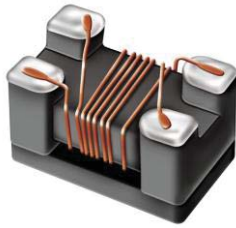


Viking Tech Corporation

Chip Common Mode Choke



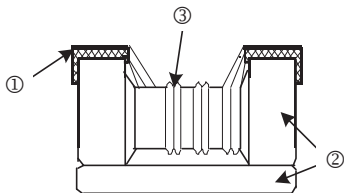
Features

- Small chip inductor with ferrite core and two line types wire wound
- Highly effective in noise suppression High common-mode impedance at noise band and low differential-mode impedance at signal band
- Low differential-mode impedance with high coupling factor. There is almost no distortion on high-speed signal.
- Operating temperature -40°C~85°C

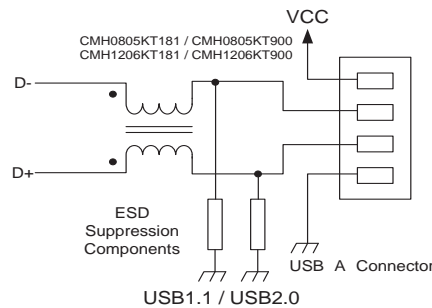
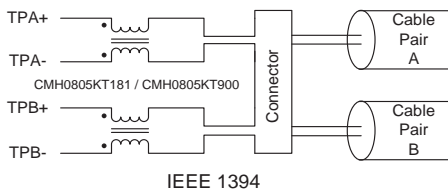
Applications

- EMI Radiation Noise Suppression for Any Electronic Device
- USB Line for Personal Computers and Peripheral
- IEEE 1394 Line for Personal Computers, DVC, STB
- LCD Panels. Low-Voltage Differential Signal (LVDS)

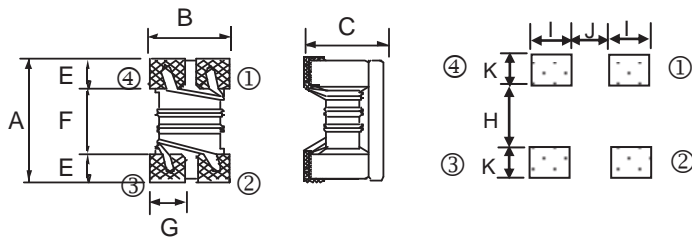
Construction



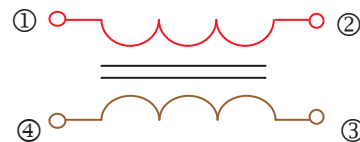
① Terminal	② Ferrite	③ Enamel-insulated Wire
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Dimensions



Equivalent Circuit

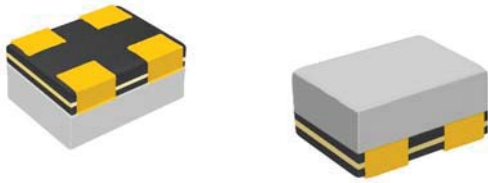


Unit : mm

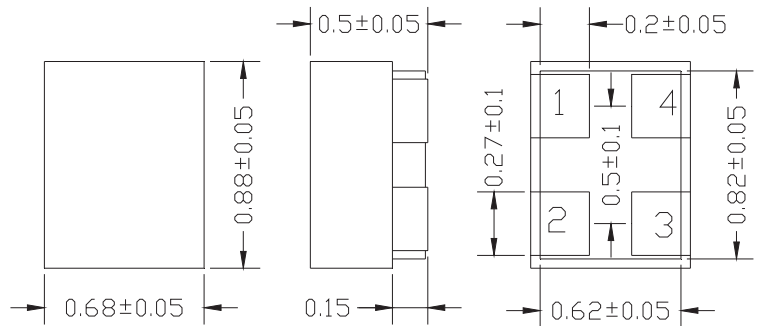
Type	Size (Inch)	A	B	C	E	F	G	H	I	J	K	Weight (g) (1000pcs)
CMH05	0805	2.0±0.2	1.2±0.2	1.2±0.2	0.45	1.2	0.4	0.8	0.4	0.4	0.90	19
CMH06	1206	3.2±0.2	1.6±0.2	1.8±0.2	0.60	2.0	0.6	1.6	0.6	0.4	1.05	53.3

Thin Film Common Mode Filters(SMD) For High-speed Differential Signal Line

CMF Series CMF03G(03025) Type for USB2.0, LVDS



■ Dimensions



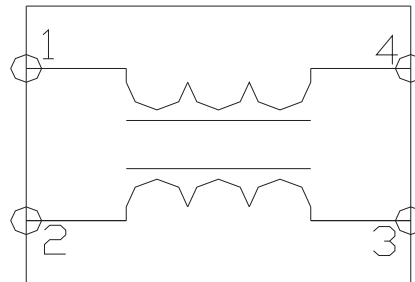
■ Features

- The CMF03G(03025) is an compact thin film common mode filter that is used for common mode noise suppression in high speed differential data lines.
- By providing wide bandwidth (cutoff frequency: 4 GHz) for differential mode, this product has almost no effect for high speed differential signals and can suppress the common mode noise.
- This product contains no lead and supports lead-free Ni/Au soldering.

■ Applications

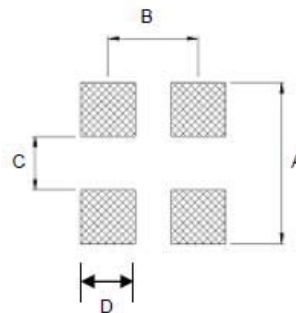
- High Speed Interface High speed interface (LVDS, IEEE1394 and USB2.0) in electronics devices.
- Portable audio, digital cellular phones, DVC, DSC, PDP/LCD/DLP/PJ TVs, DVD players, notebook PCs,

