ECMS1V0704

Common mode choke, surface mount

Product features

- High frequency filter
- Square type closed magnetic core
- Current rating up to 15 A
- 8.0 mm x 6.5 mm surface mount package in a 3.8 mm height
- Moisture sensitivity level (MSL): 1

Applications

- Battery backup
- Renewable energy products
- High tech consumer products
- Appliances
- LED lighting
- Smart meters
- Industrial IoT equipment
- Motion controls
- Power supplies
- Medical equipment

Environmental compliance and general specifications

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

Pb HALOGEN HF FREE RoHS

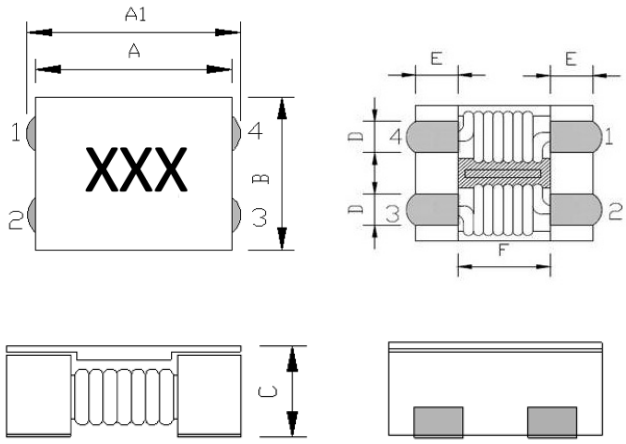
Powering Business Worldwide

Product specifications

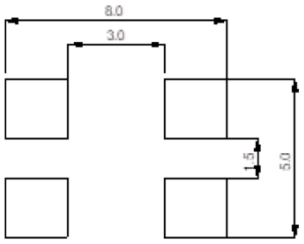
Part number[5]	Impedance[1] (Ω) mimimum	Impedance[1] (Ω) typical	DCR[2] (mΩ) @ +25 °C maximum	Rated current[3] (A) maximum	Rated voltage (Vdc) maximum	Insulation resistance[4] @ (MΩ) minimum
ECMS1V0704-700-R	40	70	5	15	80	10
ECMS1V0704-141-R	100	140	10	9	80	10
ECMS1V0704-301-R	225	300	10	5	80	10
ECMS1V0704-451-R	275	450	10	5	80	10
ECMS1V0704-701-R	500	700	15	4	80	10
ECMS1V0704-102-R	800	1020	17	3	80	10
ECMS1V0704-132-R	910	1300	21	2.5	80	10
ECMS1V0704-272-R	2000	2700	63	1	80	10
ECMS1V0704-302-R	2500	3000	75	0.9	80	10

1. Impedance test parameters: 100 MHz, 0.1 Vrms, parallel connection (1,2 - 4,3), +25 °C
2. DCR test parameters: parallel connection (1,2 - 4,3), 4-wire method measured at +25°C
3. 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.
4. Insulation resistance: Coil to coil
5. Part Number Definition: ECMS1Vxxxx-yyy-R
   ECMS1V = Product code
   xxxx= Size indicator
   yyy= Typical impedance value in ohms. R= decimal point, if no R is present then last digit indicates the number of zeros
   -R suffix = RoHS compliant

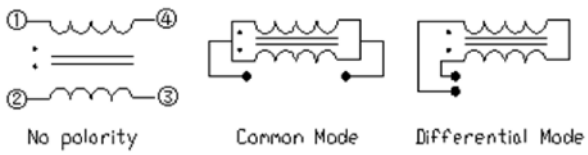
Mechanical parameters, schematic, pad layout (mm)



Recommended PCB Layout



Schematic

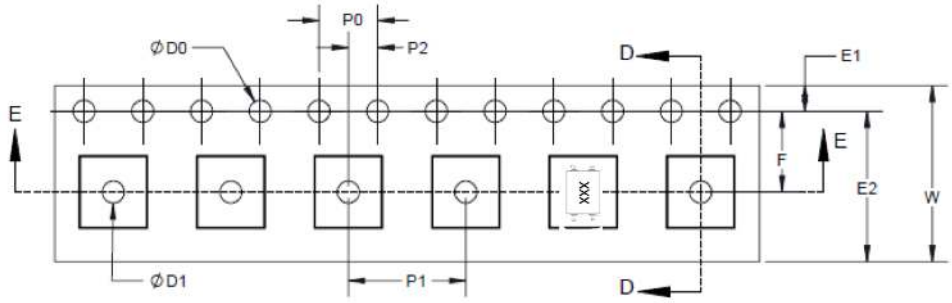


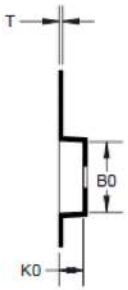
Dimension	Value
A	7.0 ±0.5
A1	7.5 ±0.5
B	6.0 ±0.5
C	3.8 maximum
D	1.5 typical
E	1.7 typical
F	3.5 typical

