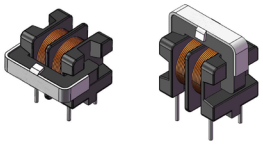
ECMT1V17

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

Powering Business Worldwide

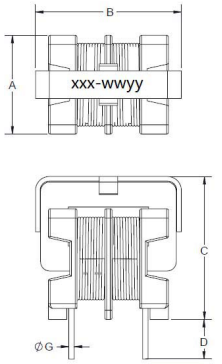
Product specifications

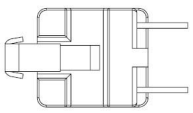
Part number[7]	OCL[1] (mH) minimum (1-2), (4-3)	DCR[2] (Ω) maximum (1-2), (4-3) @ +25 °C	I_{rms}[3] (A) (1-4) short 2,3	SRF (kHz) minimum	Hi-pot[4] (Vac)	Hi-pot[5] (Vac)	Insulation resistance[6] (MΩ) minimum
ECMT1V1717S-1R0-R	1.0	0.1	1.0	792	1500	1000	100
ECMT1V1714H-1R0-R	1.0	0.1	1.0	792	1500	1000	100
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

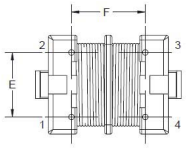
1. Open circuit inductance (OCL) Test parameters: 1 kHz, 0.25 Vrms, 0.0 Adc, +25 °C
2. DCR Test parameters: 4-wire method measured from the root of base, +25 °C
3. I_{rms}: Maximum DC current for an approximate temperature rise of 40 °C without core loss. Derating is necessary for AC currents. PCB layout, 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: ECMT1Vxxxxy-zzz-R
   ECMT1V = Product code
   xxxx= Size indicator
   y= 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)

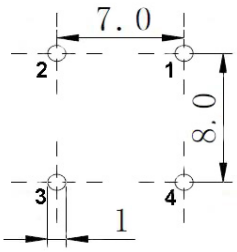
ECMT1V1717S-xxx-R



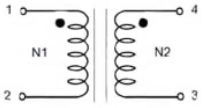




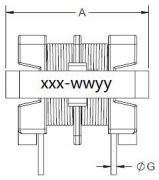
Recommended PCB layout

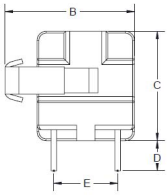


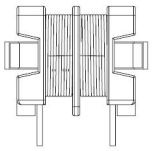
Schematic

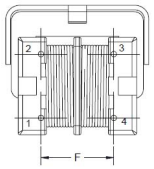


ECMT1V1714H-xxx-R

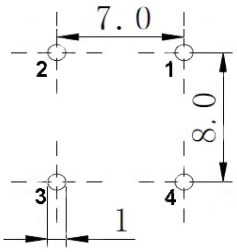




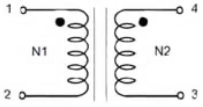




Recommended PCB layout



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

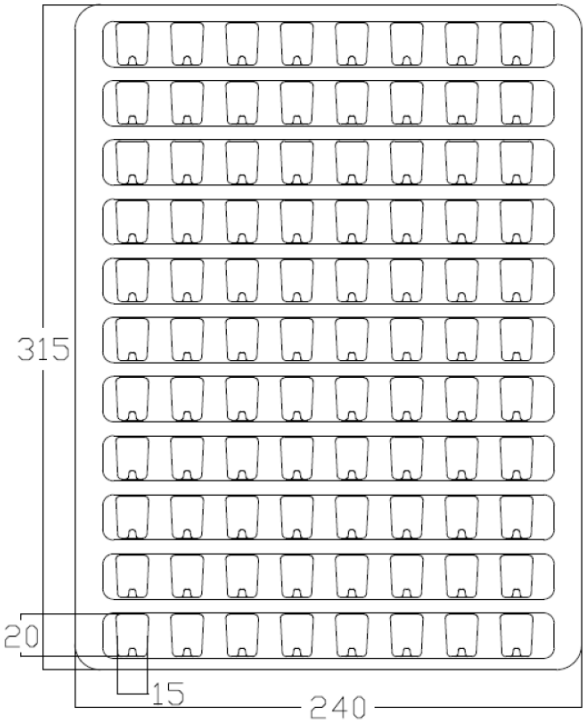
Part marking: xxx-wwyy, xxx =inductance value in mH, wwyy= lot code
Trace or vias underneath the inductor is not recommended

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)

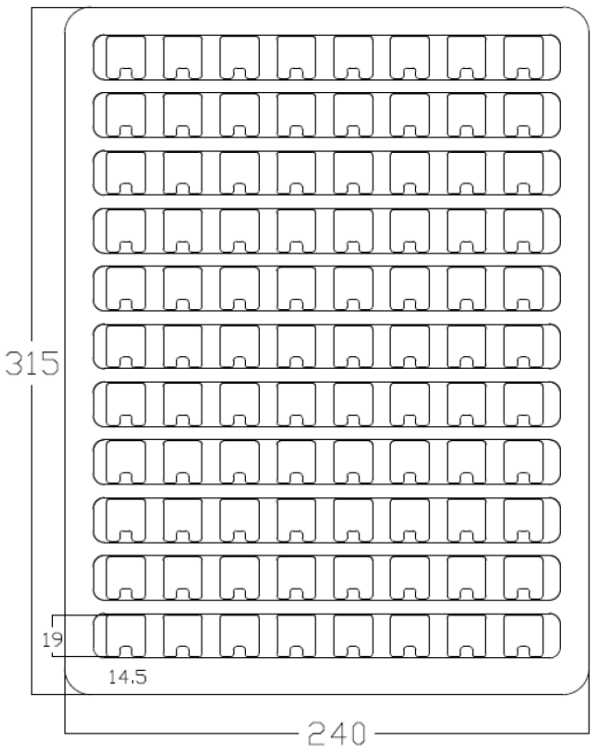
(Tray height 17 mm)