■ Equivalent Circuit

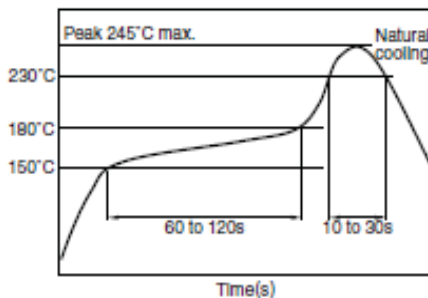


■ Recommended Land Pattern

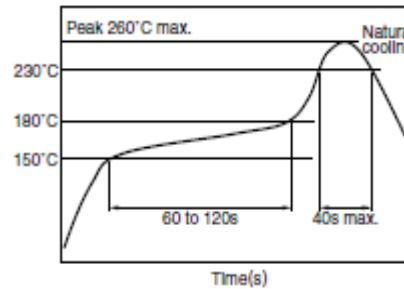
Type	A	B	C	D
CMF03	0.9mm	0.5mm	0.3mm	0.3mm



■ Recommended soldering conditions



■ Reflow Profile For Solder Heat Resistance



Part Numbering

CMF	03	M	T	900	G
Product Type	Dimensions	Impedance Tolerance	Packaging Code	Impedance	
	03: 03025	M: $\pm 20\%$ K: $\pm 10\%$	T: Taping Reel	900: 90Ω	G: General

Packaging

Packaging Style And Quantity

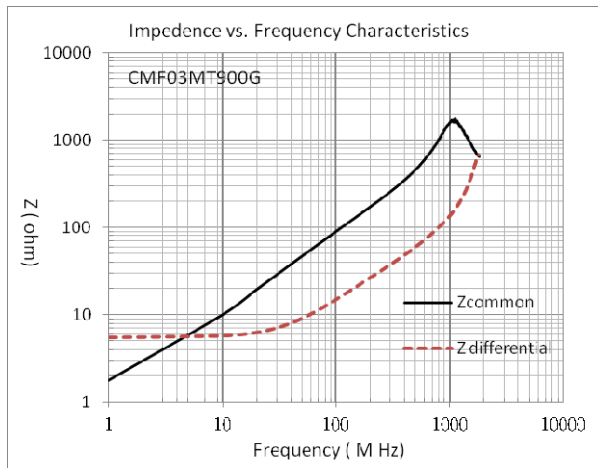
Packing style	Quantity
Taping	10000 pieces/reel

Standard Electrical Specifications

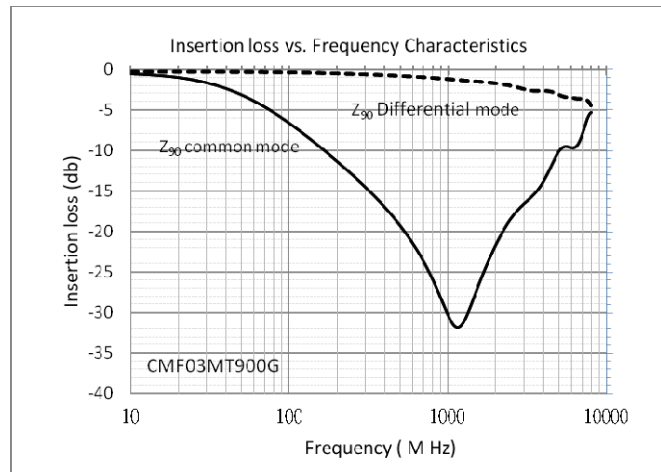
Part No	Impedance (Ω)	Test Condition (MHz)	DCR (Ω) [1 line]	IDC (mA) max.	Rated Voltage Edc (V) max.	Cutoff Frequency (GHz) typ.	Insulation Resistance ($M\Omega$) min.
CMF03MT900G	$90\pm 20\%$	100	$2.8\pm 30\%$	100	10	4	10

Characteristics-CMF03

Impedance-Frequency Characteristics

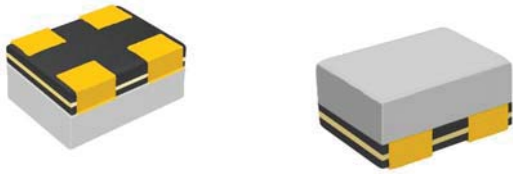


Insertion loss vs. Frequency Characteristics



Thin Film Common Mode Filters(SMD) For ultra high-speed Differential Signal Line

CMF Series CMF03H(03025)/CMF04H(0504) Type for HDMI, DVI, Display Port, MIPI, etc.



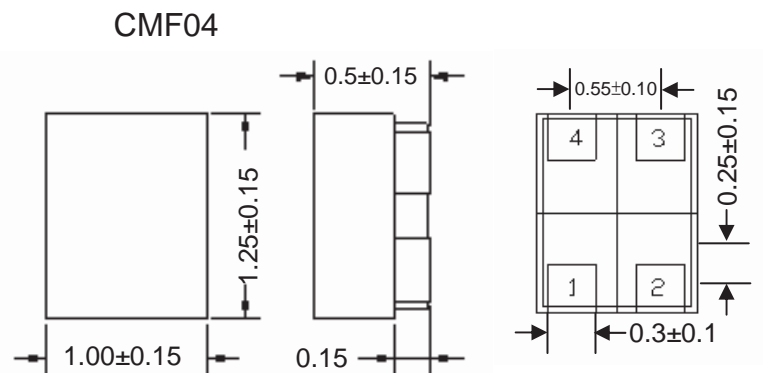
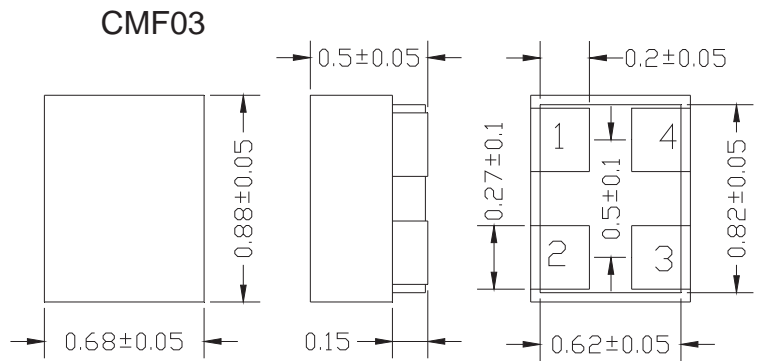
Features

- CMF03H(03025)/CMF04H(0504) is a thin-film common mode filter with a wide bandwidth for ultra high speed differential signal interfaces such as MIPI and display port.
- By providing a large bandwidth (cutoff frequency > 5GHz) for ultra high speed differential signal interfaces such as MIPI and Display port. CMF03H(03025)/CMF04H(0504) suppresses radiation noise due to common mode noise, without affecting the transmission of high-speed differential signals.
- This product contains no lead with Ni/Au electrode and supports lead-free soldering.

