

# ECMS1V0905

## Common mode choke, surface mount



### Product features

- High frequency filter
- Square type closed magnetic core
- Current rating up to 6 A
- 10 mm x 7.5 mm surface mount package in a 4.8 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



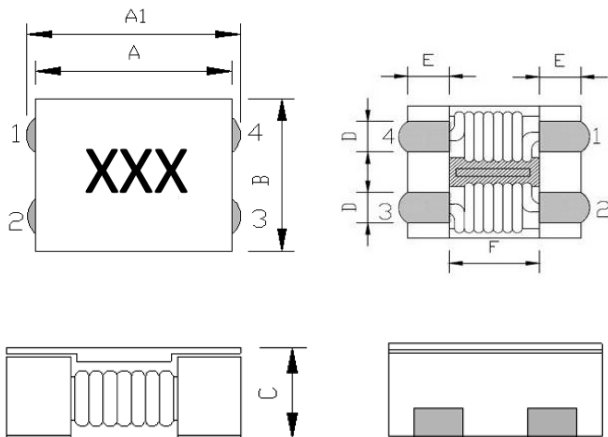
**Product specifications**

Part number <sup>5</sup>	Impedance <sup>1</sup> (Ω) minimum	Impedance <sup>1</sup> (Ω) typical	DCR <sup>2</sup> (mΩ) @ +25 °C maximum	Rated current <sup>3</sup> (A) maximum	Rated voltage (Vdc) maximum	Insulation resistance <sup>4</sup> @ (MΩ) minimum
ECMS1V0905-301-R	225	300	6.0	6.0	80	10
ECMS1V0905-601-R	450	600	8.0	5.5	80	10
ECMS1V0905-701-R	500	700	10	5.0	80	10
ECMS1V0905-102-R	750	1000	13	4.0	80	10
ECMS1V0905-222-R	1700	2200	50	3.0	80	10
ECMS1V0905-272-R	2000	2700	80	2.0	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: ECMS1Vxxx-yyy-R  
 ECMS1V = Product code  
 xxx = 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

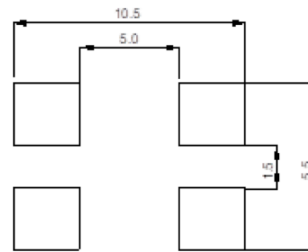
**Mechanical parameters, schematic, pad layout (mm)**



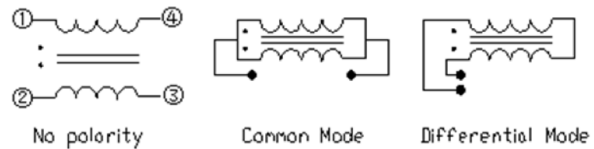
Dimension	Value
A	9.0 ±0.5
A1	9.5 ±0.5
B	7.0 ±0.5
C	4.8 maximum
D	1.5 typical
E	1.7 typical
F	5.6 typical

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

**Recommended PCB Layout**

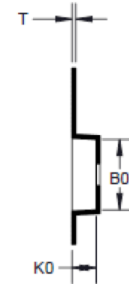
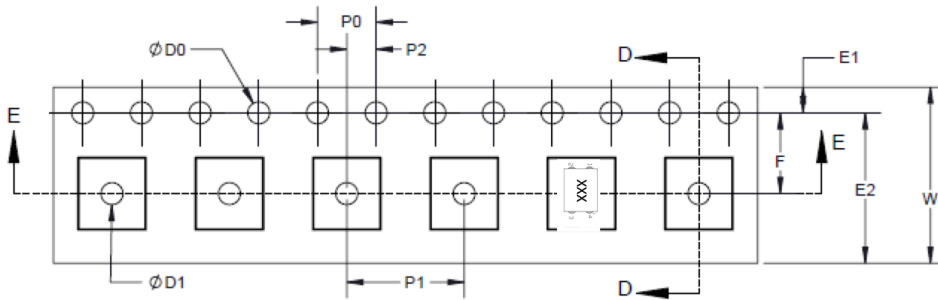