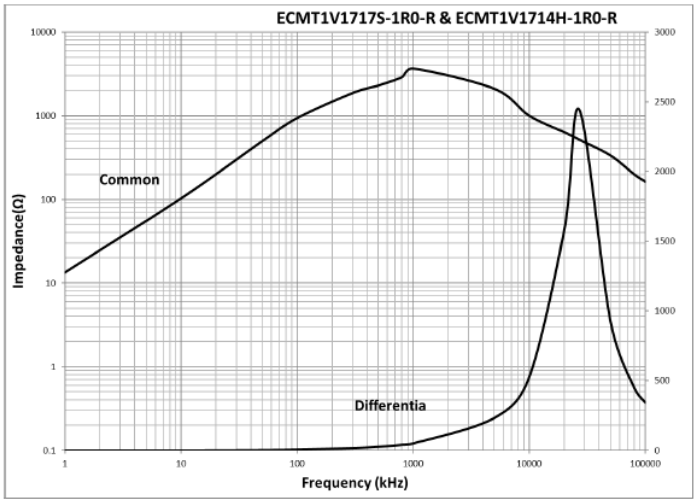
ECMT1V1714H-xxx-R

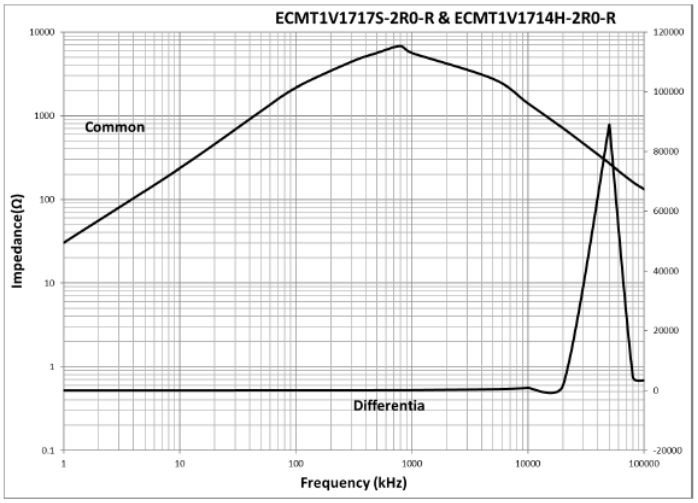
Supplied in tray, 12 trays per carton. (88 parts per tray x 12 trays per box = 1056 parts per carton)

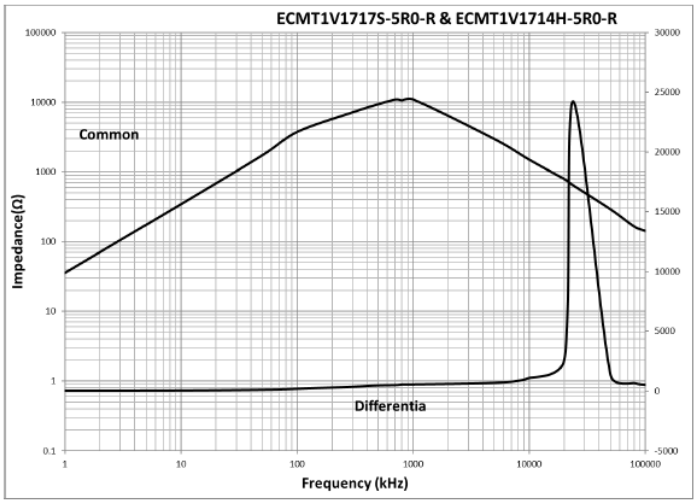
(Tray height 19 mm)

