Data Sheet

Customer:	
Product:	**Common Mode Filters**
Sizes.:	**0502**
Issued Date:	**24-Apr-25**
Edition:	**REV.A4**

RoHS Compliant

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24-Apr-25	24-Apr-25	24-Apr-25	24-Apr-25	
Mandy Chang	***Ben Chang***	***Ben Chang***		

Common Mode Filter



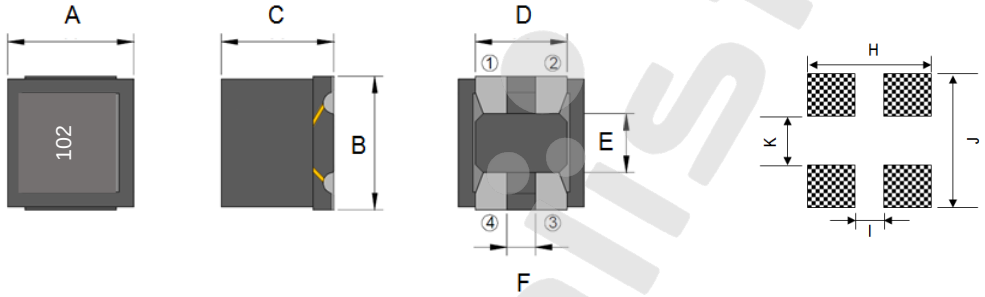
■Features

- Chip common mode filter for large current applications
- For each series, there is excellent common mode impedance and noise suppression in a compact case
- Low profile and small size makes it optimal for surface mounting
- AEC-Q200 Compliance

■Applications

- Power Line Noise Countermeasure For Electronic Equipment (DVCs, DVD Cams, DSCs, etc.).

■Dimensions



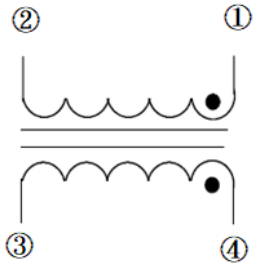
Unit: mm

Type	A	B	C	D	E	F	H	I	J	K
CMC0502	4.8±0.3	5.0±0.3	2.3±0.2	3.5±0.2	2.2±0.2	1.1±0.2	4.4 ref	0.9 ref	5.5 ref	2.0 ref

■Part Numbering

CMC	0502	-	T	102
Product Type	Dimensions (AxBxC)	Impedance Tolerance	Packaging Code	Impedance
	0502: 4.8x5.0x2.3	-: No specified	T: Taping Reel	251: 250Ω 102: 1000Ω

