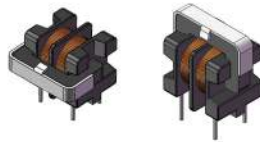


ECMT1V17

Common mode choke, through-hole



Product features

- Closed magnetic path reduces conductive EMI emission
- High impedance and inductance values
- Robust construction
- High voltage isolation
- Independent winding sections
- Rated voltage: 250 Vac

Applications

- Industrial IoT equipment
- Motion controls
- Power supplies
- Battery backup
- Renewable energy products
- Smart meters
- Solar/wind generators, inverters, charger controllers
- Medical equipment
- High tech consumer products
- Appliances

Environmental compliance and general specifications

- Storage temperature range (Component): -40 °C to +85 °C
- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)
- Wave solder temperature: +260 °C maximum



Product specifications

| Part number ⁷ | OCL ¹ (mH) minimum (1-2), (4-3) | DCR ² (Ω) maximum (1-2), (4-3) @ +25 °C | I _{rms} ³ (A) (1-4) short 2,3 | SRF (kHz) minimum | Hi-pot ⁴ (Vac) | Hi-pot ⁵ (Vac) | Insulation resistance ⁶ (MΩ) minimum |
|--------------------------|--|---|--|----------------------|------------------------------|------------------------------|--|
| ECMT1V1717S-1R0-R | 1.0 | 0.1 | 1.0 | 792 | 1500 | 1000 | 100 |
| ECMT1V1714H-1R0-R | 1.0 | 0.1 | 1.0 | 792 | 1500 | 1000 | 100 |
| ECMT1V1717S-2R0-R | 2.0 | 0.3 | 1.4 | 896 | 1500 | 1000 | 100 |
| ECMT1V1714H-2R0-R | 2.0 | 0.3 | 1.4 | 896 | 1500 | 1000 | 100 |
| ECMT1V1717S-5R0-R | 5.0 | 0.3 | 1.4 | 712 | 1500 | 1000 | 100 |
| ECMT1V1714H-5R0-R | 5.0 | 0.3 | 1.4 | 712 | 1500 | 1000 | 100 |
| ECMT1V1717S-8R0-R | 8.0 | 1.0 | 0.8 | 456 | 1500 | 1000 | 100 |
| ECMT1V1714H-8R0-R | 8.0 | 1.0 | 0.8 | 456 | 1500 | 1000 | 100 |
| ECMT1V1717S-100-R | 10 | 0.6 | 1.2 | 423 | 1500 | 1000 | 100 |
| ECMT1V1714H-100-R | 10 | 0.6 | 1.2 | 423 | 1500 | 1000 | 100 |
| ECMT1V1717S-150-R | 15 | 0.6 | 1.0 | 408 | 1500 | 1000 | 100 |
| ECMT1V1714H-150-R | 15 | 0.6 | 1.0 | 408 | 1500 | 1000 | 100 |
| ECMT1V1717S-200-R | 20 | 1.0 | 0.8 | 295 | 1500 | 1000 | 100 |
| ECMT1V1714H-200-R | 20 | 1.0 | 0.8 | 295 | 1500 | 1000 | 100 |
| ECMT1V1717S-300-R | 30 | 1.6 | 0.6 | 276 | 1500 | 1000 | 100 |
| ECMT1V1714H-300-R | 30 | 1.6 | 0.6 | 276 | 1500 | 1000 | 100 |
| ECMT1V1717S-330-R | 33 | 2.7 | 0.5 | 240 | 1500 | 1000 | 100 |
| ECMT1V1714H-330-R | 33 | 2.7 | 0.5 | 240 | 1500 | 1000 | 100 |
| ECMT1V1717S-350-R | 35 | 2.0 | 0.5 | 312 | 1500 | 1000 | 100 |
| ECMT1V1714H-350-R | 35 | 2.0 | 0.5 | 312 | 1500 | 1000 | 100 |
| ECMT1V1717S-400-R | 40 | 2.0 | 0.5 | 216 | 1500 | 1000 | 100 |
| ECMT1V1714H-400-R | 40 | 2.0 | 0.5 | 216 | 1500 | 1000 | 100 |
| ECMT1V1717S-470-R | 47 | 2.0 | 0.5 | 192 | 1500 | 1000 | 100 |
| ECMT1V1714H-470-R | 47 | 2.0 | 0.5 | 192 | 1500 | 1000 | 100 |
| ECMT1V1717S-500-R | 50 | 2.0 | 0.5 | 176 | 1500 | 1000 | 100 |
| ECMT1V1714H-500-R | 50 | 2.0 | 0.5 | 176 | 1500 | 1000 | 100 |
| ECMT1V1717S-600-R | 60 | 3.3 | 0.4 | 144 | 1500 | 1000 | 100 |
| ECMT1V1714H-600-R | 60 | 3.3 | 0.4 | 144 | 1500 | 1000 | 100 |
| ECMT1V1717S-850-R | 85 | 5.7 | 0.3 | 85 | 1500 | 1000 | 100 |
| ECMT1V1714H-850-R | 85 | 5.7 | 0.3 | 85 | 1500 | 1000 | 100 |

1. Open circuit inductance (OCL) Test parameters: 1 kHz, 0.25 Vrms, 0.0 Adc, +25 °C

2. DCR Test parameters: 4-wire method measured from the root of base, +25 °C

3. I_{rms}³: Maximum DC current for an approximate temperature rise of 40 °C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed +125 °C under worst case operating conditions verified in the end application.