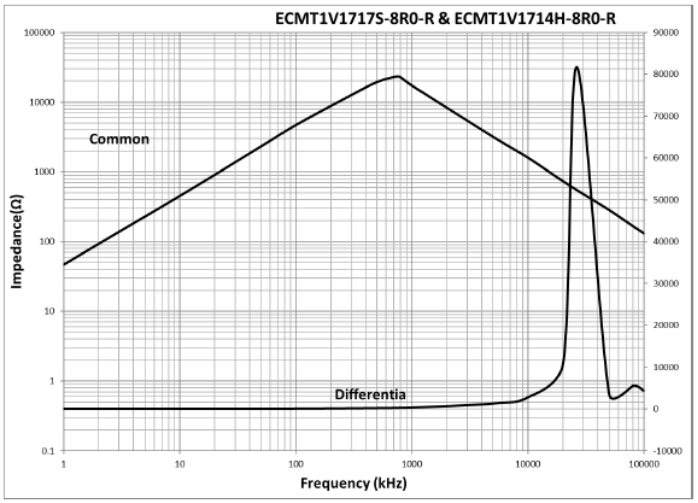


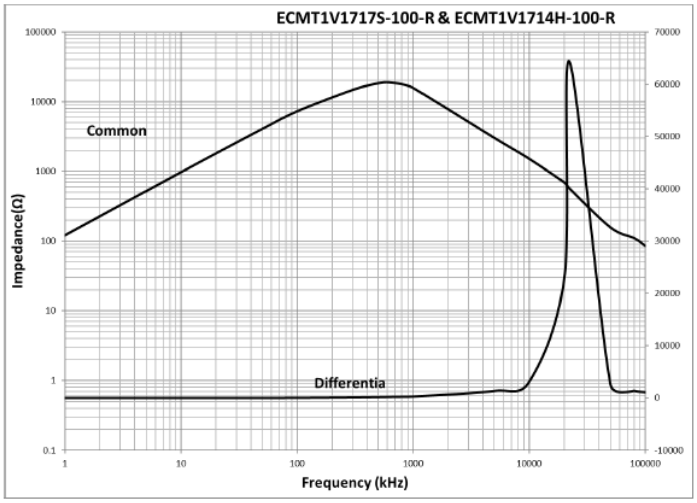
Impedance vs frequency

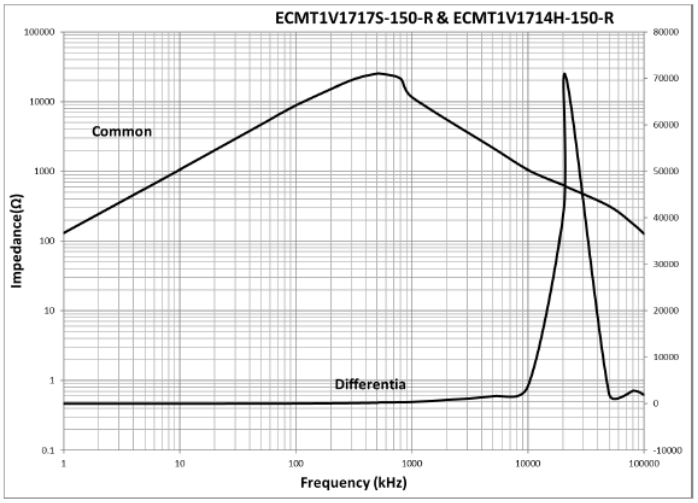




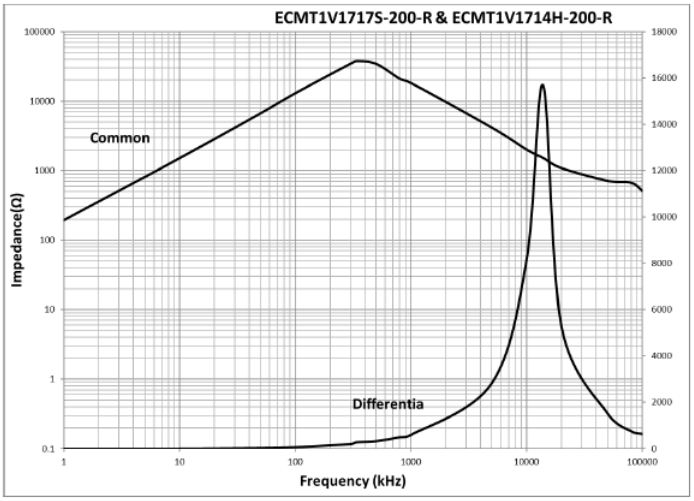


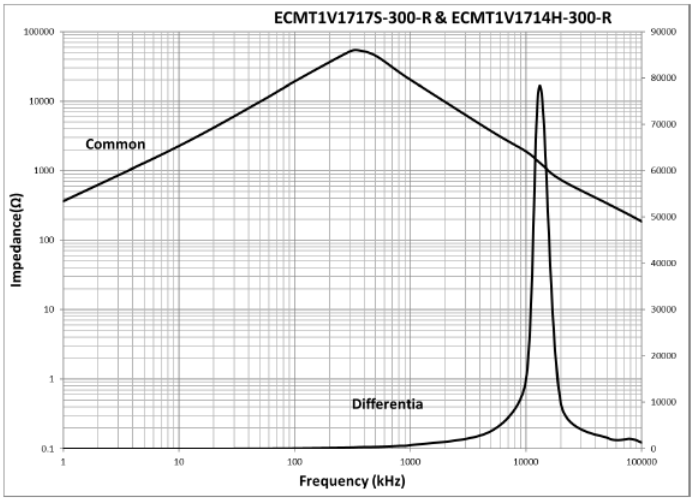