■Equivalent Circuit



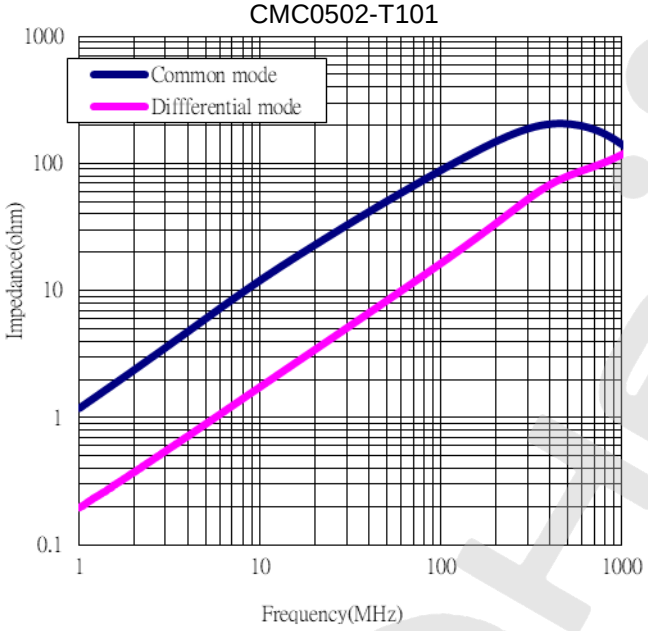
Common Mode Filter

■Standard Electrical Specifications

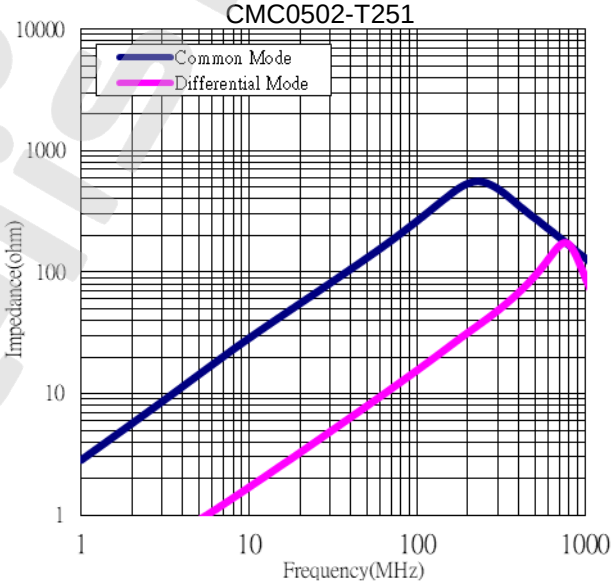
Part No.	Impedance (Ω) tpy. @10MHz	Impedance (Ω) tpy. @100MHz	DCR (mΩ) ±40%	IDC (A) max.	Rated Voltage Vdc (V)	Insulation Resistance (MΩ) min.	Withstanding Voltage Vdc(V)
CMC0502-T101	13	100	10	6	100	10	125
CMC0502-T251	20	250	14	5	100	10	125
CMC0502-T501	30	500	19	4	100	10	125
CMC0502-T102	60	1000	24	3	100	10	125
CMC0502-T142	100	1400	40	3	100	10	125
CMC0502-T152	100	1500	40	3	100	10	125

■Characteristics (Impedance vs. Frequency)

