Data Sheet

Customer:	
Product:	**Thin Film Common Mode Filters–CMT**
Sizes.:	**02503 / 03025**
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Thin Film Common Mode Filters

Thin Film Common Mode Filters

■Features

— The CMT02-T900G / CMT03-T900G is a thin film common mode filter designed to suppress common mode noise for high speed differential data lines, such as USB 2.0, IEEE 1394, LVDS, DVI, HDMI, and MIPI.

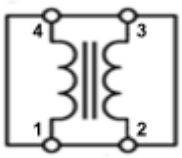
—The CMT03-T650G / CMT-T350H is a thin film common mode filter designed to suppress common mode noise for high speed differential data lines, such as USB 3.0, IEEE 1394, LVDS, DVI, HDMI, and MIPI

—The CMT02-T120H is a thin film common mode filter designed to suppress common mode noise for high speed differential data lines, such as Display Port, e-SATA, USB3.0, HDMI, MIPI, and MHL.USB3.1.

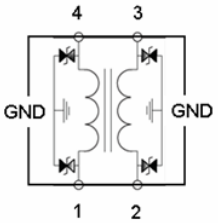
—CMTE03 series is a thin film common mode filter with additional ESD protection. It is designed to suppress common mode noise for high speed differential data lines, such as USB 2.0, IEEE 1394, LVDS, DVI, HDMI, and MIPI. The ESD protection of IEC61000-4-2 level4 in high speed differential data lines is also provided.

■Equivalent Circuit

CMT02/CMT03



CMTE03-T900G



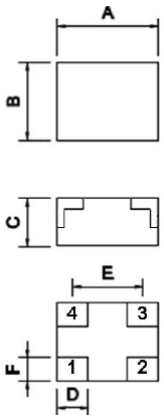
■Applications

—CMT: These differential interfaces can be used in personal computers, note books, mobile phone, LCD/PDP/DLP TVs, Blu-ray/DVD players, personal handheld equipments, etc

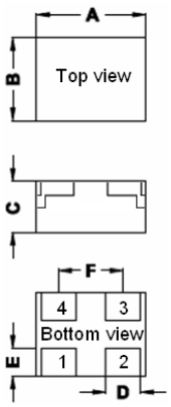
—CMTE: These differential interfaces can be used in Mobile phone, Notebooks, Tablet PC & Digital Camera, etc.

■Dimensions

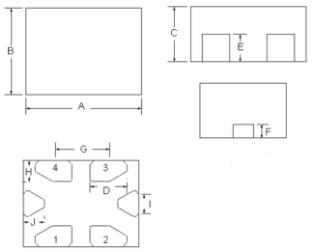
CMT02



CMT03



CMTE03



Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)
CMT02	0.67±0.05	0.52±0.05	0.32±0.05	0.2±0.05	0.45±0.05	0.15±0.05	-	-	-	-
CMT03	0.85±0.05	0.65±0.05	0.4±0.05	0.27±0.05	0.2±0.05	0.5±0.05	-	-	-	-
CMTE03	0.85±0.05	0.65±0.05	0.4±0.05	0.27±0.05	0.2±0.05	0.1±0.05	0.4±0.05	0.15±0.05	0.15±0.05	0.15±0.05

Thin Film Common Mode Filters

■Part Numbering

CMT	02	-	T	900	G
Product Type	Dimensions	Impedance Tolerance	Packaging Code	Impedance	Function Code
CMT: Standard CMTE: ESD	02: 02502 03: 03025	-: No Specified	T: Taping Reel	650: 65Ω 900: 90Ω	G: General H: High Frequency

■Standard Electrical Specifications

Part No	Impedance (Ω)			Test Condition (MHz)	DCR (Ω)			IDC (mA) max.	Rated Voltage VDC(V)	Cut-off Frequency (GHz) typ.	Insulation Resistance (MΩ) min.	Operating Temperature (℃)
	min	typ	max		min	typ	max					
CMT02-T900G	63	90	112.5	100	-	-	6.0	100	5	3	10	-25~85
CMT03-T650G	52	65	78	100	1.6	2.7	3.5	100	5	4	10	-25~85
CMT03-T900G	67.5	90	112.5	100	1.6	2.7	3.5	100	5	4	10	-45~85