**Schematic**

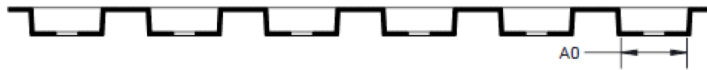


**Packaging information (mm)**

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



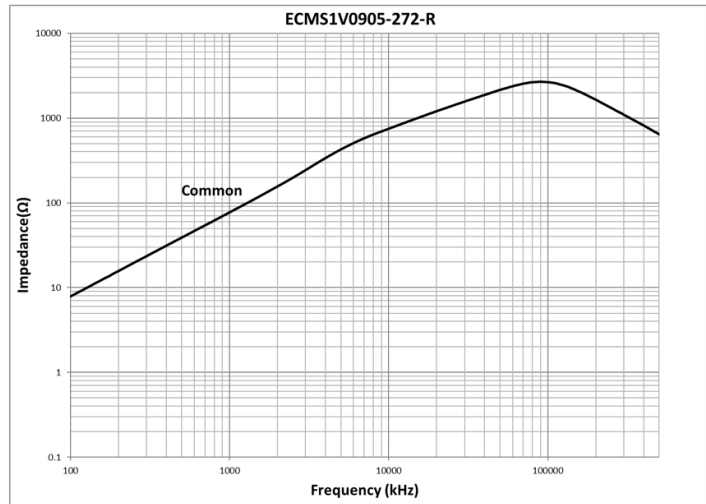
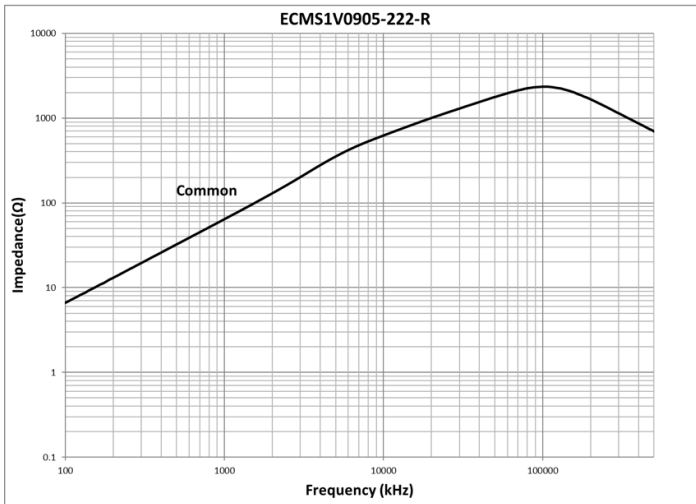
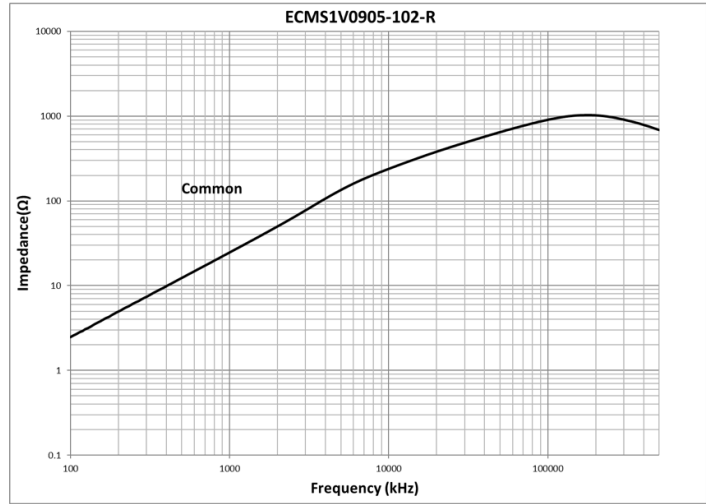
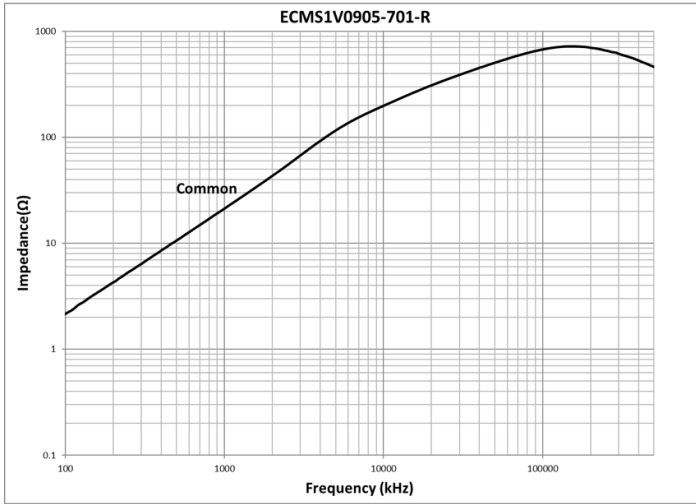
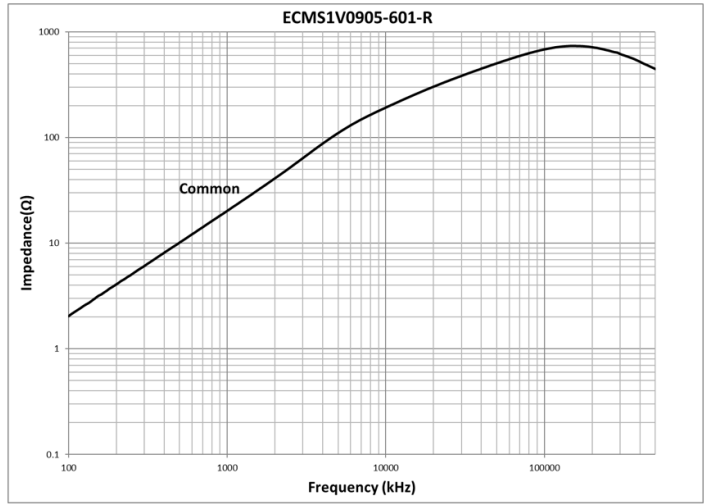
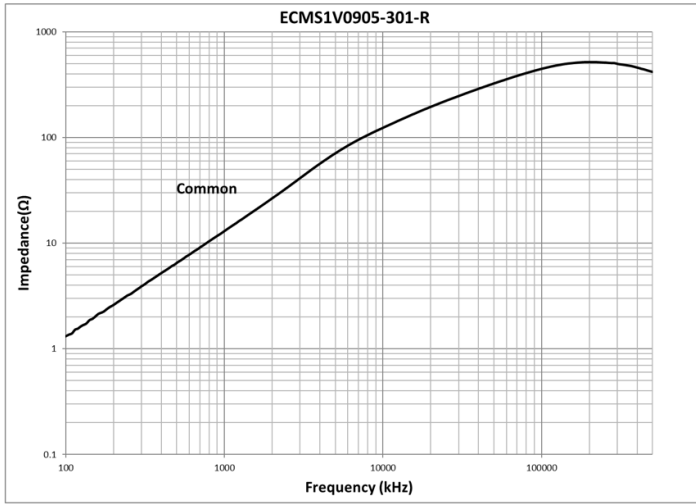
SECTION D-D