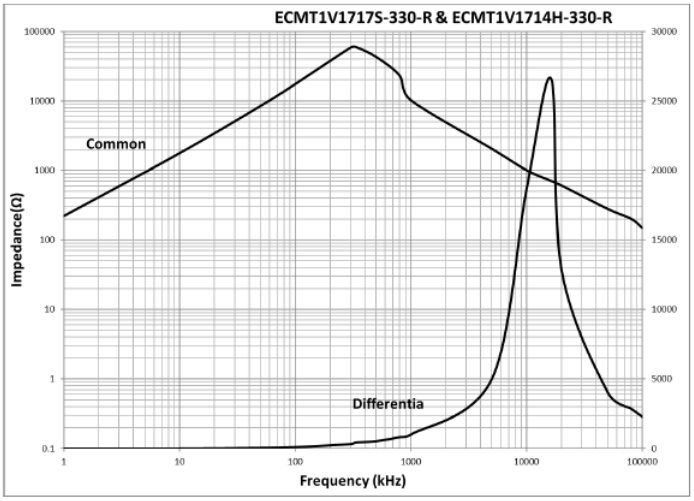


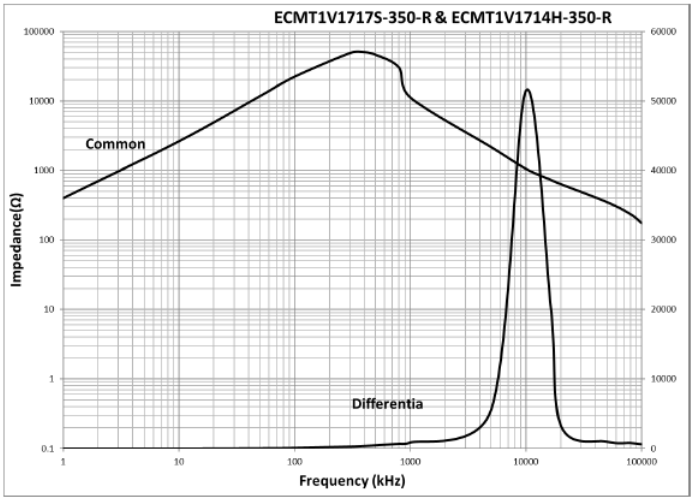


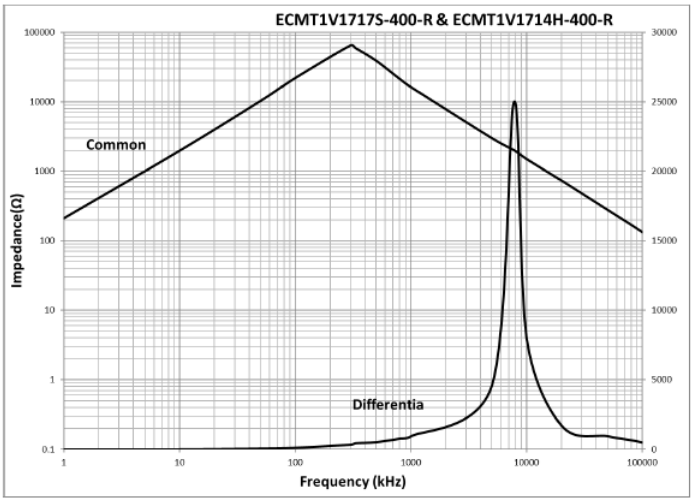
Impedance vs frequency

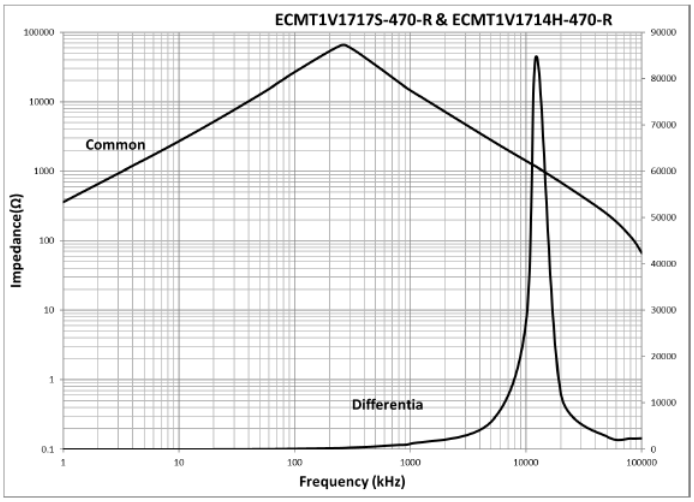




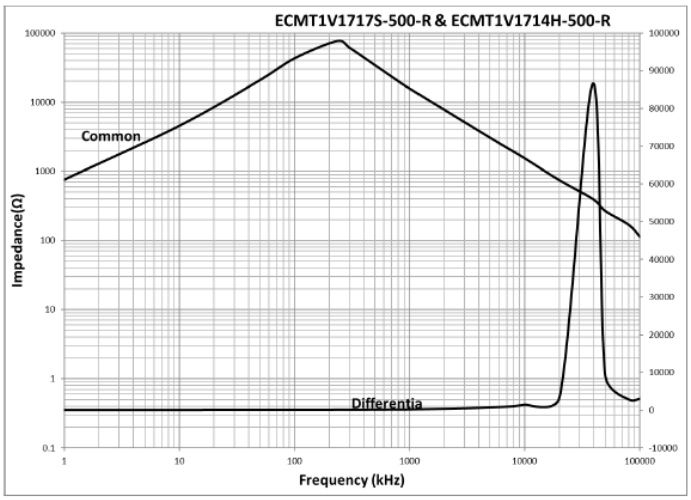


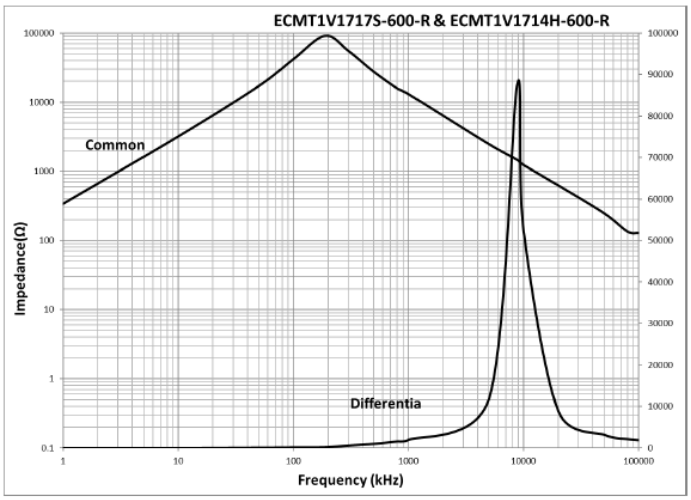