■High Frequency Electrical Specifications

Part No	Impedance (Ω)			Test Condition (MHz)	DCR (Ω)			IDC (mA) max.	Rated Voltage VDC(V)	Cut-off Frequency (GHz) typ.	Insulation Resistance (MΩ) min.	Operating Temperature (℃)
	min	typ	max		min	typ	max					
CMT02-T120H	7	12	17	100	-	-	2.0	100	5	10	10	-25~85
CMT03-T120H	7	12	17	100	-	-	2.0	100	5	10	10	-25~85
CMT03-T350H	25	35	50	100	-	-	2.0	100	5	8	10	-25~85

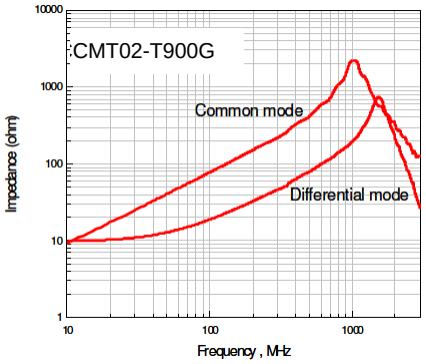
■ESD Electrical Specifications

Part No	Impedance (Ω)			Test Condition (MHz)	DCR (Ω)			IDC (mA) max.	Rated Voltage VDC(V)	Cut-off Frequency (GHz) typ.	Insulation Resistance (MΩ) min.	Capacitance (at 1MHz any pin to ground) (pF) typ.	Leakage Current (at 5V, any pin to ground) (uA) max.
	min	typ	max		min	typ	max						
CMTE03-T900G	67.5	90	112.5	100	1.8	2.7	3.5	100	5	3	10	0.6	1

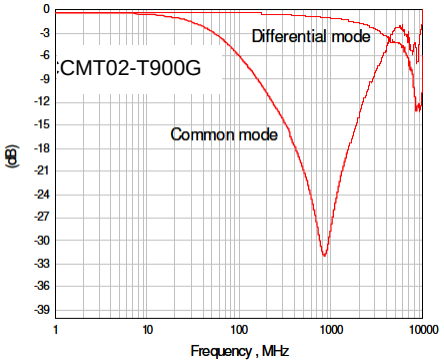
Thin Film Common Mode Filters

■Characteristics

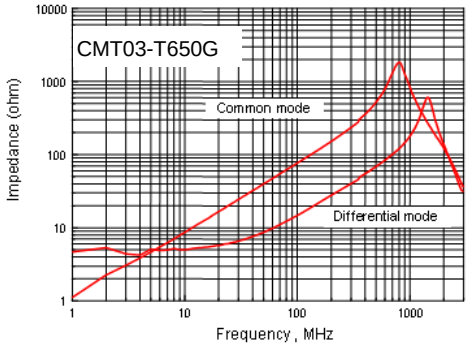
Impedance-Frequency Characteristics



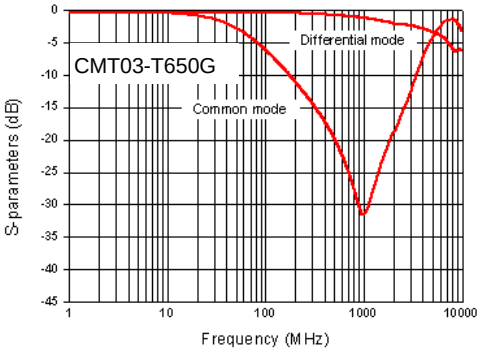
Insertion loss vs. Frequency Characteristics