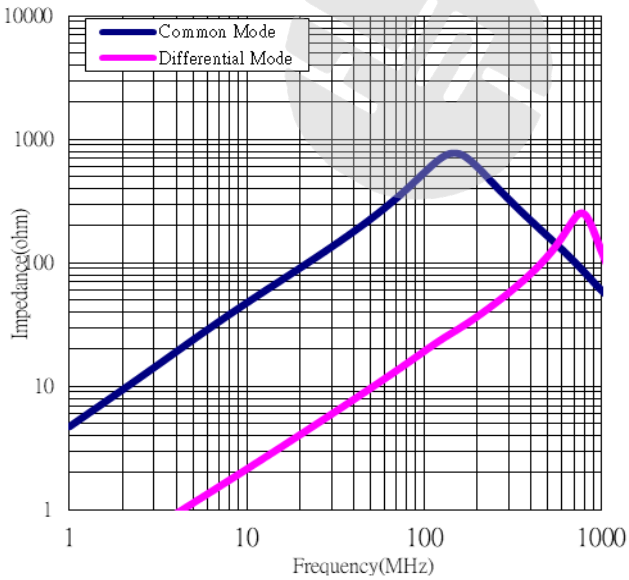
CMC0502-T101



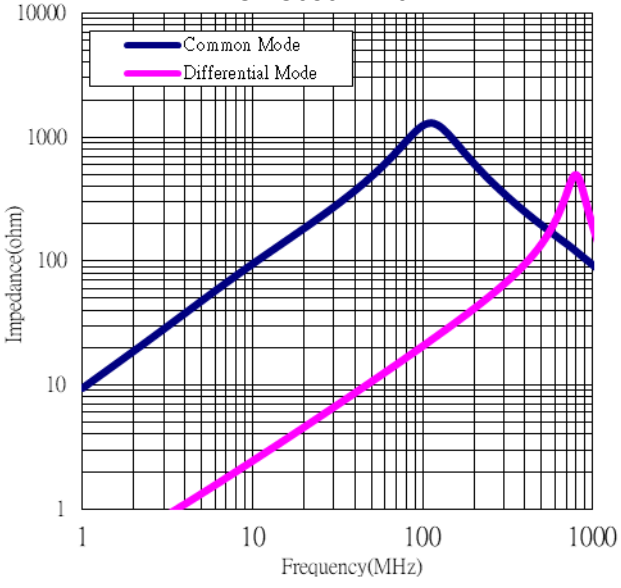
CMC0502-T251



CMC0502-T501

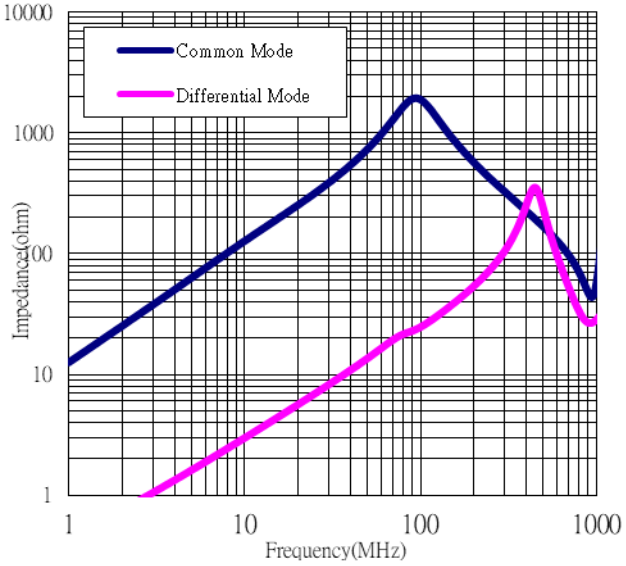


CMC0502-T102

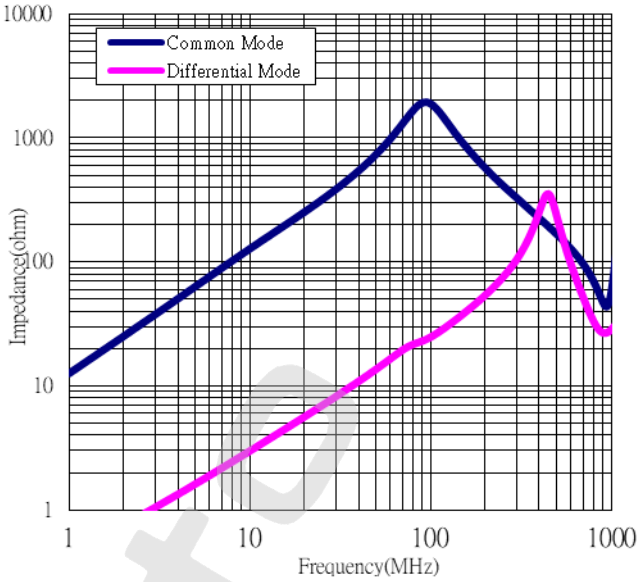


Common Mode Filter

CMC0502-T142



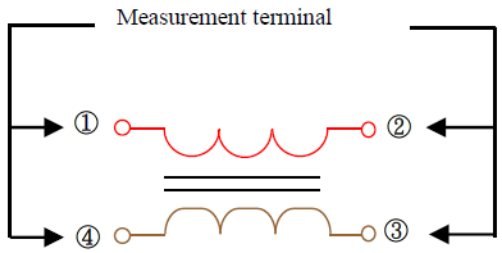
CMC0502-T152



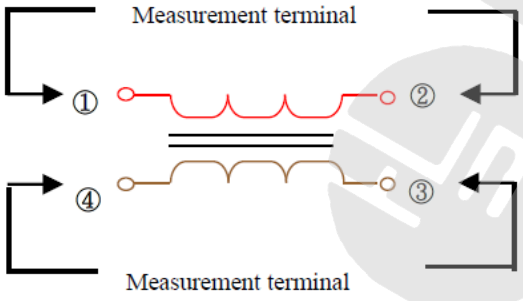
Test Equipment

Impedance / Inductance

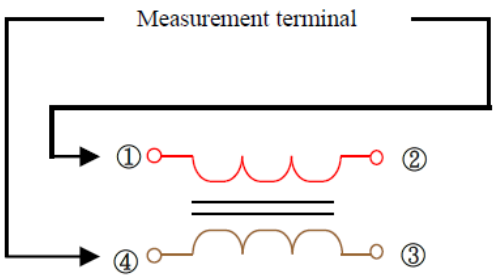
Measured by using Agilent E4991A RF Impedance Analyzer.
Measured by using Microtest 6377 RF LCR Meter



DC Resistance
Measured by using Chroma 16502 mill ohm meter.



Insulation Resistance
Measured by using Chroma 19073
Measurement voltage : 50v ,Measurement time : 60 sec



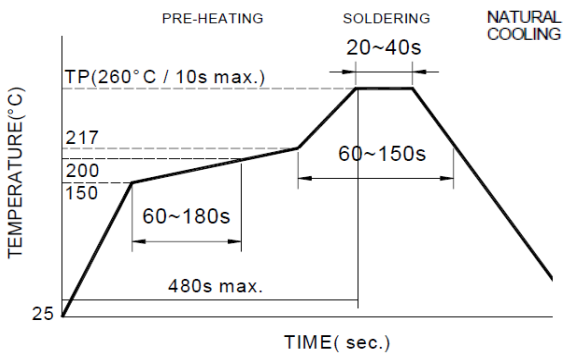
■Environmental Characteristics

Items	Requirement	Test Conditions / Test Methods
Pre-and Post- Stress Electrical Test	User Spec	
High Temperature Exposure (Storage)	Appearance: No damage Impwdance change rate: within ±25%	MIL-STD-202 Method 108 1000hrs. At rated operating temperature (e.g. 125 °C part can be stored for 1000 hrs. @ 125°C. Same applies for 105°C and 85°C. Unpowered. Measurement at 24 +/- 2 hours after test conclusion.
Temperature Cycling	Appearance: No damage Impwdance change rate: within ±25%	JESD22 Method JA-104 1000 cycles (-40°C to 125°C). Note: If 85°C part or 105°C part the 1000 cycles will be at that temperature. Measurement at 24 +/-2 hours after test conclusion.
Biased Humidity	Appearance: No damage Impwdance change rate: within ±25%	MIL-STD-202 Method 103 1000 hours 85°C / 85% RH. Unpowered. Measurement at 24 +/- 2 hours after test conclusion.
