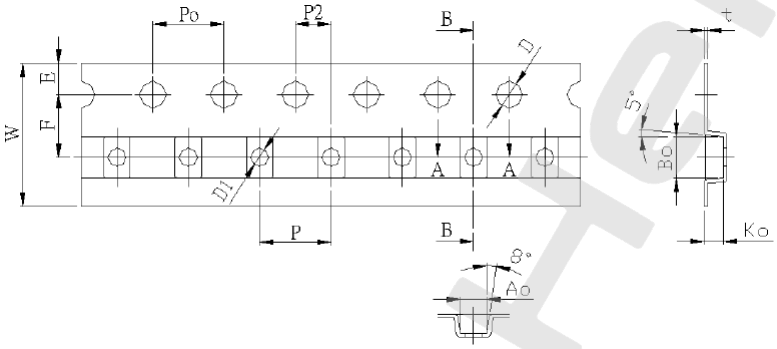


Paper Tape Specifications



Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	J (mm)	T (mm)
CMX04	1.20±0.05	1.45±0.05	8.0±0.10	3.5±0.05	1.75±0.05	4.00±0.10	2.00±0.05	4.00±0.10	1.55±0.05	0.75±0.03

Emboss Plastic Tape Specifications



Type	A0 (mm)	B0 (mm)	W (mm)	E (mm)	F (mm)	P (mm)	P0 (mm)	P2 (mm)	D (mm)	D1 (mm)	K0 (mm)	t (mm)
CMX05	1.40±0.10	2.30±0.10	8.0±0.10	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.5+010/-0	1.00±0.10	1.13±0.10	0.22±0.05
CMX06	1.80±0.10	3.40±0.10	8.0±0.10	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	1.00±0.05	1.25±0.10	0.22±0.05

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A3	Apr 14,2025		-Add Shelf life