Applications

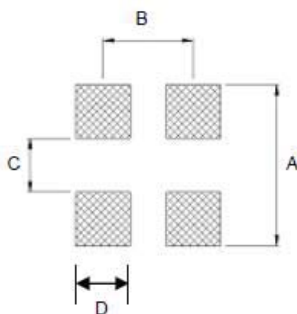
- Ultra High speed interface (HDMI, DVI, Display port, MIPI and Serial ATA, etc.) in electronics devices.
- Notebook PCs, PDP/LCD/DLP/PJ TVs, portable audio, digital cellular phones, DVC, DSC, DVD players,

Dimensions

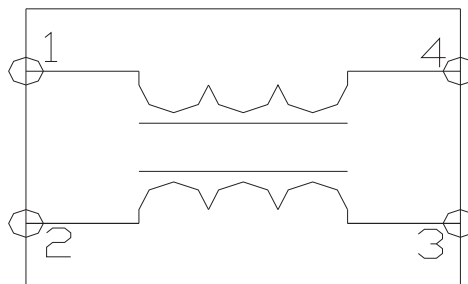


Recommended Land Pattern

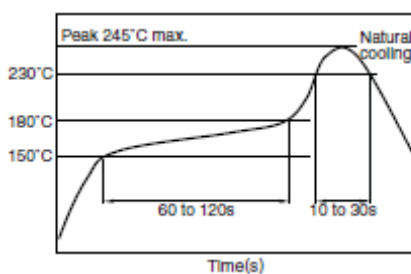
Type	A	B	C	D
CMF03	0.9mm	0.50mm	0.3mm	0.3mm
CMF04	1.8mm	0.55mm	0.6mm	0.3mm



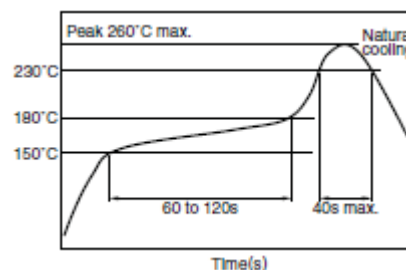
Equivalent Circuit



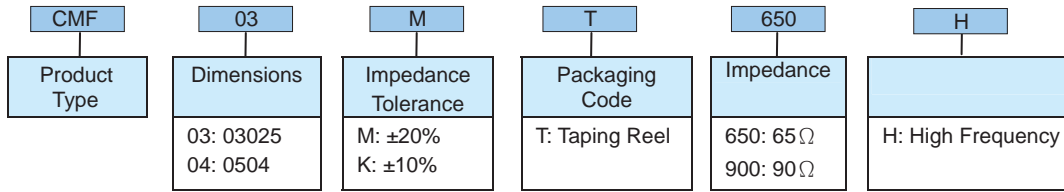
Recommended soldering conditions



Reflow Profile For Solder Heat Resistance



Part Numbering



Packaging

Packaging Style And Quantity

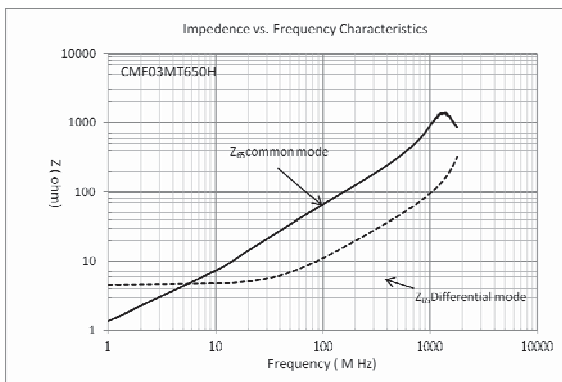
Type	Packing style	Quantity
CMF03	Taping	10000 pieces/reel
CMF04	Taping	4000 pieces/reel

Standard Electrical Specifications

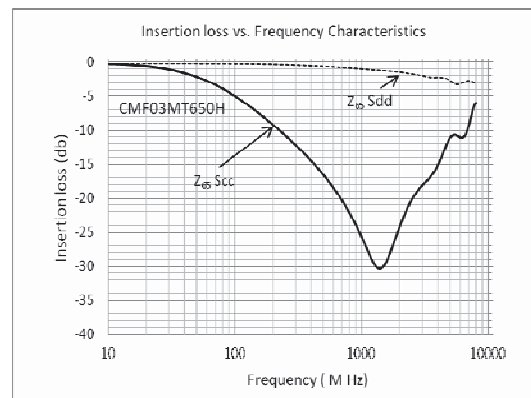
Part No	Impedance (Ω)	Test Condition (MHz)	DCR (Ω) [1 line]	IDC (mA) max.	Rated Voltage Edc (V) max.	Cutoff Frequency (GHz) typ.	Insulation Resistance (M Ω) min.
CMF03MT650H	$65\pm 20\%$	100	$2.5\pm 30\%$	100	10	5.0	10
CMF04MT900H	$90\pm 20\%$	100	$2.8\pm 25\%$	100	10	5.0	10