Operational Life	Appearance: No damage Impwdance change rate: within ±25%	MIL-PRF-27 1000 hrs. @ 105 °C. If 85°C or 125°C part will be tested at that temperature. Measurement 24 +/- 2 hours after test conclusion.
Mechanical Shock	Appearance: No damage Impwdance change rate: within ±25%	MIL-STD-202 Method 213 Figure 1 of Method 213 SMD : Condition F
Vibration	Appearance: No damage Impwdance change rate: within ±25%	MIL-STD-202 Method 204 5g's for 20 minutes, 12 cycles each of 3 orientations Use 8"*5" PCB, .31" thick. 7 secure points on on 8" side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.
Resistance to Soldering Heat	Appearance: No damage Impwdance change rate: within ±25%	MIL-STD-202 Method 210 Condition B pre-heat of samples. Note: Single Wave Solder - Procedure 2 for SMD and Procedure 1 for Leaded with solder within 1.5mm of device body.
Solderability	The electrodes shall be at least 95% covered with new solder coating.	J-STD-002 For both Leaded & SMD. Electrical test not required. Magnification 50X. Conditions: SMD: a) Method B, 4 hrs@ 155C dry heat @ 245C, 4+-1 s
Board Flex	The forces applied on the right conditions must not damage the terminal electrode and the ferrite	AEC-Q200-005 Appendix 2 Note : 2mm (Min)
Terminal Strength (SMD)	The chip must not damage the terminal electrode and the ferrite	AEC-Q200-006 Appendix 1 Note : Force of 1.8Kg for 60 seconds.
Shear Strength	The chip must not damage the terminal electrode and the ferrite	AEC-Q200-004 Appendix 1 Note : Force of 5N for 5+-1 seconds.

