

## Common Mode Filter Chip Inductors

FASTRON added size 1210 to its CMC product portfolio. Both the 1812CMF and the 1210CMF have two coupled windings wound, providing a symmetrical coil. The ferrite plate on top of the ferrite core closes the magnetic circuit and allows accurate pick and place assembly.

**Applications** Main purpose of 1210CMF and 1812CMF is protecting differential signal paths from common mode disturbances. The Common Mode Choke is designed to provide highest quality for the most stringent applications e.g. automotive, industrial and automation. The part could be used in data-line filters, Ethernet networking, CAN-Bus, USB, wideband noise suppression and EMC circuit protection for incoming radiation and outgoing noise emission.

### Technical Data

L – Value (rated inductance)	Measured with E4980AL Precision LCR Meter or equivalent at frequency $f_L$ , 25°C ambient
Impedance,  Z	Measured with E4991B Impedance Analyzer or equivalent at frequency $f_Z$ , 25°C ambient
DCR (max)	Measured at 25°C ambient
Rated DC Current	Max permissible Current that causes a 20°C component temperature rise from 25°C ambient
Operating Temperature	-40°C to +150°C (Including component self-heating): CMF -40°C to +105°C (Including component self-heating): CMF/E
Surface Finishing	Flat top for perfect pick and place assembly
Pad Metallization	Gold flash for 1812 Tin as top layer for 1210
Wire Termination	Spot welding
Recommended Soldering Method	Reflow
Moisture Sensitivity Levels (MSL)	MSL Level 1, indicating unlimited floor life at $\leq 40^\circ\text{C}$ /60% relative humidity
Solderability	Using lead free solder (Sn 96.5) at $245^\circ\text{C} \pm 5^\circ\text{C}$ for $5 \pm 0.5$ seconds, min 90% solder coverage of metallization Standard: IEC 68-2-20 (Ta)
Resistance to Soldering Heat	Resistant to $260^\circ\text{C} \pm 5^\circ\text{C}$ for $10 \pm 1$ seconds Standard: IEC 68-2-20 (Tb)
Resistance to Solvent	Resistant to isopropyl alcohol for $5 \pm 0.5$ minutes at $23^\circ\text{C} \pm 5^\circ\text{C}$ Standard: IEC 68-2-45
Climatic Test	Defined by the following standards IEC 68-2-1 for cold test: $-55^\circ\text{C}$ for 96 hours IEC 68-2-2 for dry heat test: $150^\circ\text{C}$ for 96 hours IEC 60068-2-78 for humidity test: $40^\circ\text{C}$ at RH 95% for 4 days
Thermal Shock Test	Temperature cycle: $-40^\circ\text{C}$ to $+150^\circ\text{C}$ to $-40^\circ\text{C}$ Max/Min temperature duration: 15 minutes Temperature transition duration: 5 minutes Cycles: 25 Standard: MIL-STD-202G
Adhesion of Soldered Component (Shear Test)	Components withstand a pushing force of 10N for $10 \pm 1$ seconds Standard: IEC 60068-2-21, method Ue <sub>3</sub>
Mechanical Shock	Mil-Std 202 Method 213, Condition C 3 axis, 6 times, total 18 shocks 100 G, 6 ms, half-sine
Vibration	Mil-Std 202 Method 204 20 mins at 5G 10 Hz to 2000 Hz 12 cycles each of 3 orientations

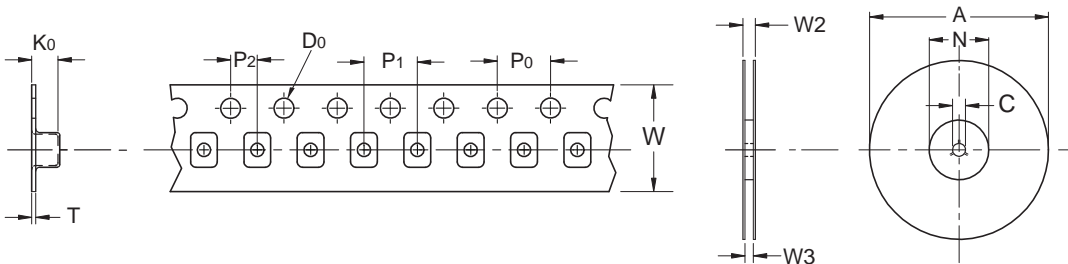
Technical Data & Packaging Specification

Ordering Code Example: 1812CMF-101X-YY → **1812CMF-101X-01**

Case Sizes - 1210, 1812  
Tolerances - +30%/-10%, +50%/-30%  
Packaging Code - 01, 04 (Taped / Reel)