4. Hi-pot: Coil-Coil, 2 seconds, 5 mA

5. Hi-pot: Coil-Core, 2 seconds, 5 mA

6. Insulation Resistance: Coil-Coil and Coil-Core, at 500 Vdc

7. Part Number Definition: ECMT1Vxxxx-yyy-zzz-R

ECMT1V = Product code

xxxx= Size indicator

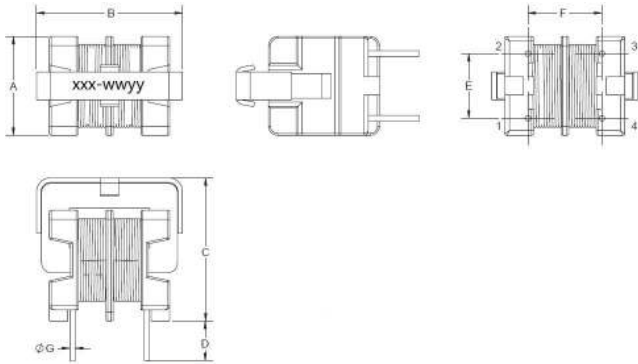
yy= Orientation H= horizontal, S= vertical

zzz=Inductance value in mH, R= decimal point, If no R is present last digit indicates number of zeros

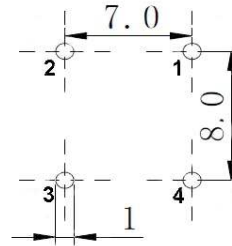
-R= RoHS compliant

Mechanical parameters, schematic, pad layout (mm)

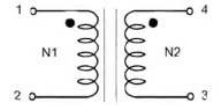
ECMT1V1717S-xxx-R



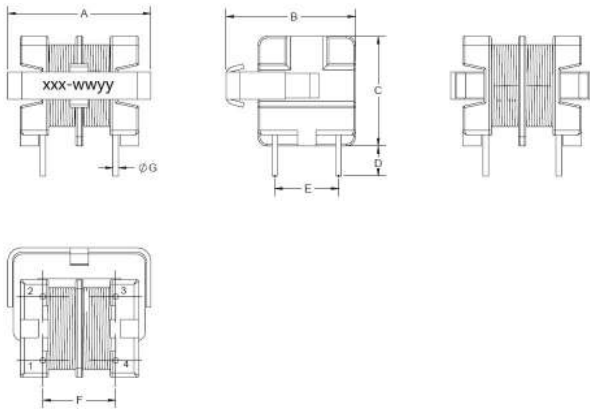
Recommended PCB layout



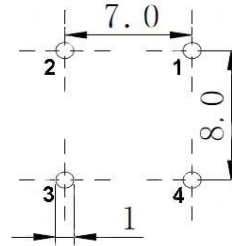
Schematic



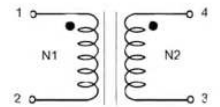
ECMT1V1714H-xxx-R



Recommended PCB layout



Schematic



| Part number | A | B | C | D | E | F | G |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| ECMT1V1717S-xxx-R | 12.0 max. | 17.0 max. | 17.0 max. | 3.5 ± 0.5 | 7.0 ± 0.5 | 8.0 ± 0.5 | 0.6 ± 0.1 |
| ECMT1V1714H-xxx-R | 17.0 max. | 16.0 max. | 14.0 max. | 3.5 ± 0.5 | 7.0 ± 0.5 | 8.0 ± 0.5 | 0.6 ± 0.1 |

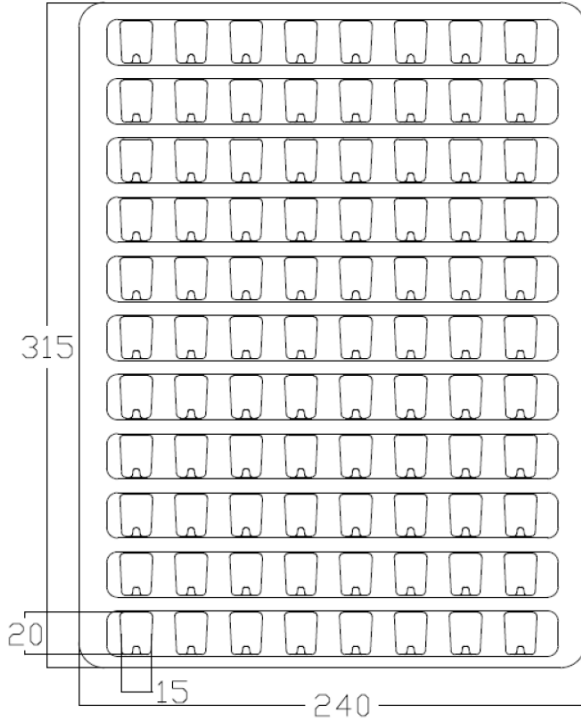
Part marking: xxx-wyyy, xxx = inductance value in mH, wyyy = lot code
Trace or vias underneath the inductor is not recommended

Packaging information (mm)

ECMT1V1717S-xxx-R

Supplied in tray, 14 trays per carton. (88 parts per tray x 14 trays per box = 1232 parts per carton)

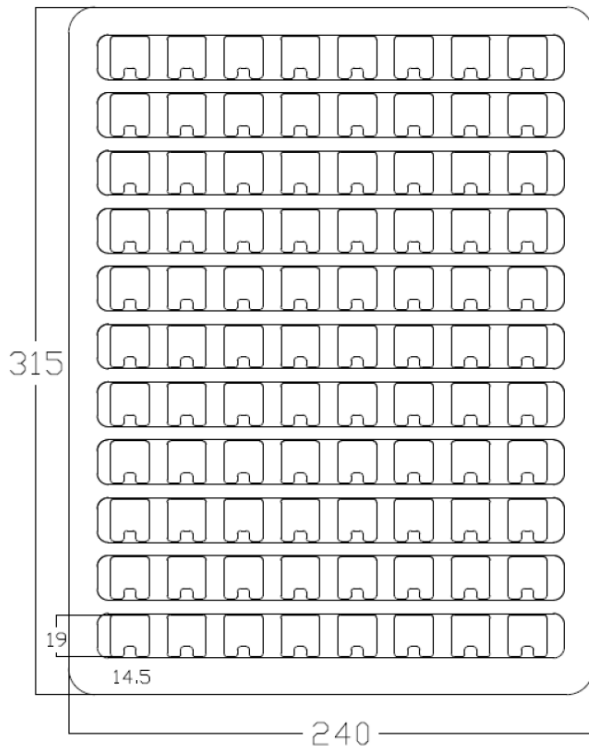
(Tray height 17 mm)