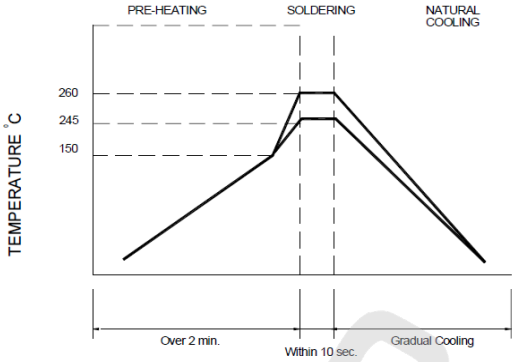
■Operating Temperature: -40~125°C
■Storage Temperature: -40~125°C
■Shelf life: 1 years Max

Reflow

Re-flow Soldering(Lead Free)

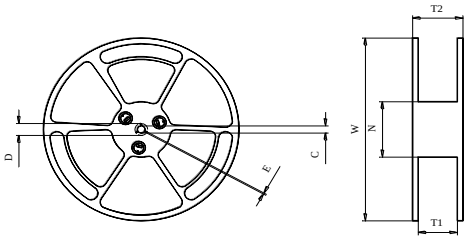


Wave Soldering



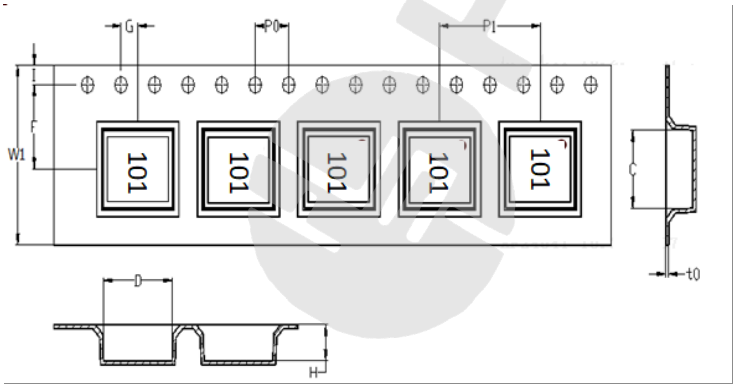
Packaging

Packaging Quantity & Reel Specifications



Type	W (mm)	D (mm)	C (mm)	T1 (mm)	N (mm)	T2 (mm)	E (mm)	Quantity (EA)
CMC0502	330±1.5	21.5+0.5/-0	13+0.5/-0.2	12.5+0.5/-0	100±1.5	16.9±0.4	2.0±0.5	2500

Embossed Plastic Tape Specifications



Type	W1 (mm)	I (mm)	F (mm)	P0 (mm)	G (mm)	P1 (mm)	C (mm)	t0 (mm)	D (mm)	H (mm)
CMC0502	12.00±0.3	1.75±0.1	5.5±0.1	4.00±0.1	2.00±0.1	8.00±0.1	5.30±0.1	0.35±0.05	5.30±0.1	2.50±0.1

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A3	Apr 14 ,2025		-Add Shelf life. -Modify IDC and Rated Voltag specifications
Version A4	Apr 24 ,2025		-Add AEC-Q200 compliance description in Features -Modify Environmental Characteristics