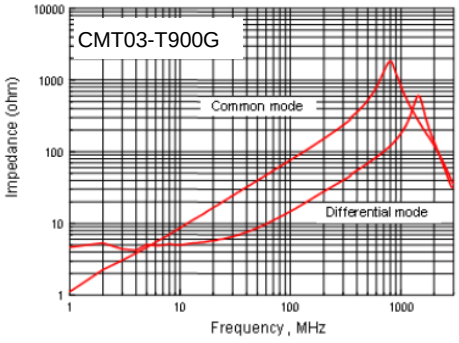
Impedance-Frequency Characteristics



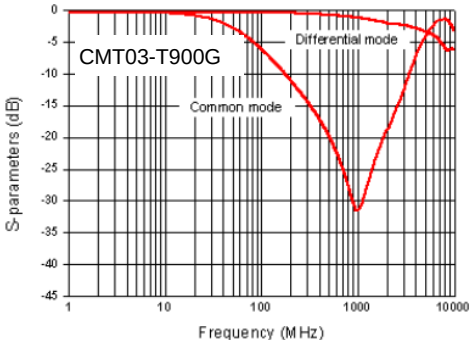
Insertion loss vs. Frequency Characteristics



Impedance-Frequency Characteristics

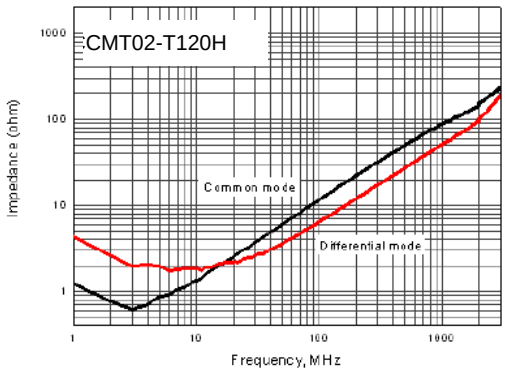


Insertion loss vs. Frequency Characteristics

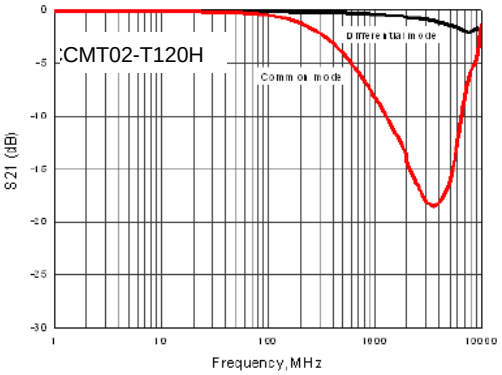


■Characteristics

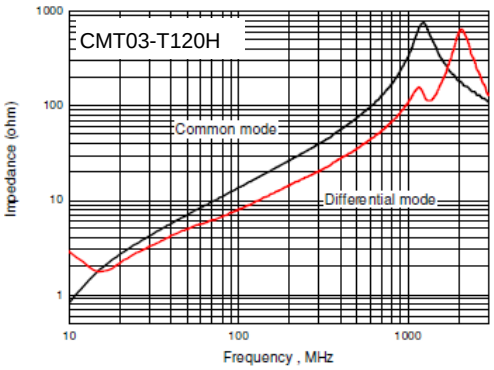
Impedance-Frequency Characteristics



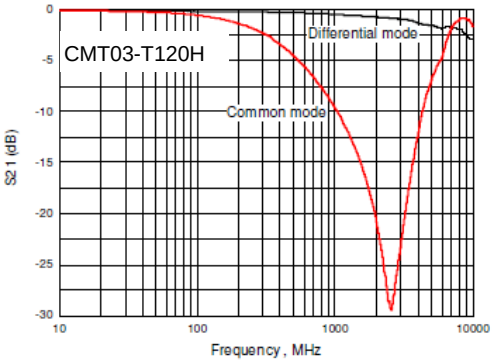
Insertion loss vs. Frequency Characteristics