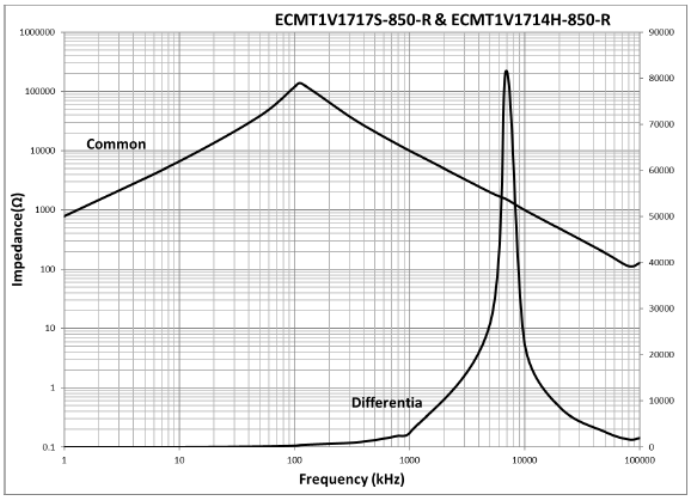




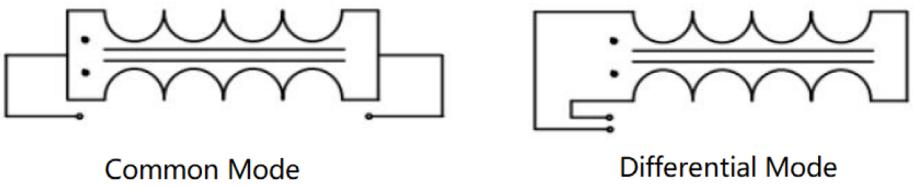
Impedance vs frequency



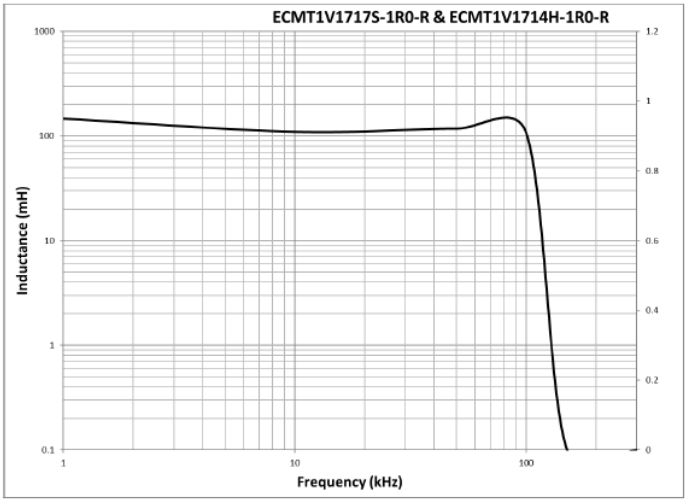


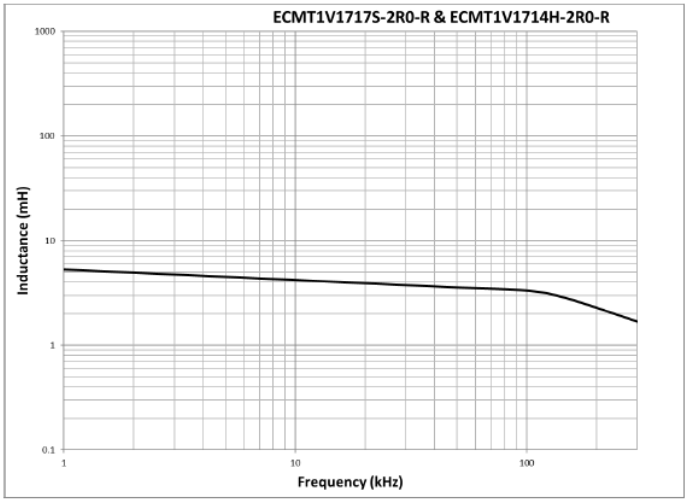


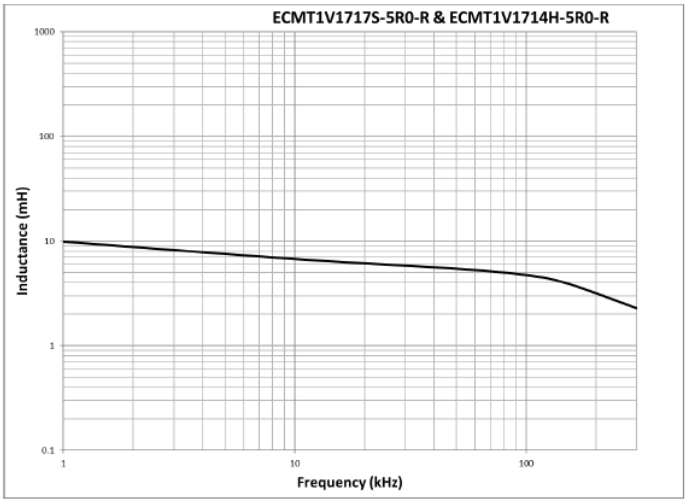
