

CMLA

Automotive grade common-mode noise suppressor chip inductor



Product features

- AEC-Q200 qualified
- Square type closed magnetic core allows smaller inductor
- Low profile design
- 700 ohm impedance in 3 sizes
- Excellent impedance characteristics to suppress common and differential-mode noise
- Moisture sensitivity level (MSL): 1

Applications

- Automotive power line filter
- Automotive equipment and devices
- Infotainment
- ECU Power filtering
- LED Lighting
- DC power lines
- Multi-media devices

Environmental compliance and general specifications

- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature:
J-STD-020 (latest revision) compliant



Powering Business Worldwide

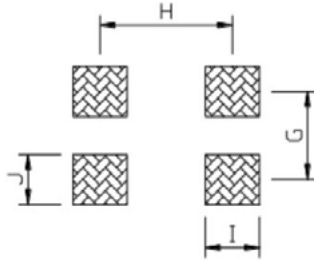
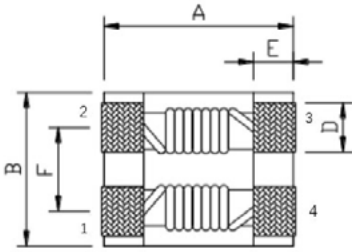
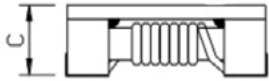
Product specifications

Part number ³	Common-mode impedance ¹ (Ω) typical	Common-mode impedance ¹ (Ω) minimum	DCR (mΩ) @ +25 °C maximum	Rated current ² (A) maximum	Rated voltage (Vdc) maximum	Insulation resistance @ 100 Vdc (MΩ) minimum
CMLA0706-701-R	700	500	15	4.0	100	10
CMLA0907-701-R	700	500	10	5.0	100	10
CMLA1211-701-R	700	500	6.0	8.0	100	10

1. Common-mode impedance test parameters: 100 MHz, 0.1 Vrms, +25 °C
2. Rated current: DC current for an approximate temperature rise of 40 °C without core loss. It is recommended that the temperature of the part not exceed +125 °C under worst case operating conditions verified in the end application.

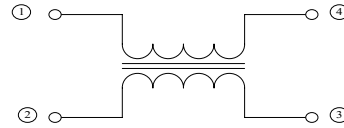
3. Part Number Definition: CMLAxxx-yyy-R
CMLA = Product code
xxx= Size indicator
yyy= Impedance value in ohms. R= decimal point, if no R is present then last digit indicates the number of zeros
-R suffix = RoHS compliant

Mechanical parameters, schematic, pad layout (mm)



Part marking: xxx= Impedance value in ohms
All soldering surfaces to be coplanar within 0.1 millimeters
Tolerances are ±0.3 millimeters unless stated otherwise
Pad layout tolerances are ±0.1 millimeters unless stated otherwise
Pad layout dimensions are reference only
Traces or vias underneath the inductor is not recommended