Characteristics-CMF03

Impedance-Frequency Characteristics

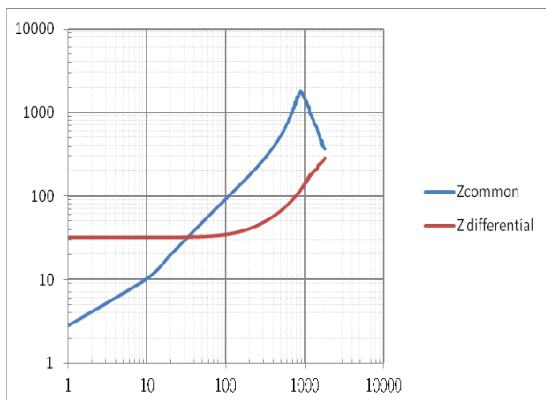


Insertion loss vs. Frequency Characteristics

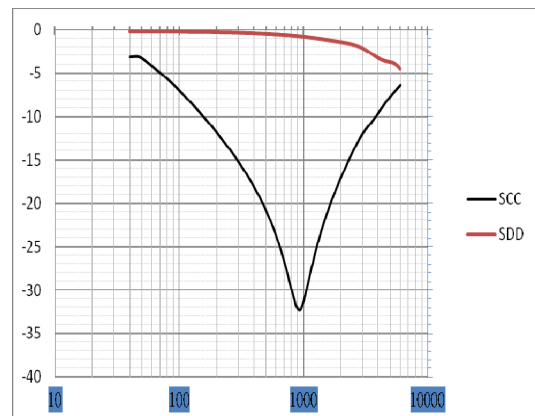


Characteristics-CMF04

Impedance-Frequency Characteristics

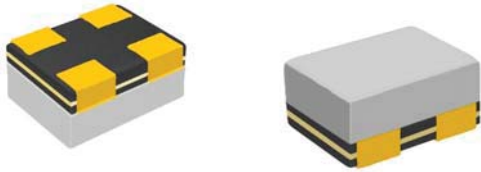


Insertion loss vs. Frequency Characteristics

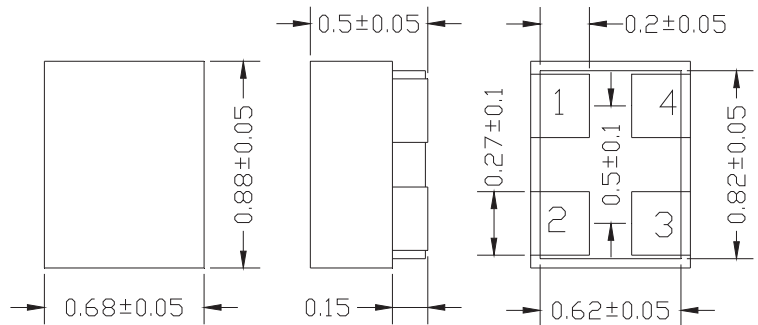


Thin Film Common Mode Filters(SMD) For ultra high-speed Differential Signal Line

CMF Series CMF03U(03025) Type for USB3.0, HDMI, MIPI, etc.



Dimensions



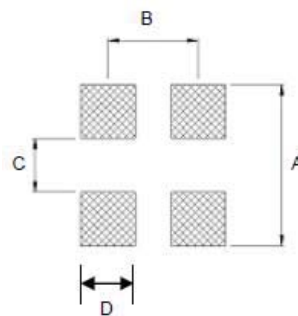
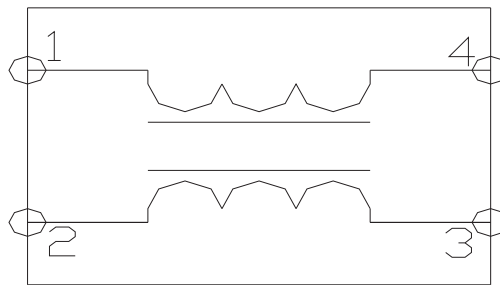
Features

- CMF03U(03025) is a thin-film common mode filter with a wide bandwidth for ultra high speed differential signal interfaces such as USB 3.0 and MIPI interface.
- By providing a large bandwidth (cutoff frequency > 8 GHz) for ultra high speed differential signal interfaces such as USB3.0 and MIPI. CMF03U(03025) suppresses radiation noise due to common mode noise, without affecting the transmission of high-speed differential signals.
- This product contains no lead with Ni/Au electrode and supports lead-free soldering..

Applications

- Ultra High speed interface (HDMI,USB3.0, Display port, MIPI and Serial ATA, etc.) in electronics devices.
- Notebook PCs, PDP/LCD/DLP/PJ TVs, portable audio, digital cellular phones, DVC, DSC, DVD players, amusement machines ,etc.

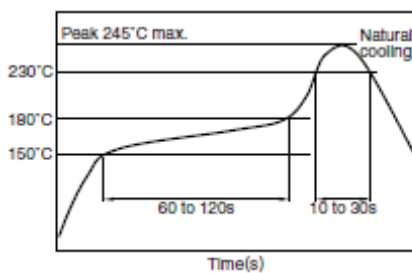
Equivalent Circuit



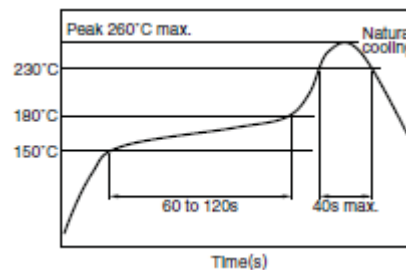
Recommended Land Pattern

Type	A	B	C	D
CMF03	0.9mm	0.5mm	0.3mm	0.3mm

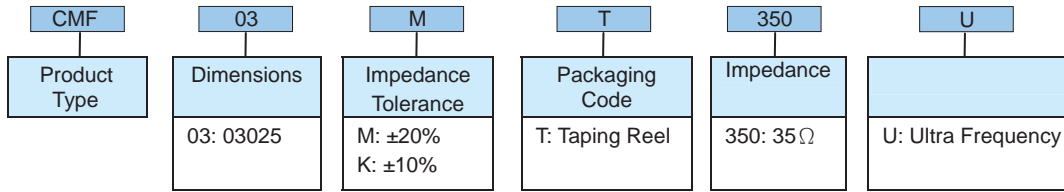
Recommended soldering conditions



Reflow Profile For Solder Heat Resistance



Part Numbering



Packaging

Packaging Style And Quantity

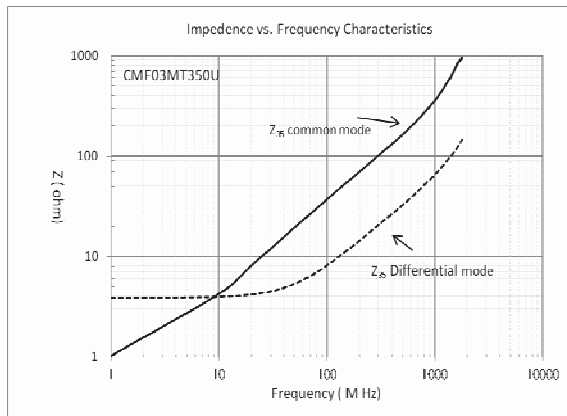
Packing style	Quantity
Taping	10000 pieces/reel