Measurement method

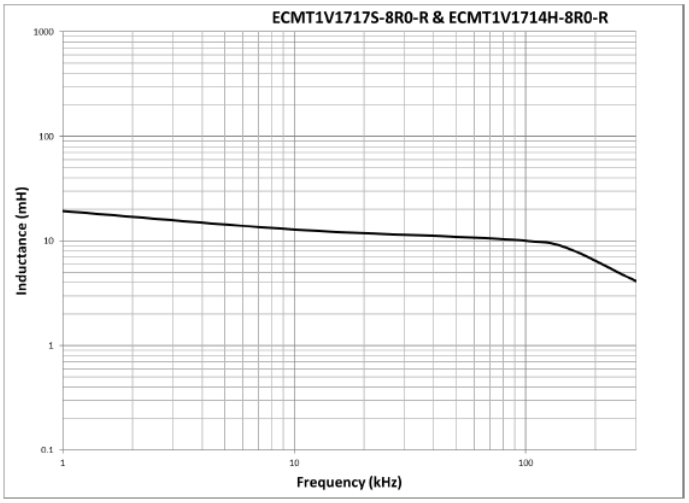


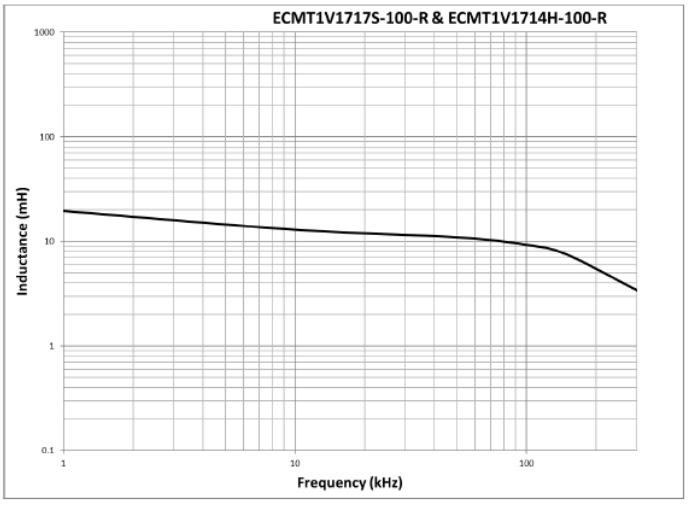
Inductance vs frequency

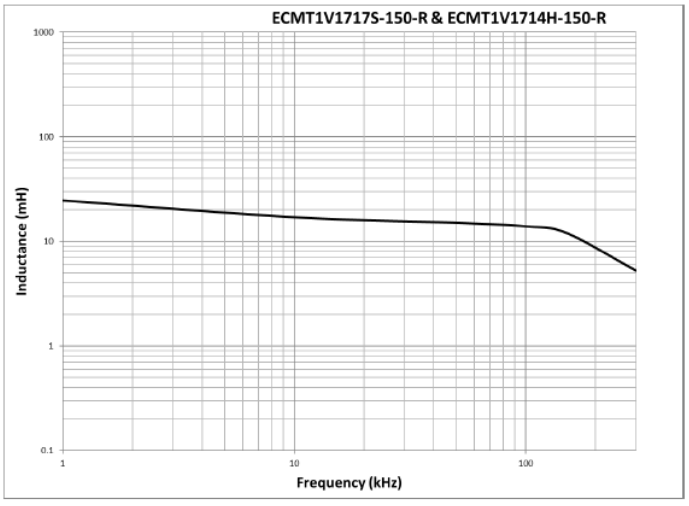




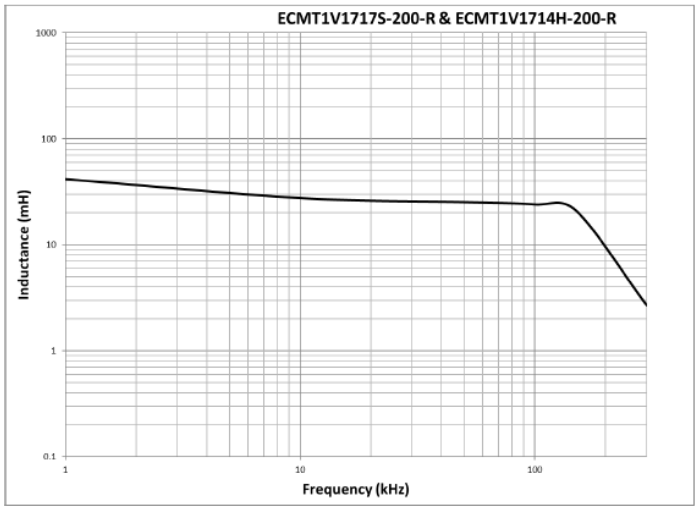


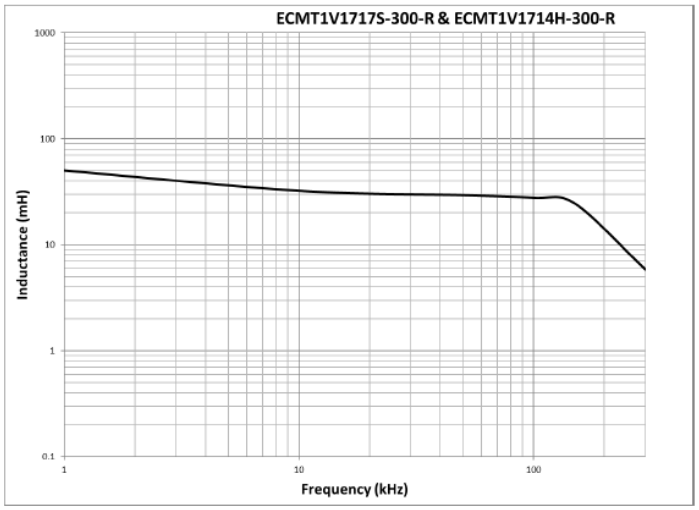