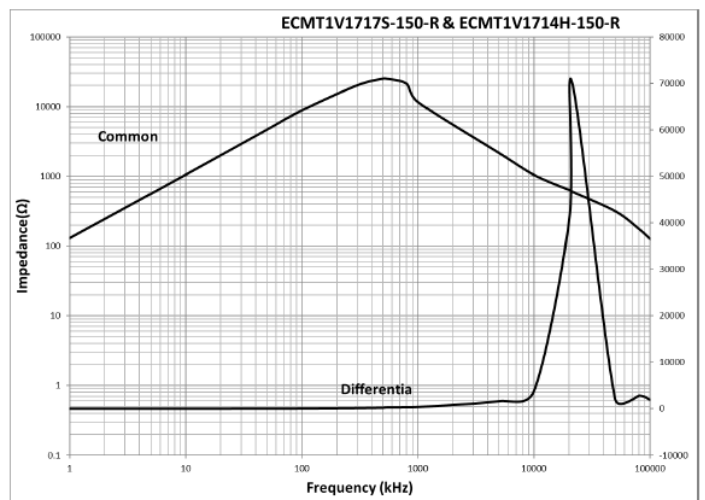
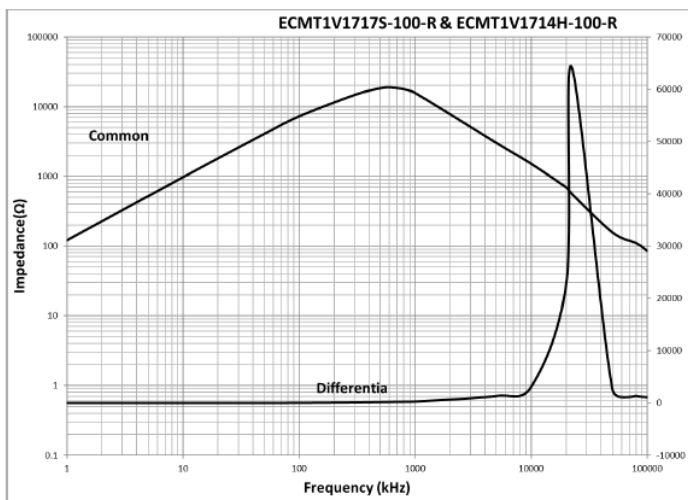
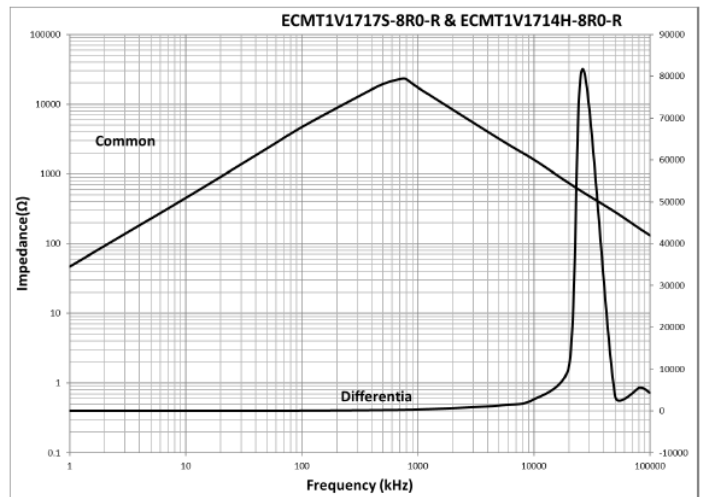
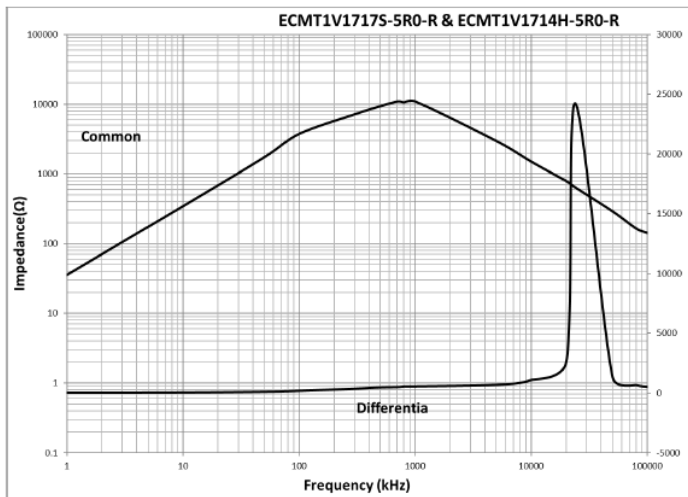
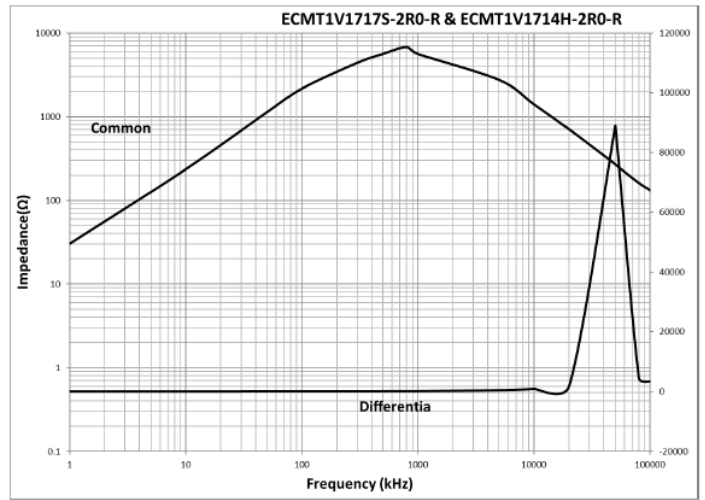
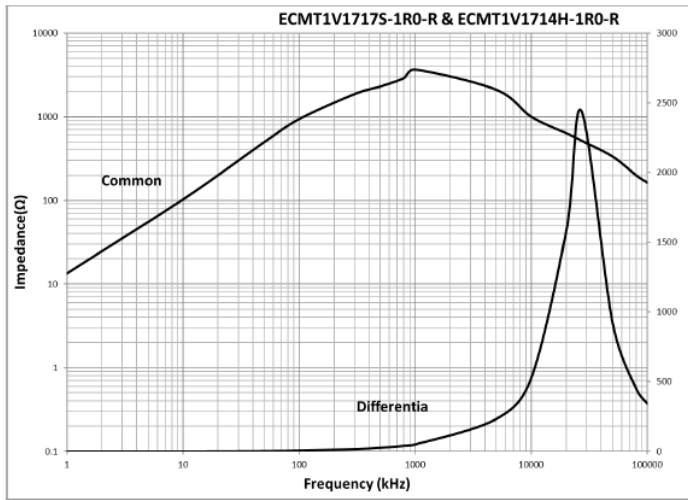
ECMT1V1714H-xxx-R