Standard Electrical Specifications

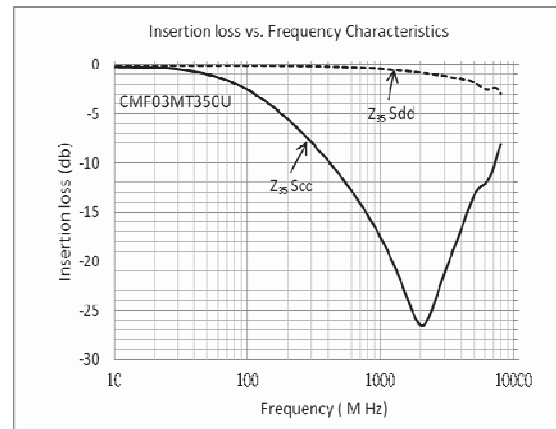
Part No	Impedance (Ω)	Test Condition (MHz)	DCR (Ω) [1 line]	IDC (mA) max.	Rated Voltage Edc (V) max.	Cutoff Frequency (GHz) typ.	Insulation Resistance (M Ω) min.
CMF03MT350U	$35\pm 20\%$	100	$1.8\pm 30\%$	100	10	8	10

Characteristics-CMF03

Impedance-Frequency Characteristics



Insertion loss vs. Frequency Characteristics



Environmental Characteristics

Item	Requirement	Test Method
Insulation Resistance	>10 M Ω	MIL-STD-202F Method 302
Endurance	Impedance change: within $\pm 20\%$	MIL-STD-202F Method 108A 70 $\pm 2^\circ$ C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load		MIL-STD-202F Method 103B 40 $\pm 2^\circ$ C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Bending Strength		JIS-C-5201-1 6.1.4 Bending amplitude 3 mm for 10 seconds
Solderability		MIL-STD-202F Method 208H 245 $\pm 5^\circ$ C for 3 seconds
Resistance to Soldering Heat	Impedance change: within $\pm 20\%$	MIL-STD-202F Method 210E 260 $\pm 5^\circ$ C for 10 seconds
Thermal Shock		MIL-STD-202F Method 107G -55 $^\circ$ C ~150 $^\circ$ C, 100 cycles

Storage Temperature: 25 $\pm 3^\circ$ C; Humidity <80%RH

Part Numbering

CM	H	05	M	T	900
Product Type	Shielding Type	Dimensions	Impedance Tolerance	Packaging Code	Impedance
	H: Shielding	05: 0805 06: 1206	M: $\pm 20\%$	T: Taping Reel B: Bulk	900: 90 Ω 121: 120 Ω 102: 1000 Ω 222: 2200 Ω

Standard Electrical Specifications

CMH05 / Standard Type

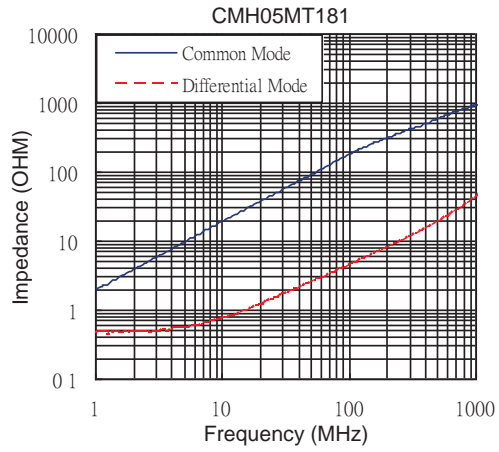
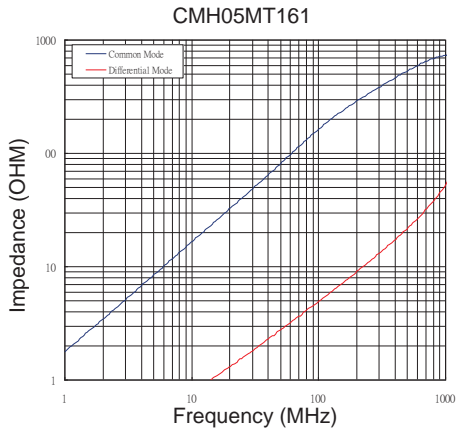
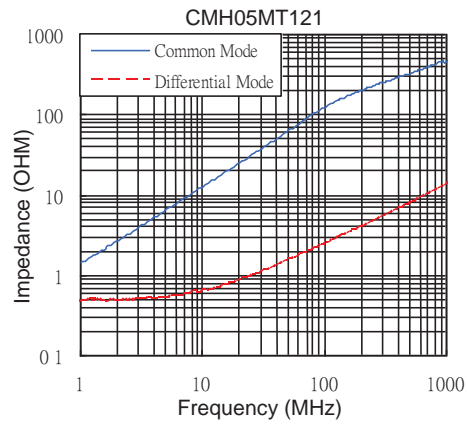
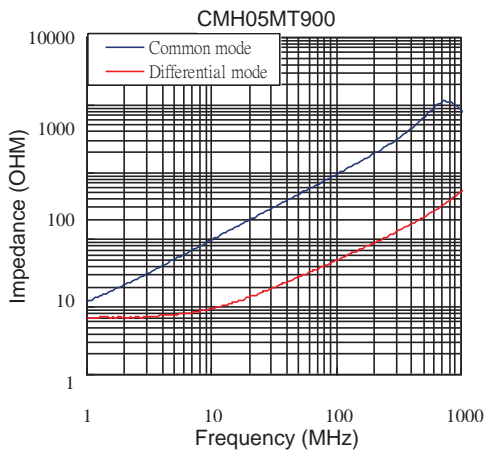
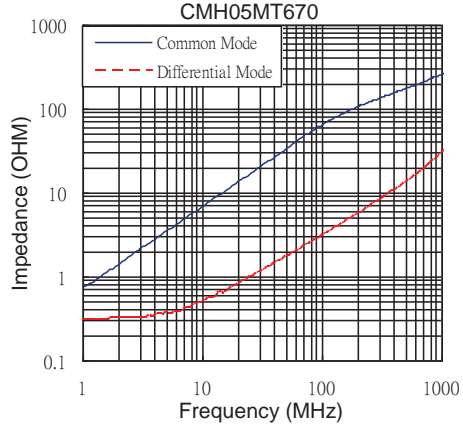
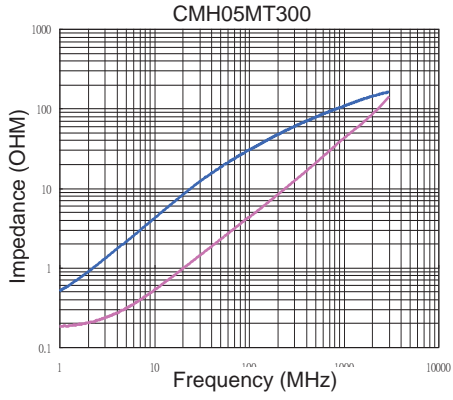
Impedance (Ω)	Tolerance	Test Condition (MHz)	DCR (Ω) max.	IDC (mA) max.	Rated Voltage Vdc (V)	Withstanding Voltage Vdc (V)	Insulation Resistance (M Ω) min.
30	$\pm 20\%$	100	0.20	450	50	125	10
67	$\pm 20\%$	100	0.25	400	50	125	10
90	$\pm 20\%$	100	0.35	330	50	125	10
120	$\pm 20\%$	100	0.30	370	50	125	10
160	$\pm 20\%$	100	0.35	330	50	125	10
180	$\pm 20\%$	100	0.35	330	50	125	10
200	$\pm 20\%$	100	0.35	330	50	125	10
220	$\pm 20\%$	100	0.35	330	50	125	10
260	$\pm 20\%$	100	0.40	300	50	125	10
360	$\pm 20\%$	100	0.40	280	50	125	10
370	$\pm 20\%$	100	0.40	280	50	125	10