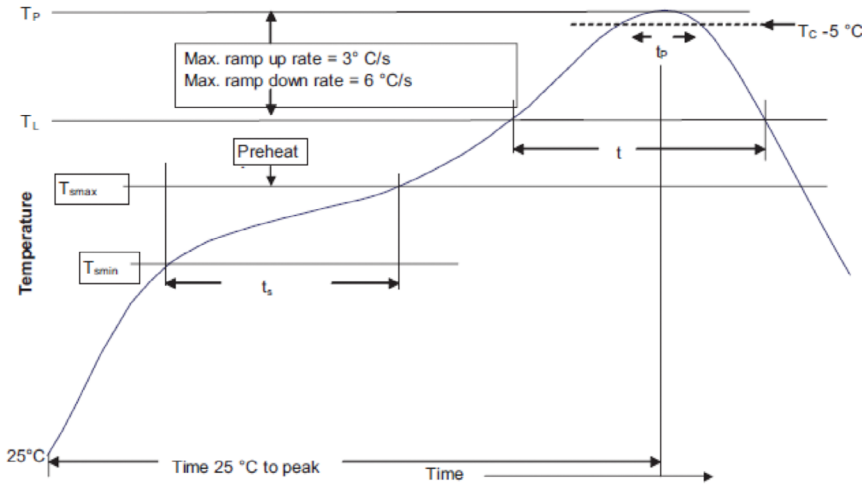
SECTION E-E

Dimension	Value
W	24.0 ±0.3
F	11.5 ±0.1
E1	1.75 ±0.1
E2	na
P0	4.0 ±0.1
P1	16 ±0.1
P2	2.0 ±0.1
D0	1.5 +0.1/-0
D1	1.5 +0.1/-0
A0	9.5 ±0.1
B0	7.7 ±0.1
K0	5.0 ±0.1
T	0.4 ±0.05

Impedance vs frequency



**Solder reflow profile**



**Table 1 - Standard SnPb solder (T<sub>c</sub>)**

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

**Table 2 - Lead (Pb) free solder (T<sub>c</sub>)**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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 <sub>smin</sub> )	100 °C	150 °C
• Temperature max. (T <sub>smax</sub> )	150 °C	200 °C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 seconds	60-120 seconds
Ramp up rate T <sub>L</sub> to T <sub>p</sub>	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T <sub>L</sub> )	183 °C	217 °C
Time (t <sub>L</sub> ) maintained above T <sub>L</sub>	60-150 seconds	60-150 seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )* within 5 °C of the specified classification temperature (T <sub>c</sub> )	20 seconds*	30 seconds*
Ramp-down rate (T <sub>p</sub> to T <sub>L</sub> )	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<sub>p</sub>) is defined as a supplier minimum and a user maximum.

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