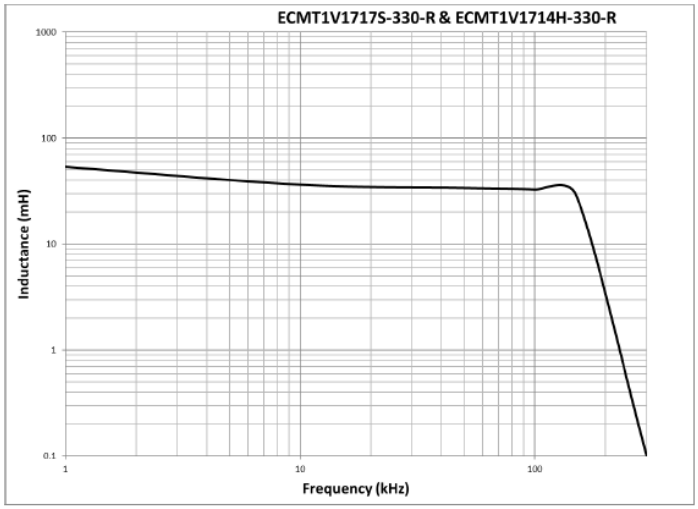


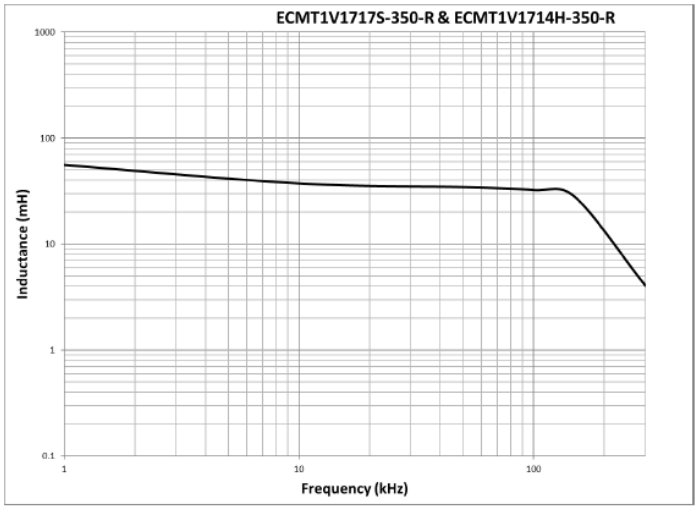


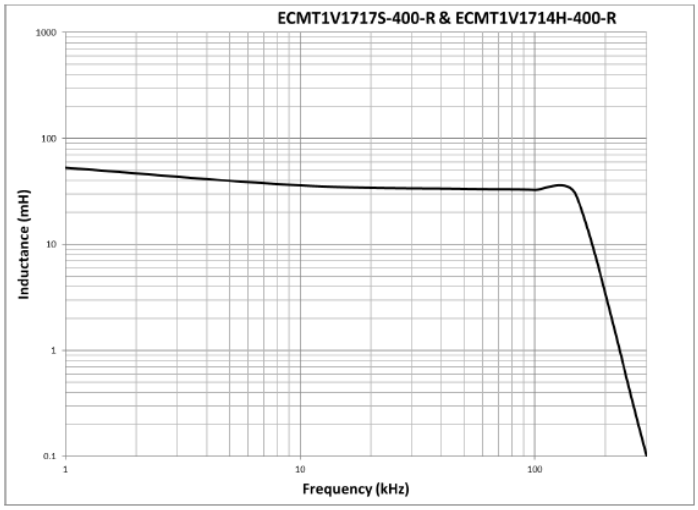
Inductance vs frequency

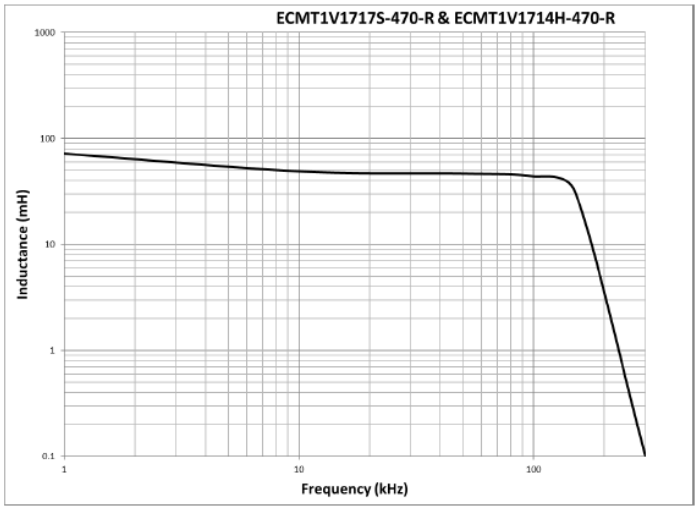




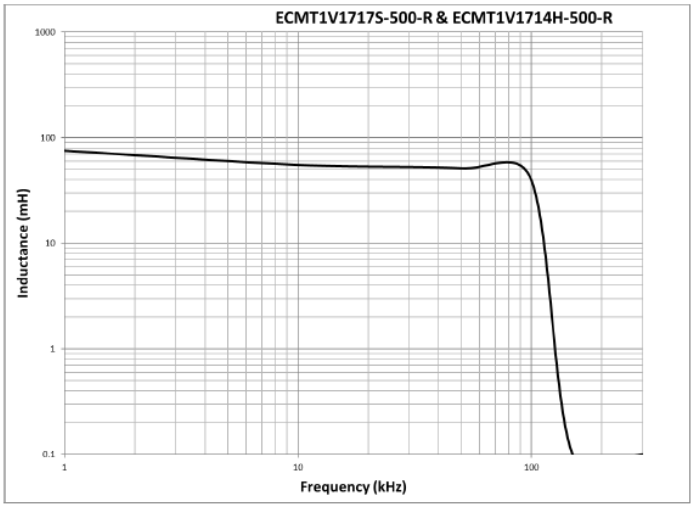