Part marking: xxx= Typical impedance value in ohms
All soldering surfaces to be coplanar within 0.1 millimeters
Tolerances are ±0.5 millimeters unless stated otherwise
Traces or vias underneath the inductor is not recommended

Packaging information (mm)

Supplied in tape and reel packaging, 13" diameter reel (EIA-481 compliant)
1500 parts per reel



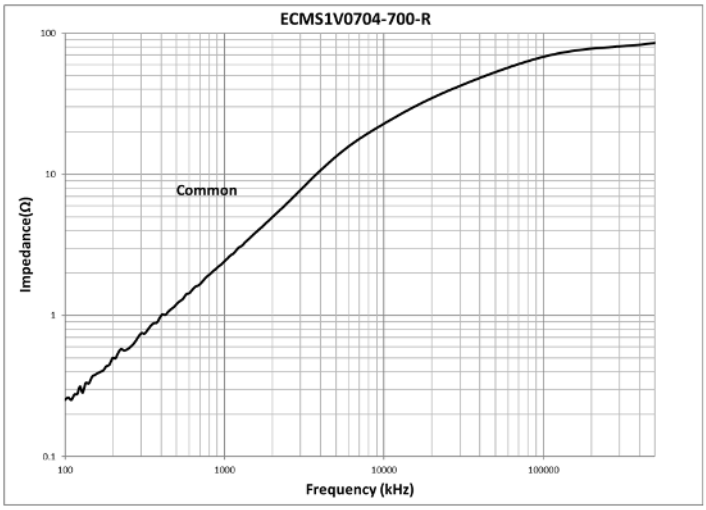


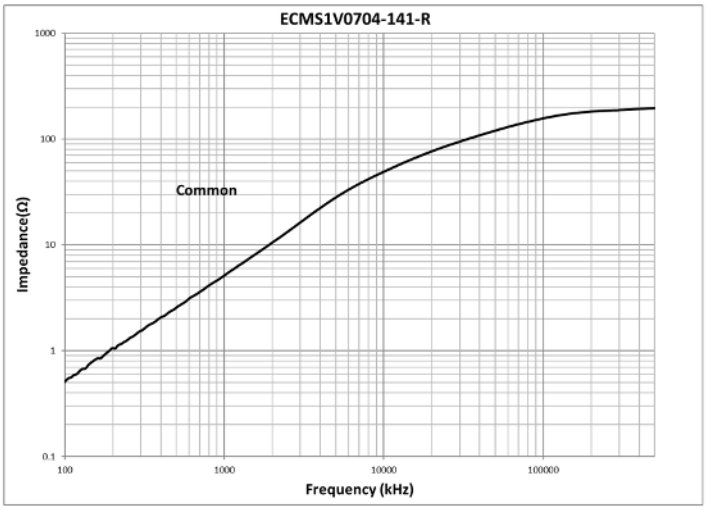
SECTION D-D

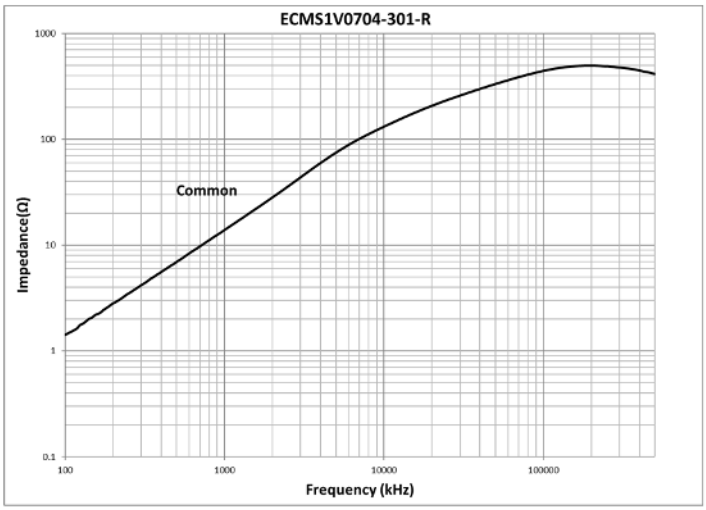
SECTION E-E

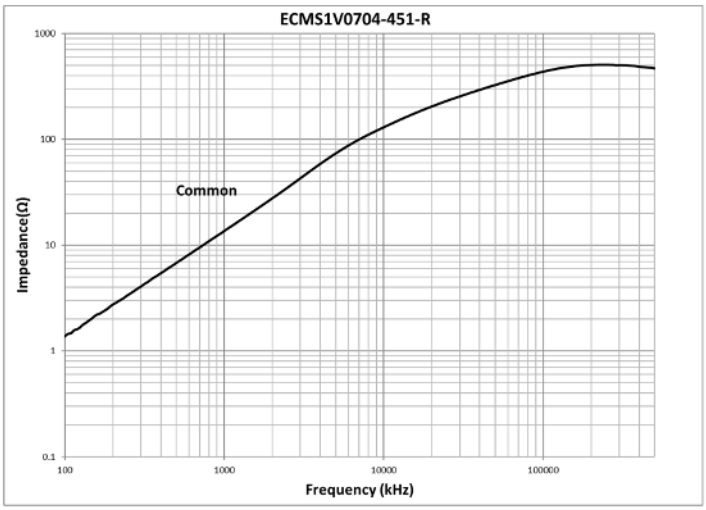
Dimension	Value
W	16 ±0.3
F	7.5 ±0.1
E1	1.75 ±0.1
E2	na
P0	4.0 ±0.1
P1	12 ±0.1
P2	2.0 ±0.1
D0	1.5 +0.1/-0
D1	1.5 +0.1/-0
A0	7.5 ±0.1
B0	7.2 ±0.1
K0	4.2 ±0.1
T	0.4 ±0.05