Supplied in tray, 12 trays per carton. (88 parts per tray x 12 trays per box = 1056 parts per carton)

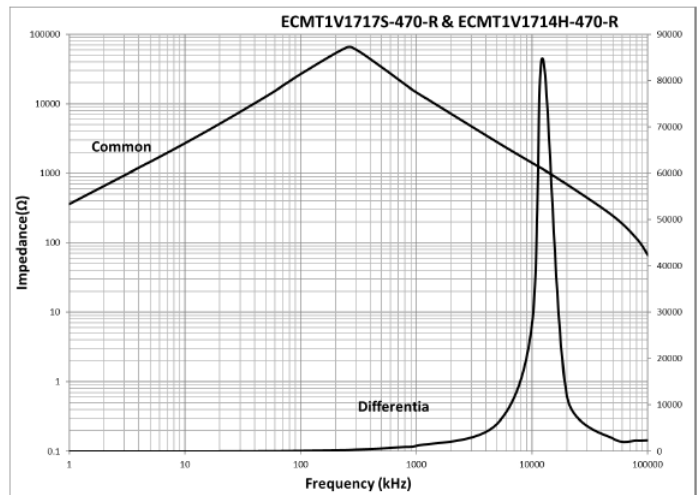
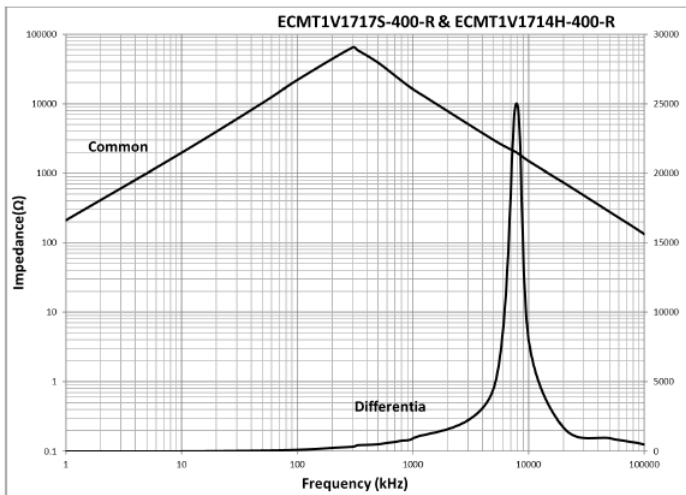
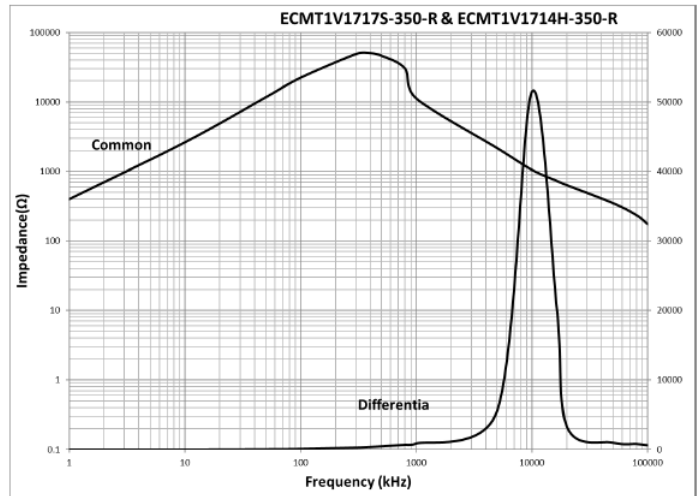
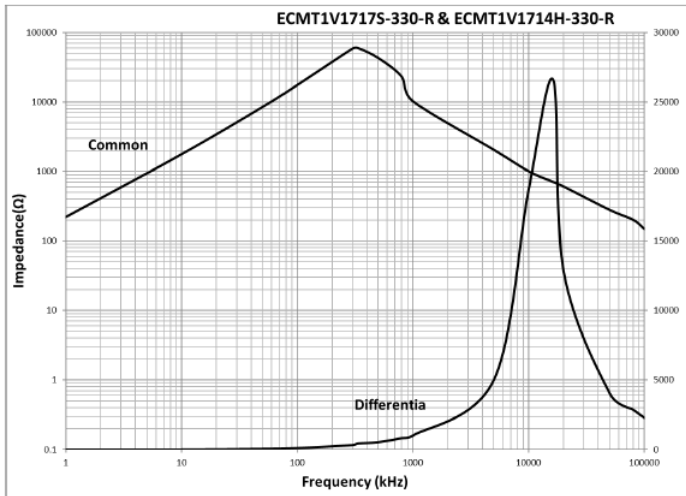
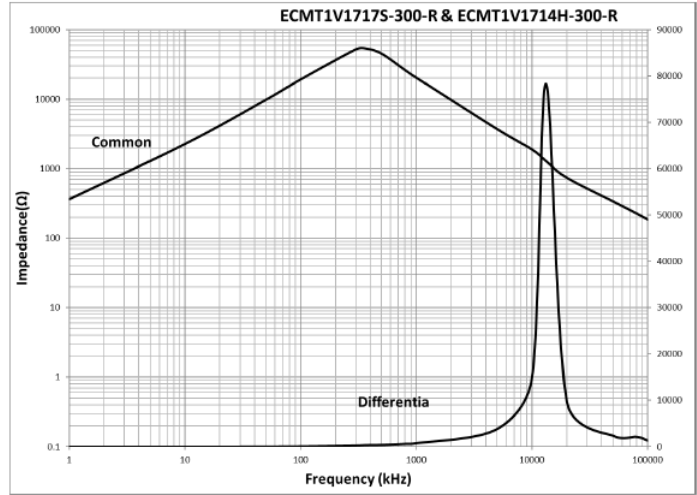
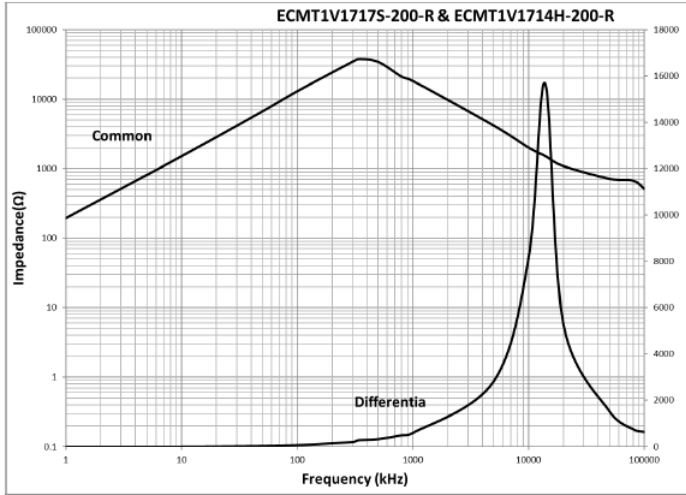
(Tray height 19 mm)