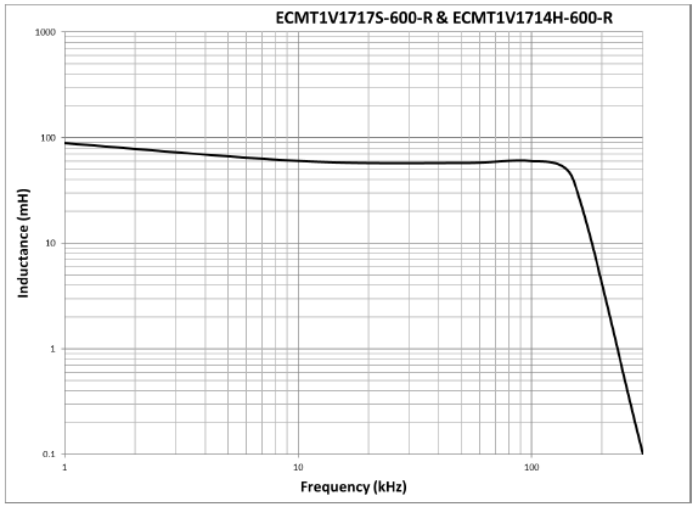


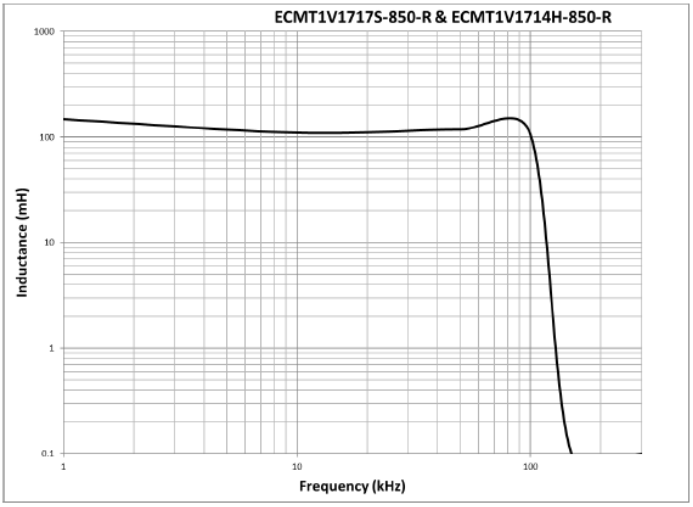




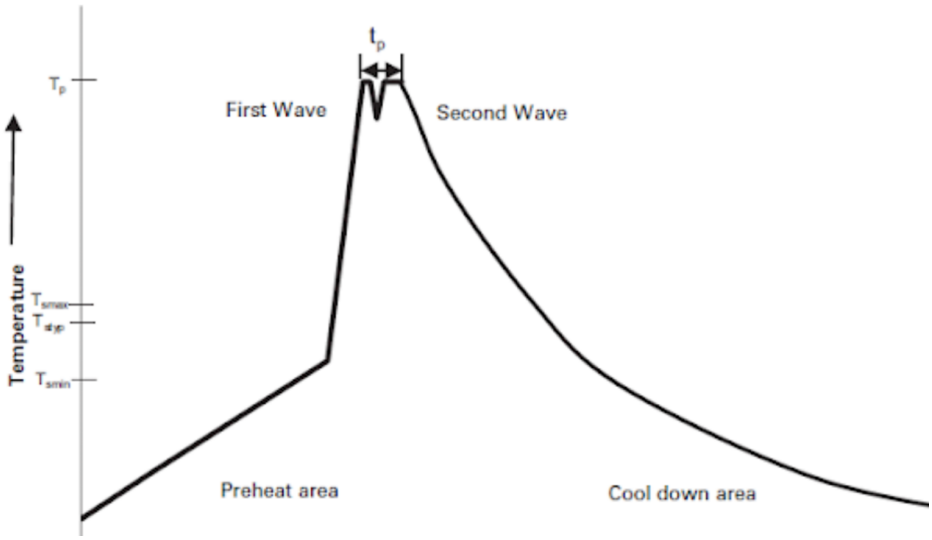
Inductance vs frequency







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.

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