CMH06 / Standard Type

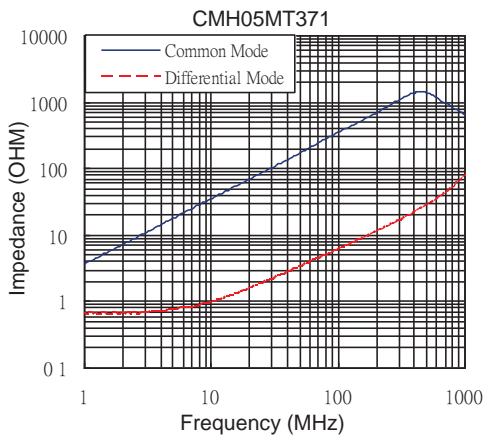
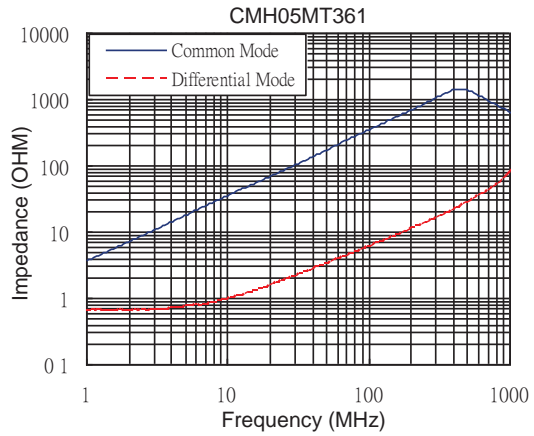
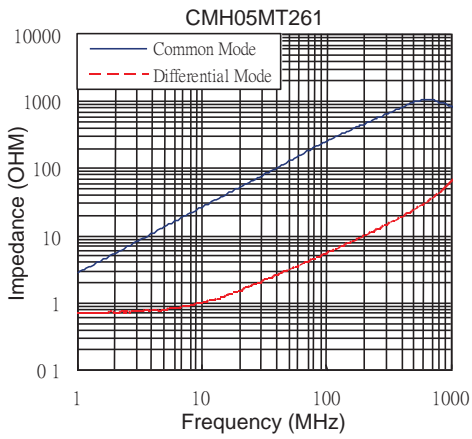
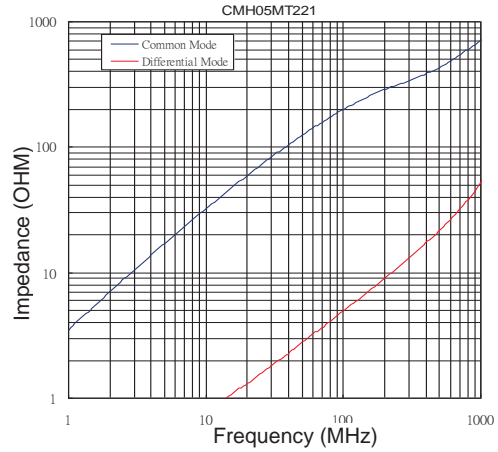
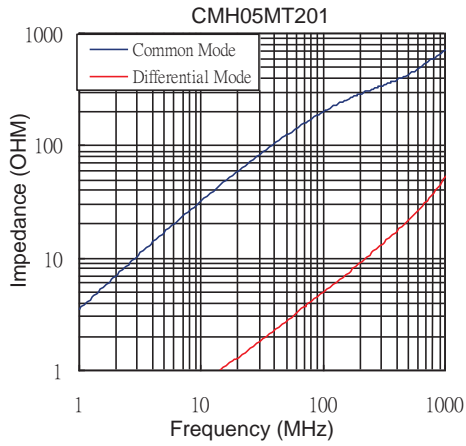
Impedance (Ω)	Tolerance	Test Condition (MHz)	DCR (Ω) max.	IDC (mA) max.	Rated Voltage Vdc (V)	Withstanding Voltage Vdc (V)	Insulation Resistance (M Ω) min.
90	$\pm 20\%$	100	0.30	370	50	125	10
120	$\pm 20\%$	100	0.30	370	50	125	10
160	$\pm 20\%$	100	0.40	340	50	125	10
260	$\pm 20\%$	100	0.50	310	50	125	10
600	$\pm 20\%$	100	0.80	260	50	125	10
1000	$\pm 20\%$	100	1.00	230	50	125	10
2200	$\pm 20\%$	100	1.20	200	50	125	10