**1812**
**CMF**
-
**101**
**X**
-
**YY**  
 (Case Size) (Series name) (Inductance Value) (Tolerance) (Packaging Code)

### Packaging Specification Schematic



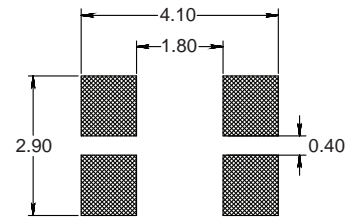
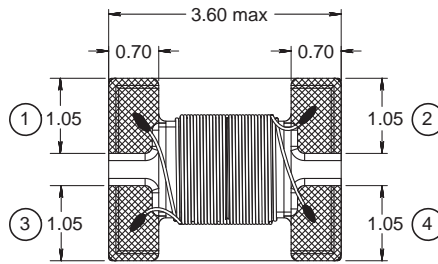
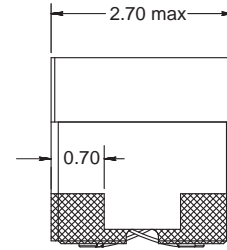
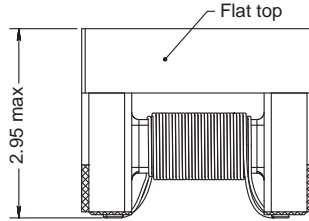
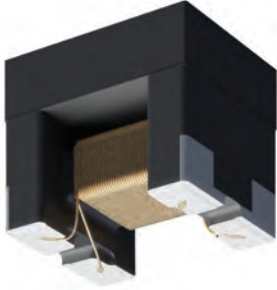
Type	Packaging Code	A	D0	N	C	W2	W3	W	P1	P0	P2	K0	T
1210	01	180	1.50	60	13	18.4	13.7	12	8	4	2	3.00	0.30
1210	04	330	1.50	100	13	18.4	12.4	12	8	4	2	3.00	0.30
1812	01	180	1.50	60	13	18.4	13.7	12	8	4	2	3.40	0.35
1812	04	330	1.50	100	13	18.4	12.4	12	8	4	2	3.40	0.35

# 1210 CMF

Common Mode Filter  
CAN bus

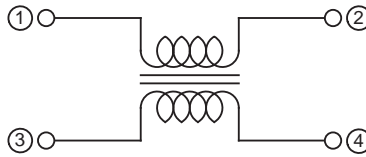


**PRELIMINARY**

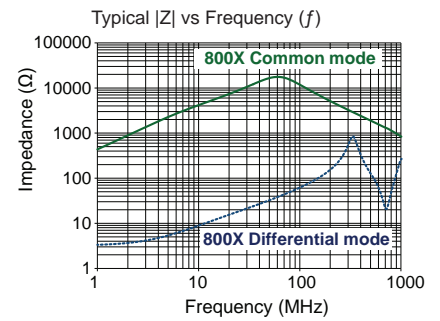
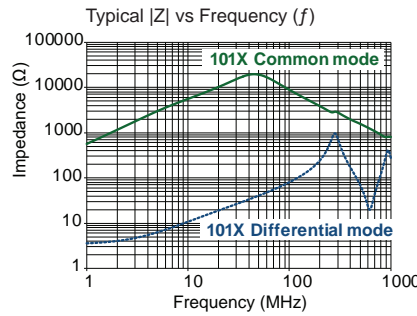
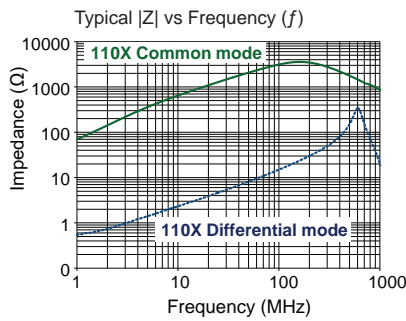


Recommended layout for solder pads

Schematic



No polarity



Part No	Impedance  Z  (Ω)		f <sub>z</sub> (kHz)	Inductance L (μH)		f <sub>L</sub> (kHz)	Tol ± (%)	Leakage Inductance (μH) typ	Capacitance Ref. (pF)	DCR max (Ω)	Rated DC Current (mA)
	min	typ									
1210CMF-110X-YY	300	550	100 @ 0.1 V	11	100 @ 0.1 V	+50/-30	0.10	12	0.40	300	
1210CMF-800X-YY	1000	2600	100 @ 0.1 V	80	100 @ 0.1 V	+50/-30	0.13	12	2.00	200	
1210CMF-101X-YY	3500	5100	100 @ 0.1 V	100	100 @ 0.1 V	+50/-30	0.13	12	2.30	150	

Core Material: Ferrite

Top Material: Magnetically shielded

Revision date: 08 Jun 2023

SPQ: Taped / Reel 600 [-01]  
2700 [-04]

Remarks: - Rated Volt = 80 Vdc.  
- Insulation Resistance = 10 MΩ min.