

Common Mode Filter Chip Inductors

FASTRON adds a Common Mode Filter in package size 1812 to its product portfolio. The 1812CMF has two parallel copper windings wound providing a symmetric coil. A ferrite plate on top of the ferrite core works as a magnetic shield and allows for pick and place assembly.

Applications The 1812CMF's general purpose is filtering fast signals path at high frequencies. 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 4285A Precision LCR Meter at frequency f_L
Impedance, $ Z $	Measured with E4991B Impedance Analyzer, 4286A RF LCR meter at frequency f_Z
DCR (max)	Measured at 25°C
Operating Temperature	-55°C to +150°C (Including component self-heating)
Surface Finishing	Flat top for perfect pick and place assembly
Pad Metallization	Gold flash
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 ± 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 ± 1 seconds Standard: IEC 68-2-20 (Tb)
Resistance to Solvent	Resistant to Isopropyl alcohol for 5 ± 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°C for 96 hours IEC 68-2-2 for Dry heat test : 150°C for 96 hours IEC 60068-2-78 for Humidity test: 40°C at RH 95% for 4 days
Thermal Shock Test	Temperature cycle : -55°C to $+150^\circ\text{C}$ to -55°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 ± 1 seconds Standard: IEC 60068-2-21, method Ue ₃
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

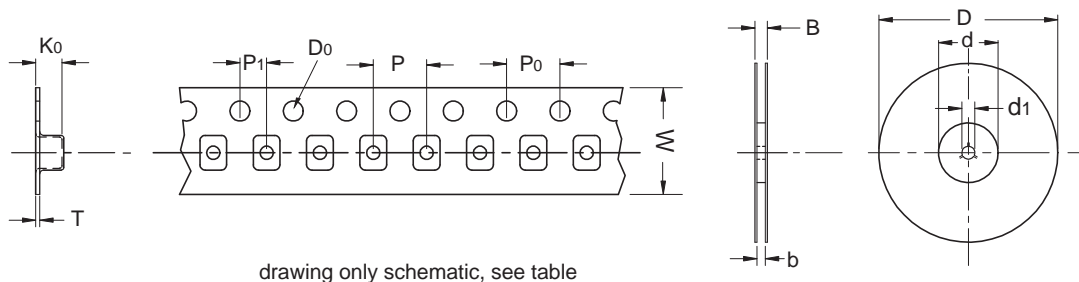
Technical Data & Packing Spec

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

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

- Case Sizes - 1812
- Tolerances - +50%/-30%
- Packing Code - 01(Taped / Reel)

Packing Specification



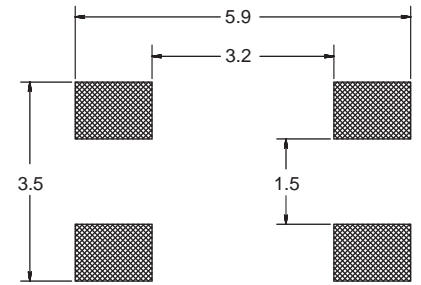
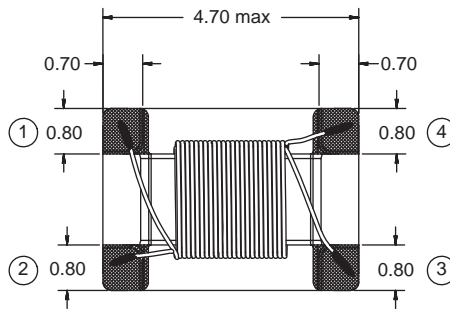
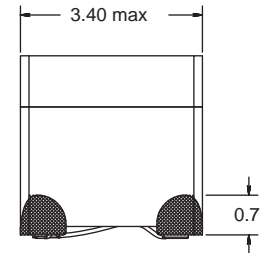
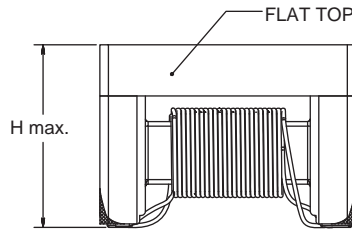
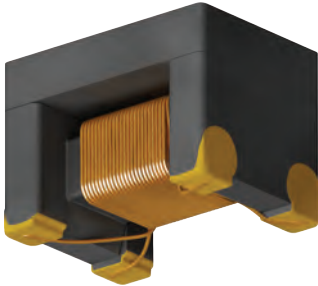
Type	Packing Code	D	Do	d	d1	B	b	W	P	P0	P1	K0	T
1812	01	180	1.50	60	13	18.4	13.7	12	8	4	2	3.40	0.35
1812	04	330	1.50	100	13	18.4	12.4	12	8	4	2	3.40	0.35