All specifications are subject to change without notice

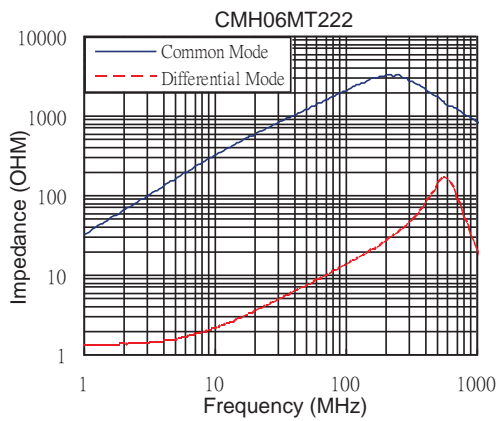
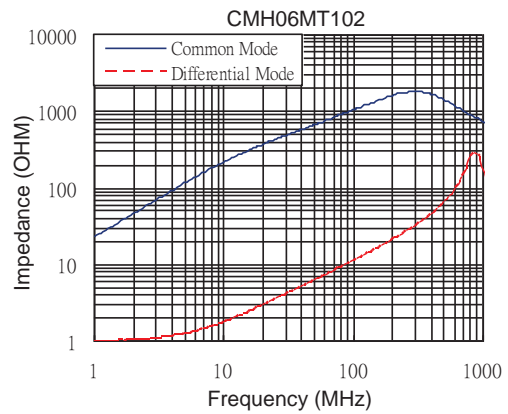
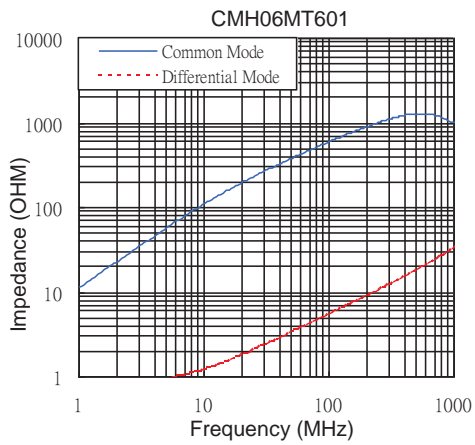
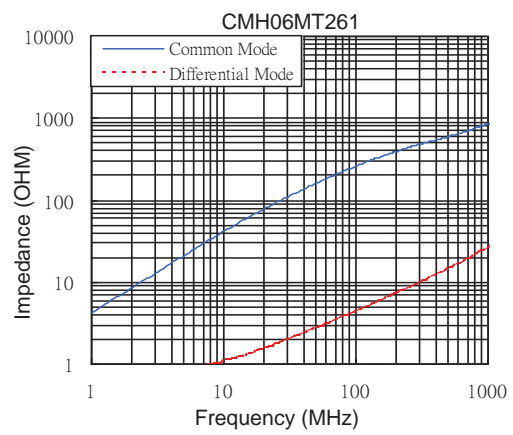
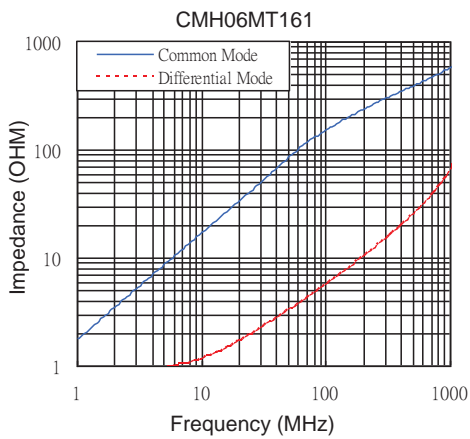
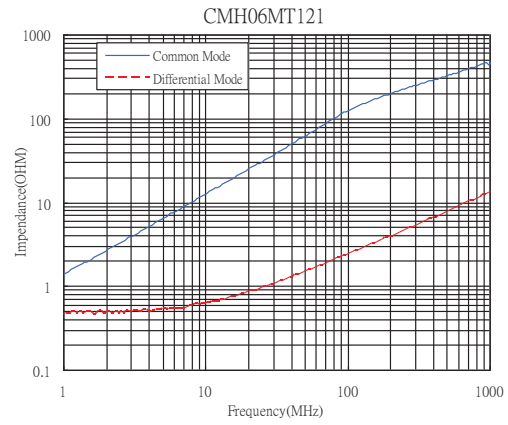
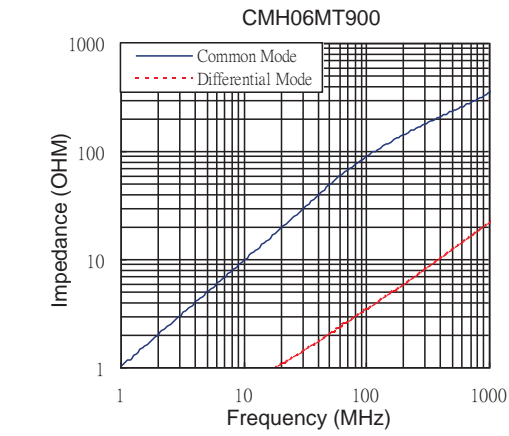
Characteristics (Impedance vs. Frequency)-CMH05



Characteristics (Impedance vs. Frequency)-CMH05



Characteristics (Impedance vs. Frequency)-CMH06



■ Environmental Characteristics

Electrical Performance Test

Items	Requirement	Test Conditions / Test Methods
Impedance	Refer to standard electrical characteristic spec. Component should not be damaged	LCR Meter HP 4291B
DC Resistance DCR		Micro-Ohm meter (GOM-801G)
Withstand Voltage (VDC)		Test Voltage: 2.5 Times Rated Voltage Testing Time: 60 seconds Charge Current: 0.5mA
Rated Voltage (VDC)		Test Voltage: Rated Voltage Testing Time: 1 to 5 seconds Charge Current: 1mA
Insulation Resistance (I.R)		Charge Current: 1minute 10M ohm min.