Equivalent circuit



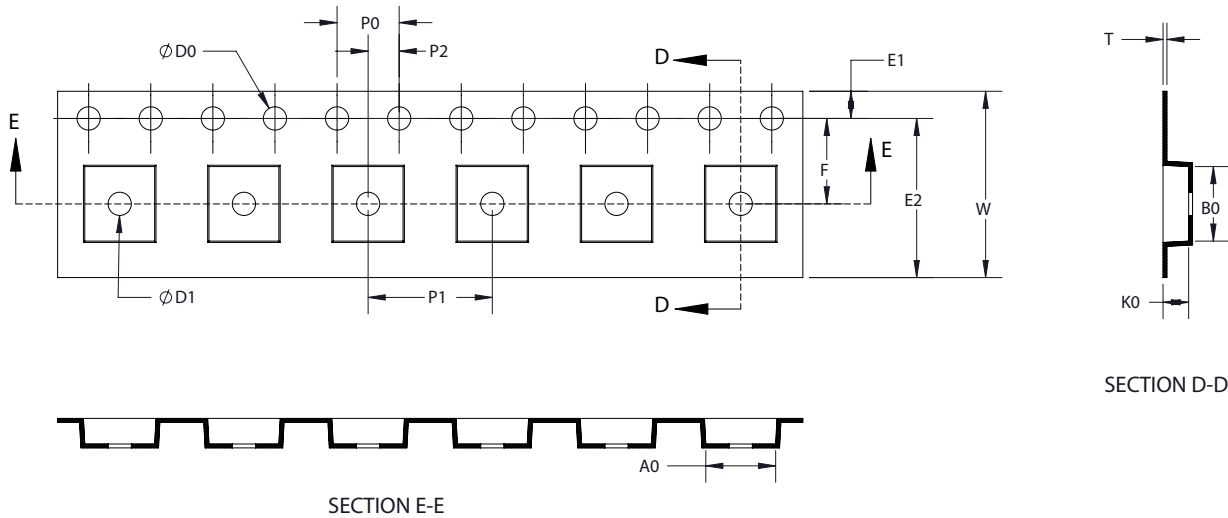
No polarity

Dimension	CMLA0706-701-R	CMLA0907-701-R	CMLA1211-701-R
A	8.0 maximum	10 maximum	13 maximum
B	6.2 maximum	7.5 maximum	11.5 maximum
C	4.0 maximum	4.8 maximum	7.0 maximum
D	1.5 ±0.3	1.8 ±0.3	2.7 ±0.3
E	1.7 ±0.3	1.7 ±0.3	2.57 ±0.3
F	3.0 ref	3.8 ref	5.2 ref
G	3.0 ref	3.8 ref	5.2 ref
H	5.2 ref	7.3 ref	9.32 ref
I	3.0 ref	2.7 ref	3.6 ref
J	2.0 ref	2.0 ref	3.2 ref

Packaging information (mm)

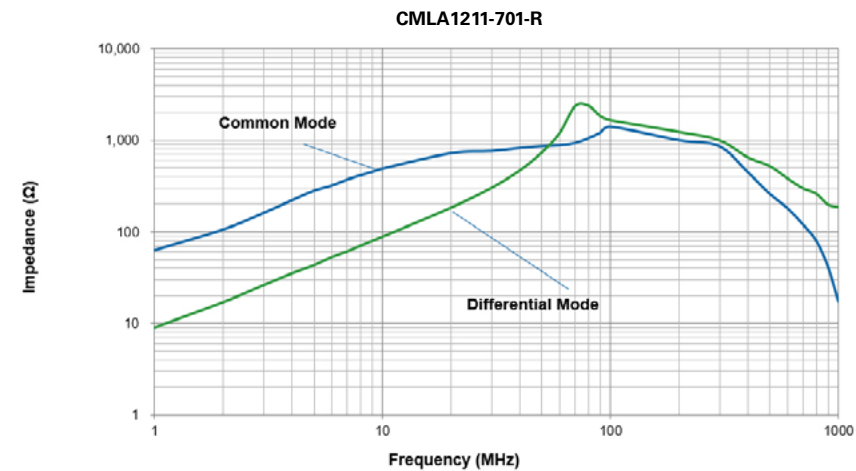
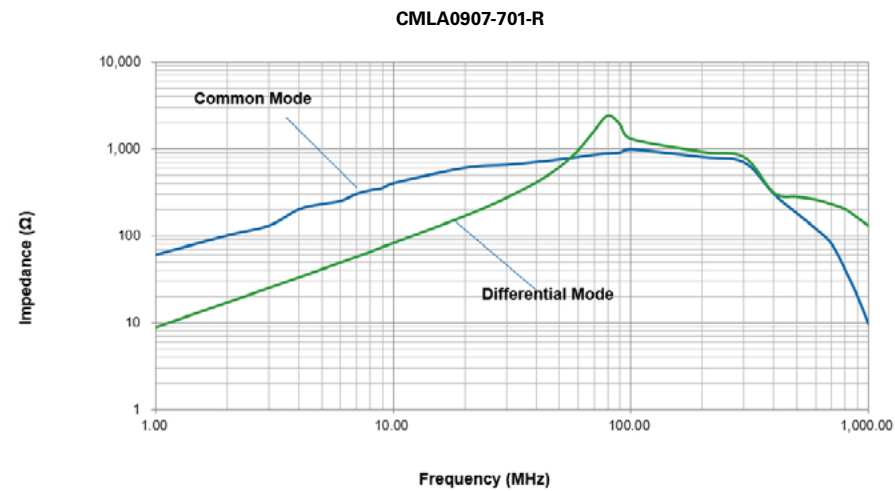
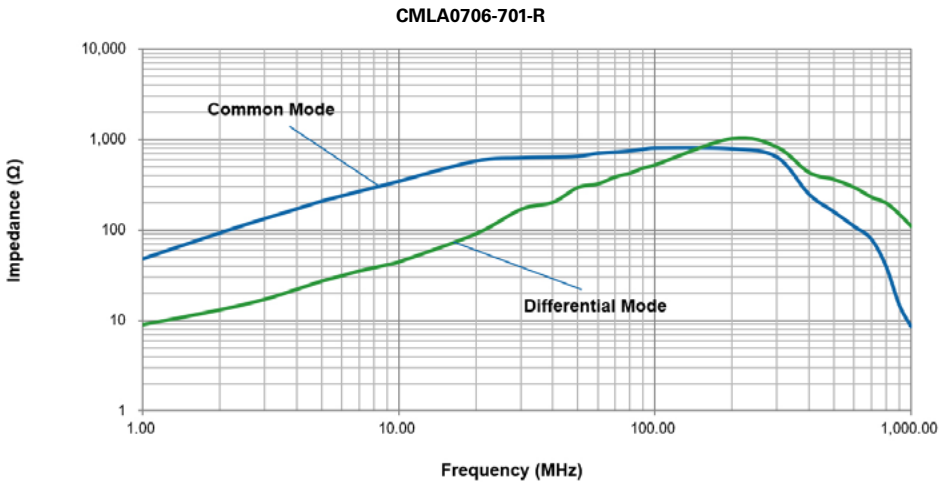
Supplied in tape and reel packaging, 13" diameter reel (EIA-481 compliant)