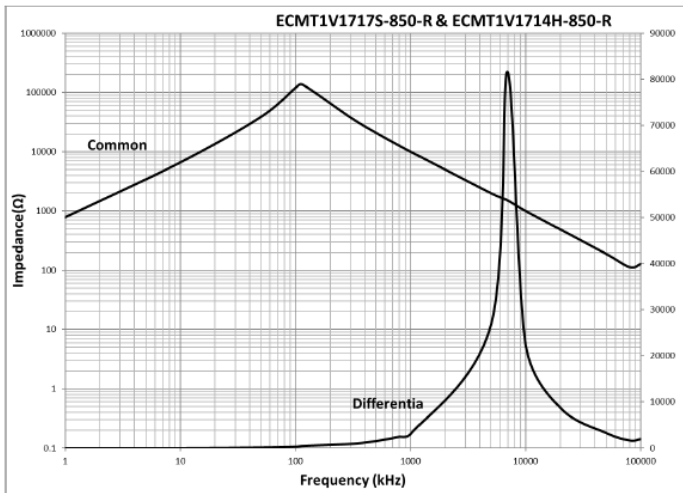
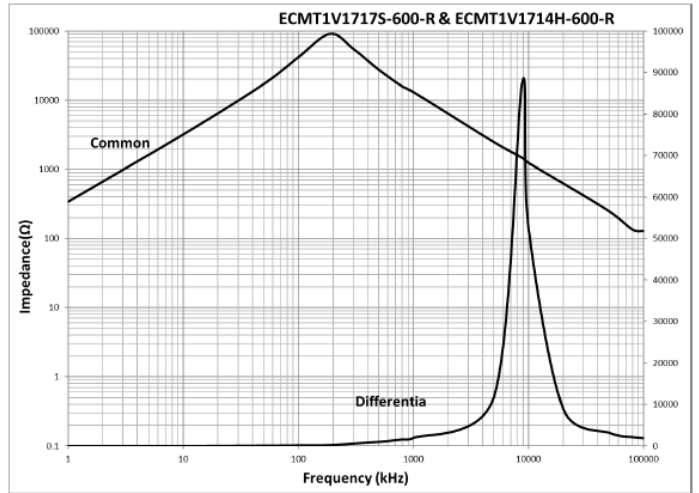
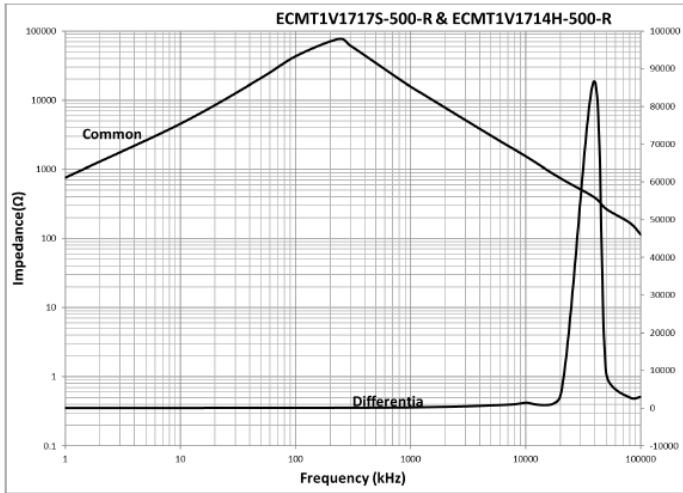
Impedance vs frequency