Mechanical Performance Test

Items	Requirement	Test Conditions / Test Methods
Component Adhesion (Push Test)	Base: 0805 \geq 2 Lbs Cover: 0805 \geq 1 Lbs Base: 1206 \geq 4 Lbs Cover: 1206 \geq 2 Lbs	The component should be soldered (232°C \pm 5°C for 10 sec.) to tinned copper substrate Applied force gauge to the side of component It must withstand force of 2 or 4 pounds without failure of the component.
Drop	Component should not be damaged	Dropping chip by each side and corner. Drop 10 times in total Drop height: 100 cm Drop weight: 125 g
Solderability	The terminal should at least be 90% covered with solder	The component shall be dipped in a melted solder bath at 245 \pm 5 for 3 seconds
Vibration Test (Low Frequency)	Component should not be damaged	1. Amplitude: 1.5 m/m 2. Frequency: 10-55-10Hz (1min.) 3. Direction: X, Y, Z 4. Duration: 2 Hrs/X, Y, Z

Climatic Test

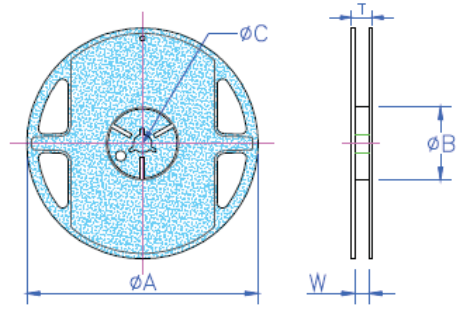
Items	Requirement	Test Conditions / Test Methods
Low Temperature Storage	Impedance change: Within \pm 20% Without distinct damage in appearance	1. Temp: -40 \pm 2°C 2. Time: 1000 \pm 48 Hours 3. Component should be tested after 1 hour at room temperature
Thermal Shock		<pre> graph LR A[ROOM TEMP 15MINS] --> B[-25 ± 2°C 30MINS] B --> C[ROOM TEMP] C --> A C --> D[ROOM TEMP 15MINS] D --> E[85 ± 2°C 30MINS] E --> F[ROOM TEMP] F --> D </pre> <p>Total: 5 Cycles</p>
High Temperature Storage		1. Temp: 85 \pm 2°C 2. Time: 1000 \pm 48 Hours 3. Component should be tested after 1 hour at room temperature
Humidity		1. Temp: 40 \pm 2°C 2. R.H. : 90 ~ 95% 3. Time: 48 \pm 2 Hours
High Temperature Load Life		1. Temp: 85 \pm 2°C 2. Time: 96 \pm 12 Hours 3. Load: Allowed DC Current
Low Temperature Load Life	1. Temp: -40 \pm 2°C 2. Time: 96 \pm 12 Hours 3. Load: Allowed DC Current	

■ Storage Temperature: 25 \pm 3°C; Humidity < 80%RH

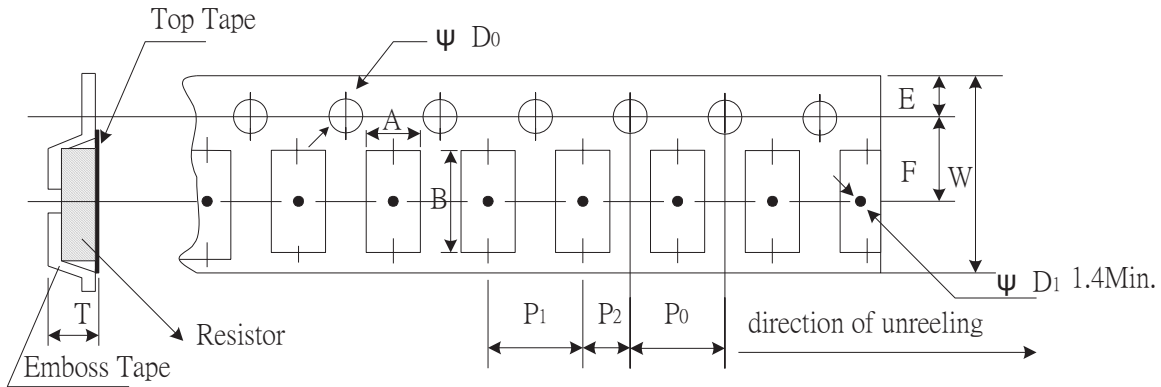
■ Packaging

Packaging Quantity & Reel Specifications

Type	ΦA	ΦB	ΦC	W	T	Quantity (EA)
CMH05	178±2.0	60±0.5	13±0.3	9±0.3	11.4±1.0	2000
CMH06	178±2.0	60±0.5	13±0.3	9±0.3	11.4±1.0	2000



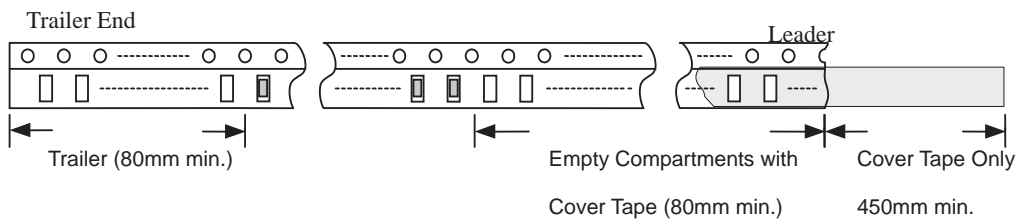
Embossed Plastic Tape Specifications



Unit: mm

Type	A	B	W	E	F	P0	P1	P2	ΦD ₀	t
CMH05	1.40±0.10	2.55±0.05	8.0±0.20	1.75±0.10	3.5±0.10	4.00±0.10	4.00±0.10	2.00±0.10	1.50+0.10	1.35±0.10
CMH06	1.90±0.10	3.50±0.05	8.0±0.20	1.75±0.10	3.5±0.10	4.00±0.10	4.00±0.10	2.00±0.10	1.50+0.10	2.10±0.10

Leader / Tape



Peel-off Force

The force for tearing off cover tape is 0.05~0.69 (N) in the arrow direction at the following conditions:

Temperature: 5 ~ 35°C

Humidity: 45 ~ 85%

Atmospheric pressure: 860 ~ 1060hpa