CMLA0706-xxx-R 1100 parts per reel, CMLA0907-xxx-R 800 parts per reel, CMLA1211-xxx-R 500 parts per reel



Dimension	CMLA0706-701-R	CMLA0907-701-R	CMLA1211-701-R
W	24 ±0.3	24 ±0.3	24 ±0.3
F	11.5 ±0.1	11.5 ±0.1	11.5 ±0.1
E1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1
E2	na	na	na
P0	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1
P1	12 ±0.1	12 ±0.1	16 ±0.1
P2	2.0 ±0.1	2.0 ±0.1	2.0 ±0.1
D0	1.5 +0.1/-0	1.5 +0.1/-0	1.5 +0.1/-0
D1	na	na	1.5
A0	6.5 ±0.2	7.6 ±0.1	11.2 ±0.2
B0	8.3 ±0.2	9.6 ±0.1	12.9 ±0.2
K0	4.4 ±0.2	5.0 ±0.1	7.0 ±0.2
T	0.4 ±0.05	0.4 ±0.05	0.4 ±0.05

Impedance vs frequency



Solder reflow profile

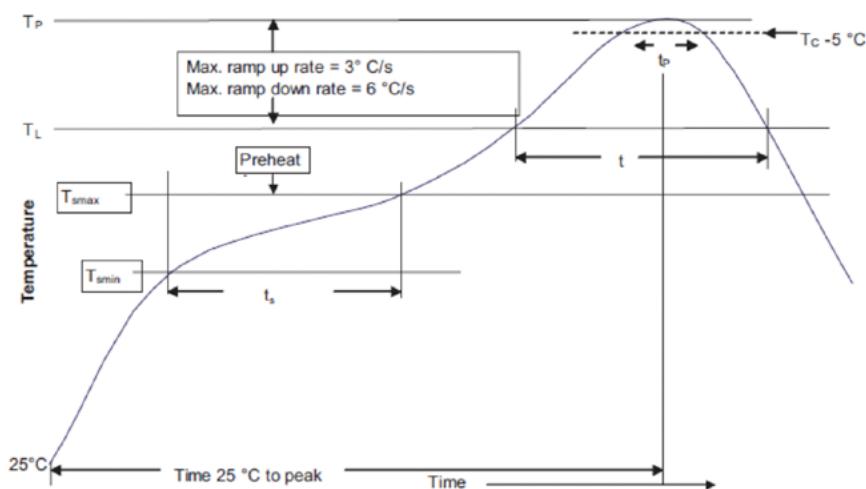


Table 1 - Standard SnPb solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm)	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T_{smin})	100 °C	150 °C
• Temperature max. (T_{smax})	150 °C	200 °C
• Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds	60-120 seconds
Ramp up rate T_L to T_P	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T_L)	183 °C	217 °C
Time (t_L) maintained above T_L	60-150 seconds	60-150 seconds
Peak package body temperature (T_P)*	Table 1	Table 2
Time (t_P)* within 5 °C of the specified classification temperature (T_C)	20 seconds*	30 seconds*
Ramp-down rate (T_P to T_L)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_P) is defined as a supplier minimum and a user maximum.

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Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics

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