1812 CMF

Common Mode Filter



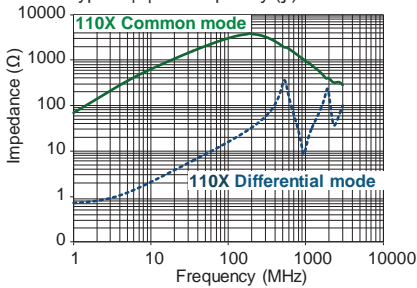
Preliminary Spec



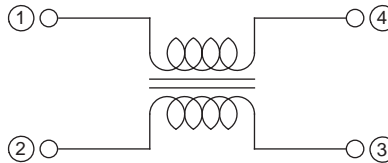
Recommended layout for solder pads

1812CMF-110X

Typical |Z| vs Frequency (f)



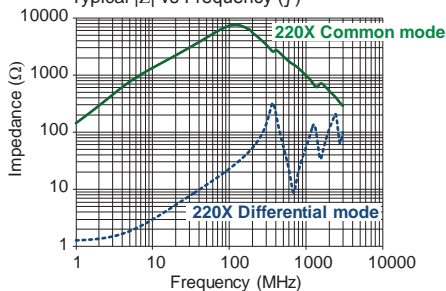
Schematic



No polarity

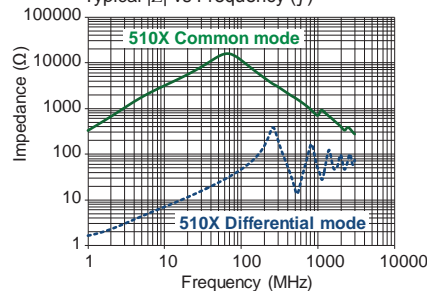
1812CMF-220X

Typical |Z| vs Frequency (f)



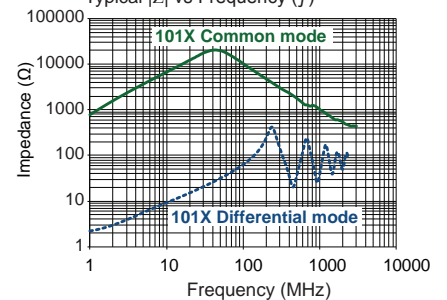
1812CMF-510X

Typical |Z| vs Frequency (f)



1812CMF-101X

Typical |Z| vs Frequency (f)



Part No	Impedance Z (Ω)		f _z (MHz)	Inductance L (μH)	Leakage Inductance (μH) typ	f _L (kHz)	Tol ± (%)	DCR max (Ω)	Rated DC Current (mA)	Dimension H max
	min	typ								
1812CMF-110X-YY	300	600	10	11	0.05	100	+50/-30	0.5	250	3.15
1812CMF-220X-YY	500	1200	10	22	0.08	100	+50/-30	0.7	200	3.15
1812CMF-510X-YY	1000	2800	10	51	0.15	100	+50/-30	0.9	200	3.15
1812CMF-101X-YY	2000	5800	10	100	0.20	100	+50/-30	2.0	150	3.25

Core Material : Ferrite

Top Material : Magnetically shielded

Revision date : 04 Feb 2020

SPQ : Taped / Reel 600 [-01]
2200 [-04]

Remarks: - For not listed inductance values please check availability with us.
- Rated Volt = 50 Vdc.
- Insulation Resistance = 10 MΩ min.

• All dimensions in mm

Common Mode Filter Chip Inductors