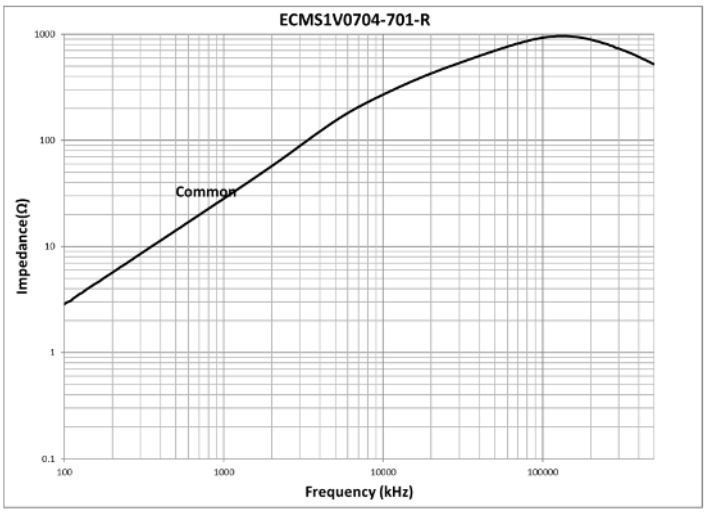
Impedance vs frequency

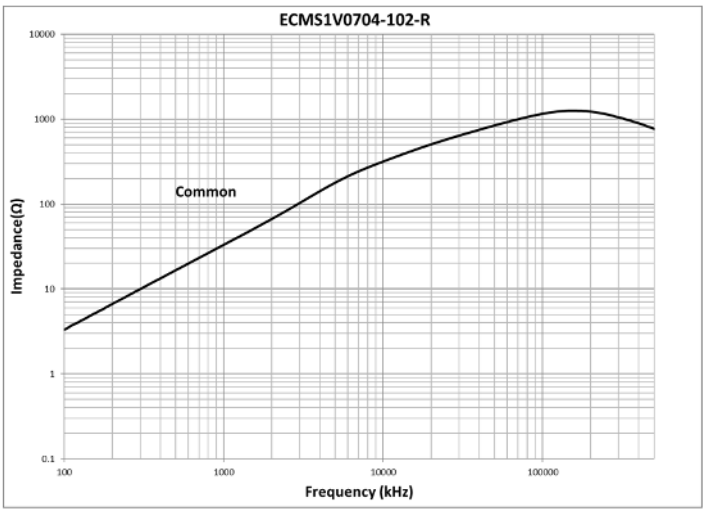




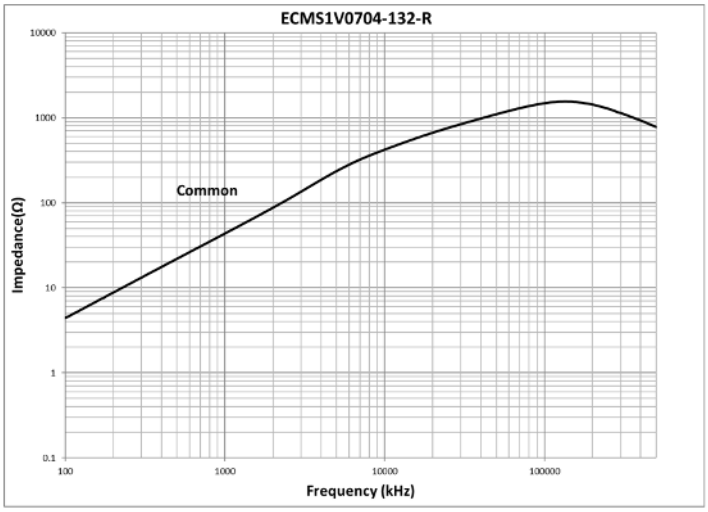


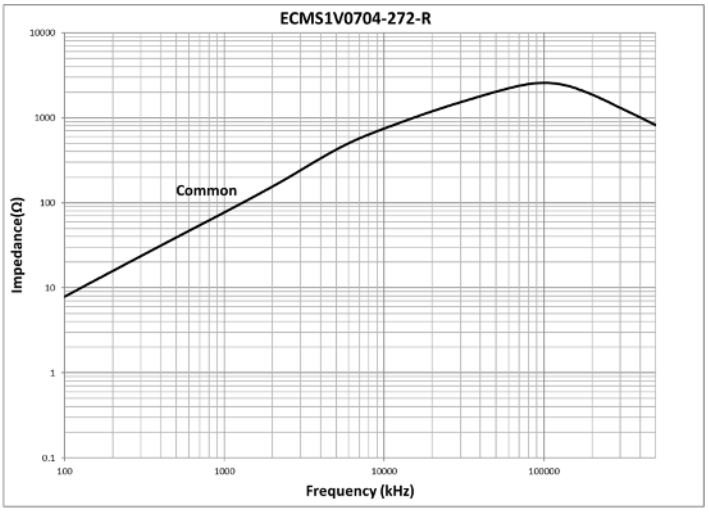


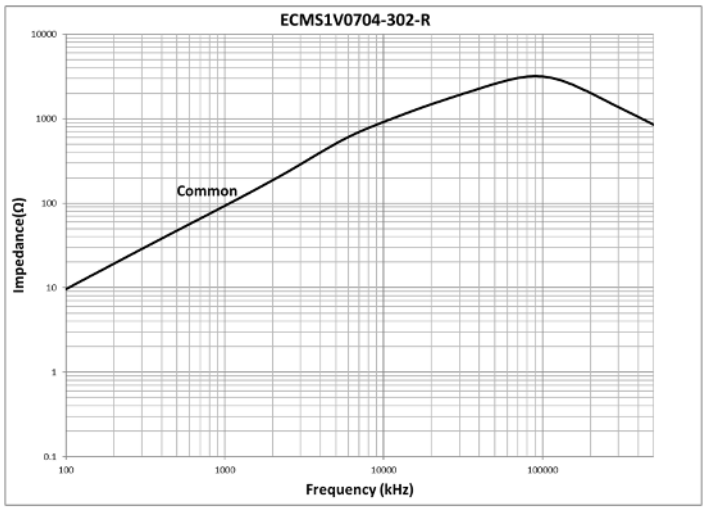




Impedance vs frequency







Solder reflow profile

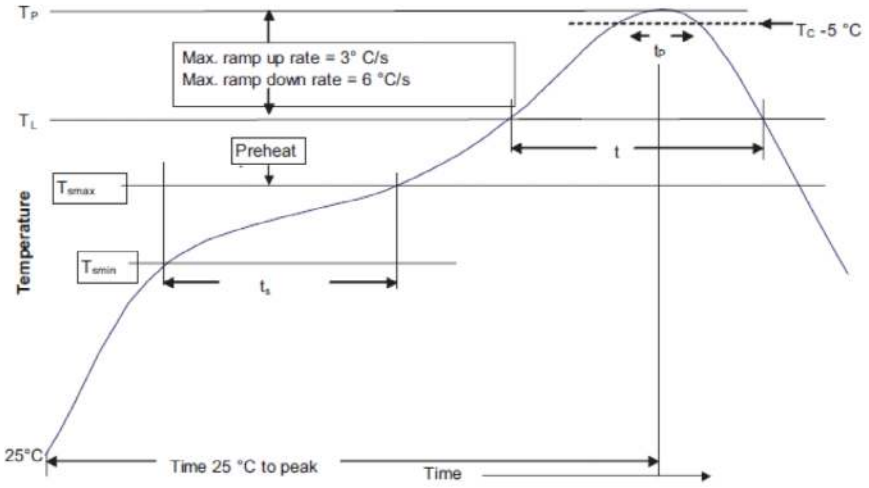


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm3 <350	Volume mm3 ≥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) Time (t_L) maintained above T_L		183 °C 60-150 seconds	217 °C 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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