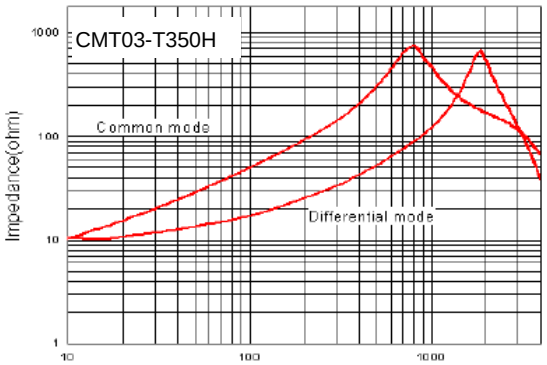
Impedance-Frequency Characteristics



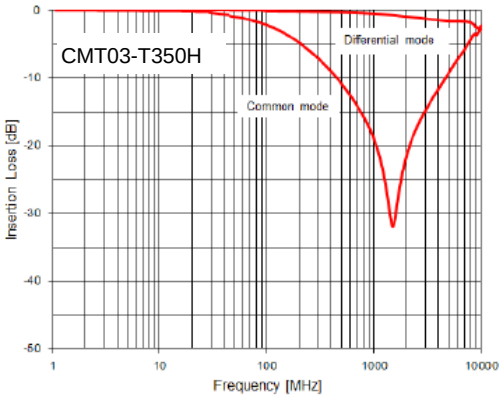
Insertion loss vs. Frequency Characteristics



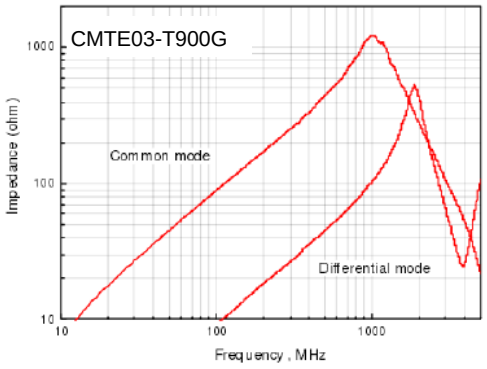
Impedance-Frequency Characteristics



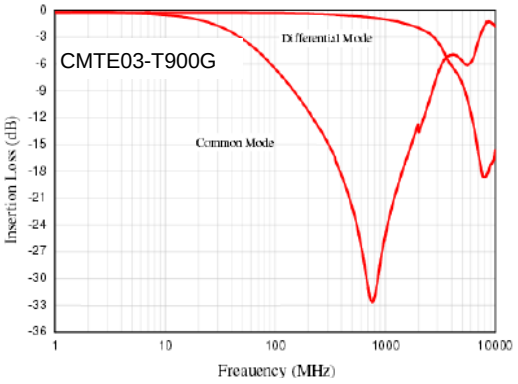
Insertion loss vs. Frequency Characteristics



Impedance-Frequency Characteristics



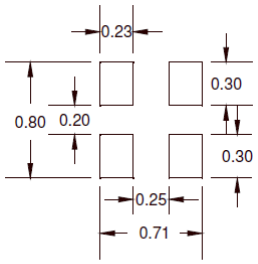
Insertion loss vs. Frequency Characteristics