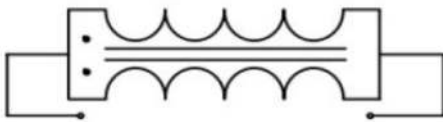
Impedance vs frequency



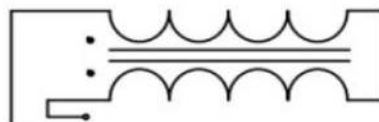
Impedance vs frequency



Measurement method

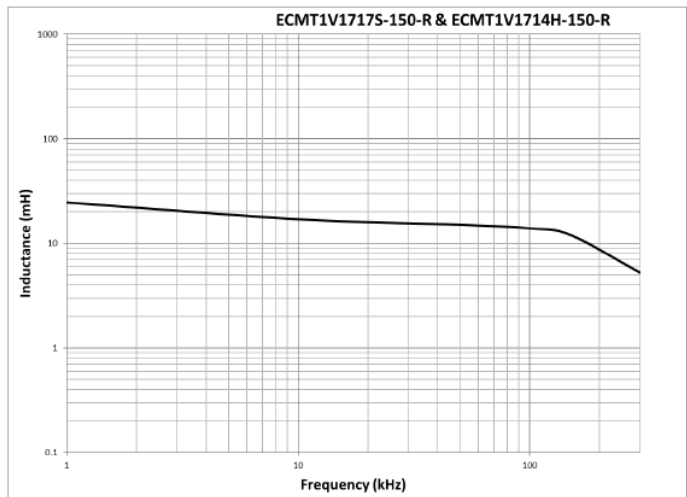
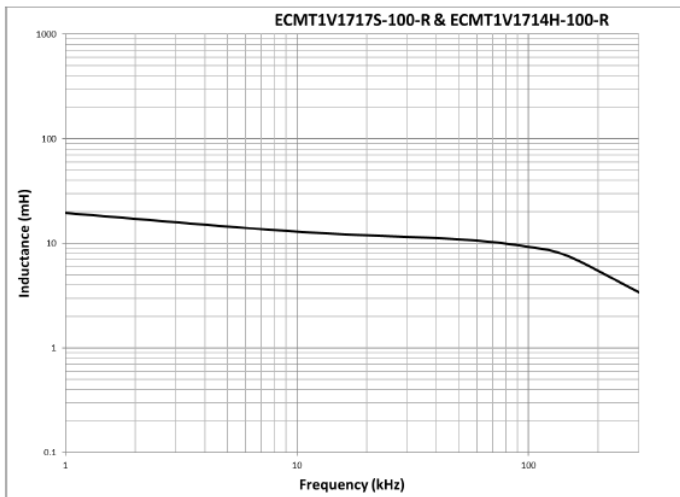
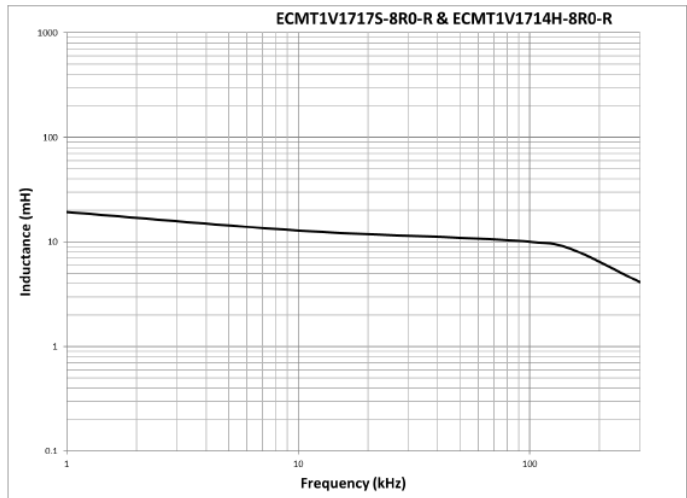
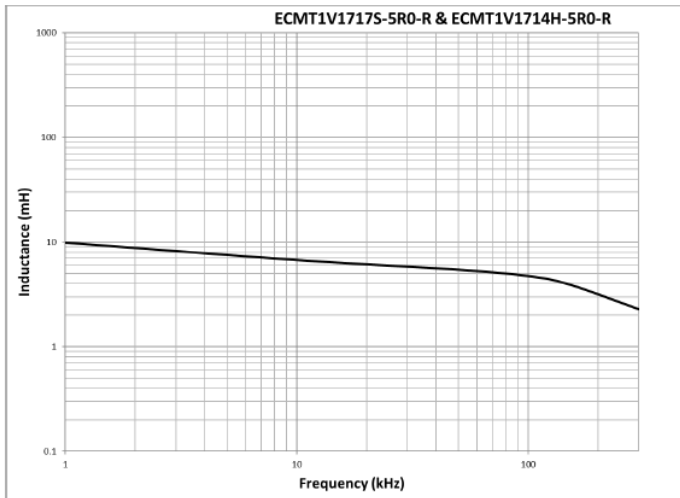
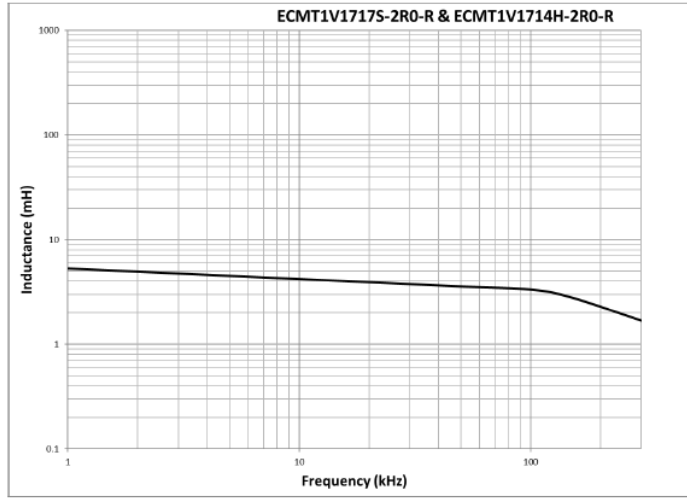
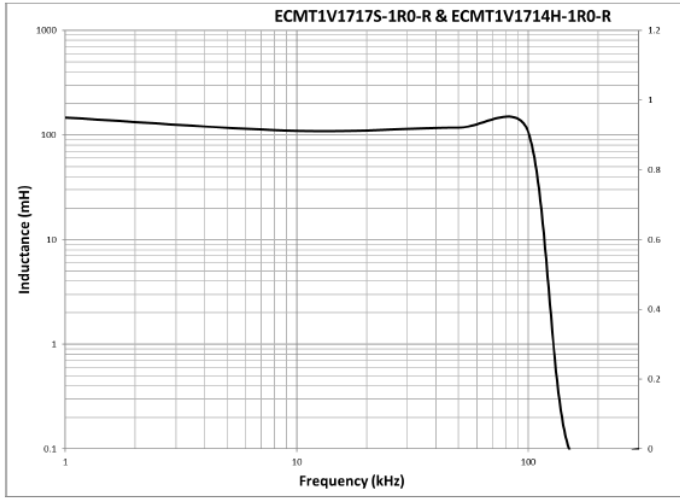