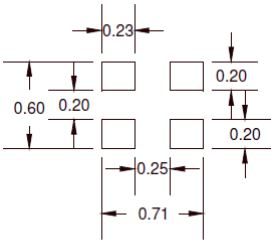
■Land Pattern

Unit: mm

CMT02-T900G/CMT02-T120H

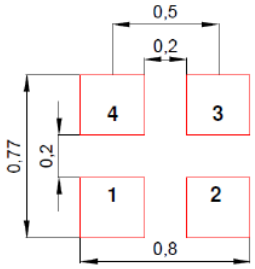


Land layout

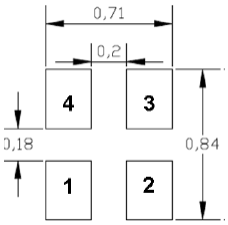


Stencil aperture

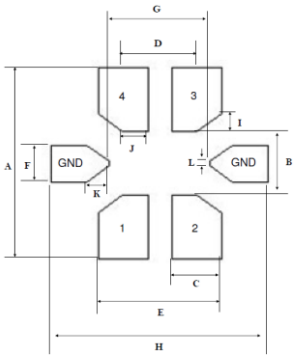
CMT03-T650G/CMT03-T120H



CMT03-T900G/CMT03-350H

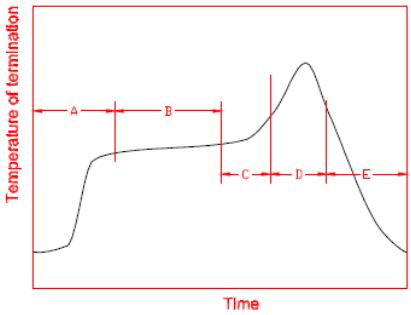


CMTE03-T900G



A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
1.05	0.35	0.27	0.40	0.67	0.20	0.55	1.18	0.097	0.136	0.121	0.025

■Recommended soldering conditions



A	1st rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140℃ to 160℃	60s to120s
C	2nd rising temperature	Preheating to 200℃	20s to 40s
D	Main heating	if 220℃ if 230℃ if 240℃ if 250℃ if 260℃	50s ~ 60s 40s ~ 50s 30s ~ 40s 20s ~ 40s 10s(max)
E	Regular cooling	200℃ to100℃	1℃/s ~ 4℃/s

■Environmental Characteristics

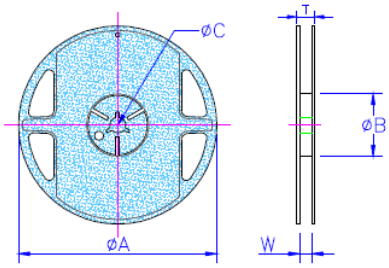
Item	Requirement	Test Method
High Temperature Life	Without cosmetic damage. DC Resistance within spec.	Apply rated current at 85℃，500hours
Bias Humidity		Apply rated current at 85℃、85%RH、500hours
Bending Strength		Bending amplitude 3 mm for 10 seconds
Thermal Shock		-55°C ~85°C, 100 cycles
Solderability	95% min. coverage	Put the sample on board by tape. Brush flux and put the board into solder bath 245±5℃，5±1 sec.

■Storage Temperature: 25±3℃;Humidity<80%RH

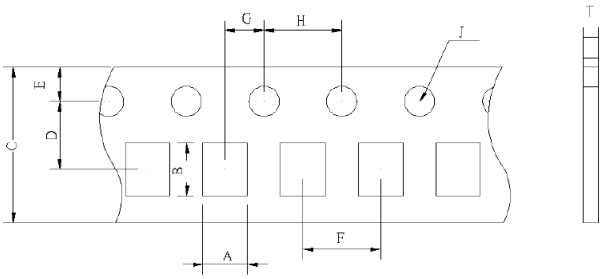
■Packaging

Packaging Quantity & Reel Specifications

Type	ØA (mm)	ØB (mm)	ØC (mm)	W (mm)	T (mm)	Quantity (EA)
CMT02	178±2	60±1.5	13.0±0.5	9.0±0.5	13.0±1	10,000
CMT03	178±2	60±1.5	13.0±0.2	9.0±0.5	13.0±1	10,000
CMTE03	178±2	60±1.5	13.0±0.2	9.0±0.5	13.0±1	10,000



Paper Tape Specifications



Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	J (mm)	T (mm)
CMT02	0.65±0.03	0.78±0.03	8.0±0.10	3.5±0.05	1.75±0.1	2.00±0.05	2.00±0.05	4.00±0.10	1.5±0.10	0.42±0.03
CMT03	0.78±0.03	1.04±0.03	8.0±0.10	3.5±0.05	1.75±0.05	2.00±0.05	2.00±0.05	4.00±0.10	1.55±0.05	0.60±0.03
CMTE03	0.78±0.03	1.04±0.03	8.0±0.10	3.5±0.05	1.75±0.05	2.00±0.05	2.00±0.05	4.00±0.10	1.55±0.05	0.60±0.03