Common Mode

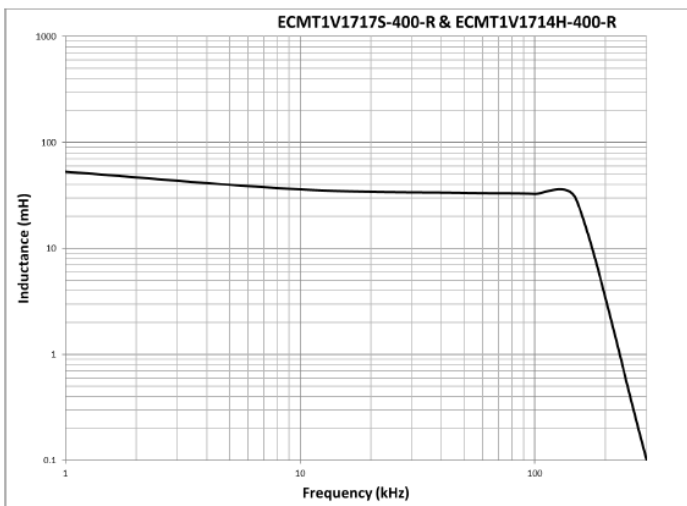
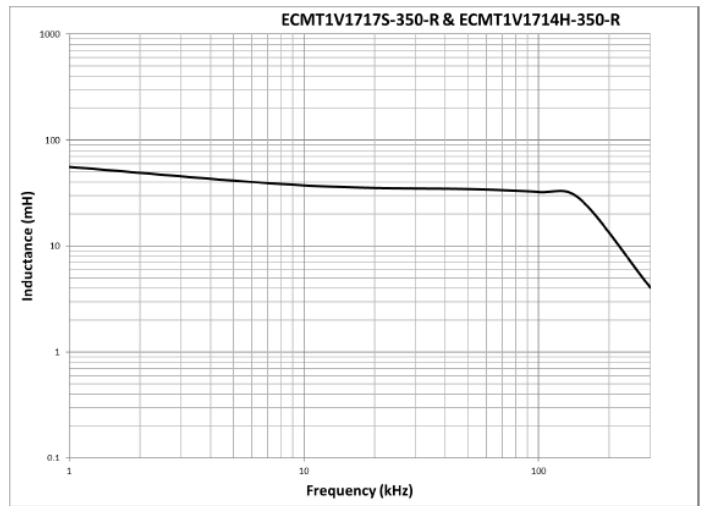
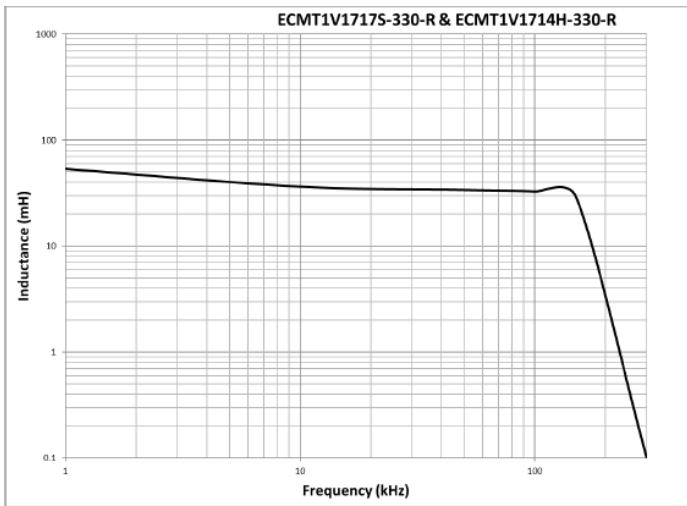
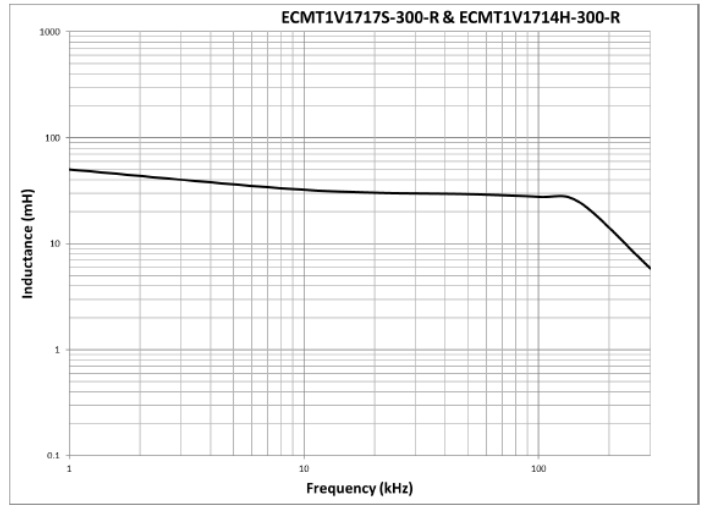
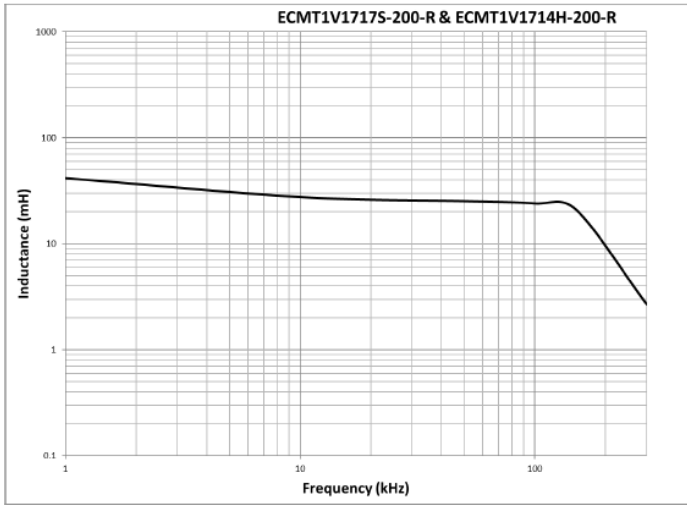


Differential Mode

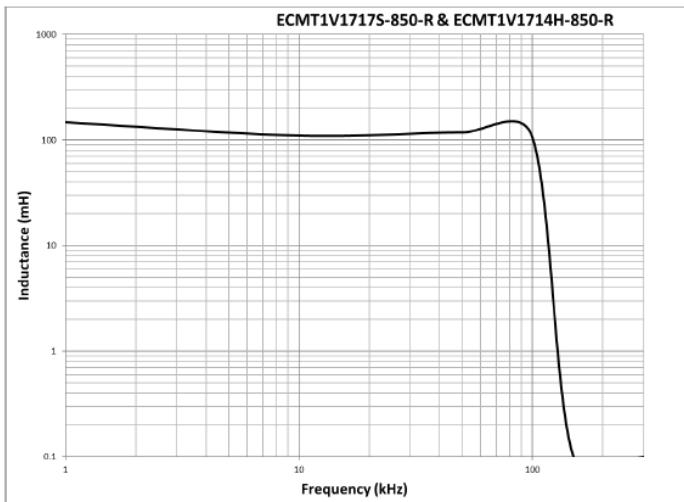
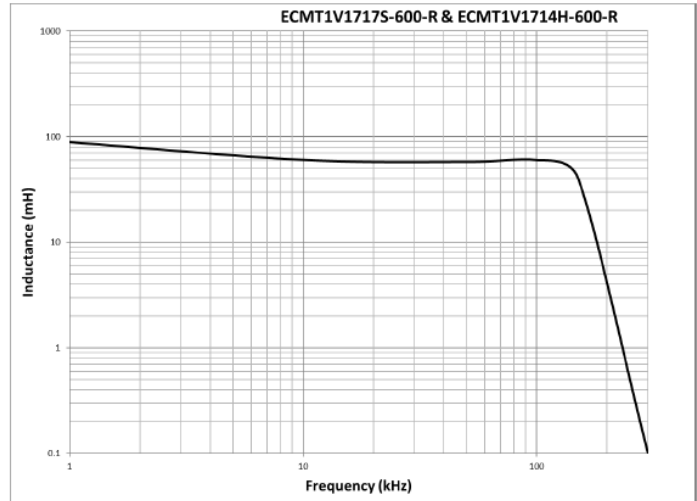
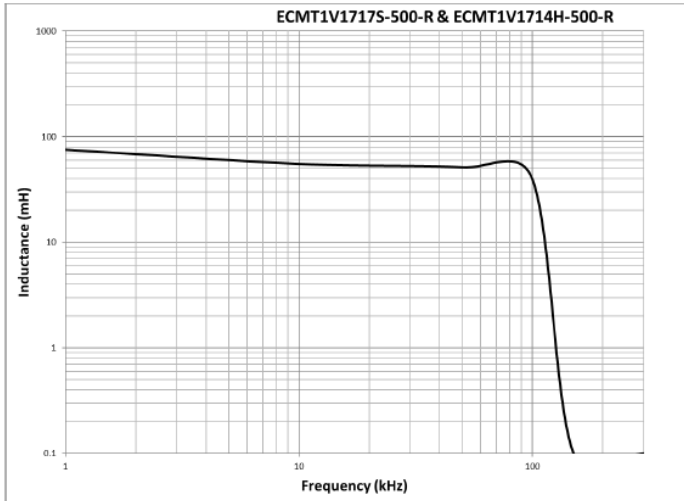
Inductance vs frequency



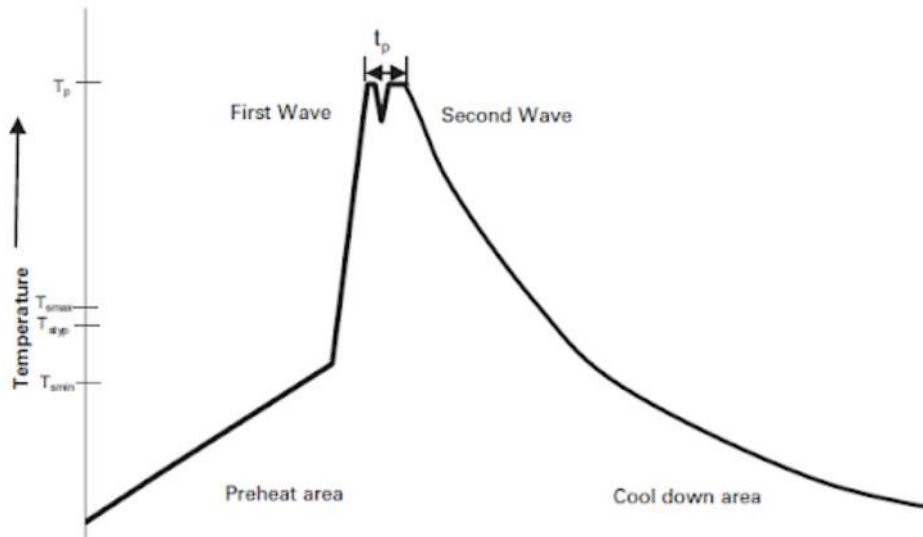
Inductance vs frequency



Inductance vs frequency



Wave solder profile



Reference EN 61760-1:2006

| Profile feature | Standard SnPb solder | Lead (Pb) free solder |
|---|---|---|
| Preheat | | |
| • Temperature min. (T_{smin}) | 100 °C | 100 °C |
| • Temperature typ. (T_{styp}) | 120 °C | 120 °C |
| • Temperature max. (T_{smax}) | 130 °C | 130 °C |
| • Time (T_{smin} to T_{smax}) (t_s) | 70 seconds | 70 seconds |
| Δ preheat to max Temperature | 150 °C max. | 150 °C max. |
| Peak temperature (T_p)* | 235 °C – 260 °C | 250 °C – 260 °C |
| Time at peak temperature (t_p) | 10 seconds max 5 seconds max each wave | 10 seconds max 5 seconds max each wave |
| Ramp-down rate | ~ 2 K/s min ~3.5 K/s typ ~5 K/s max | ~ 2 K/s min ~3.5 K/s typ ~5 K/s max |
| Time 25 °C to 25 °C | 4 minutes | 4 minutes |

Manual solder

+350 °C, 4-5 seconds. (by soldering iron), generally manual, hand soldering is not recommended.

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