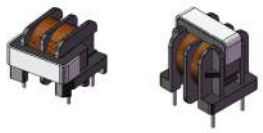
ECMT1V20

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

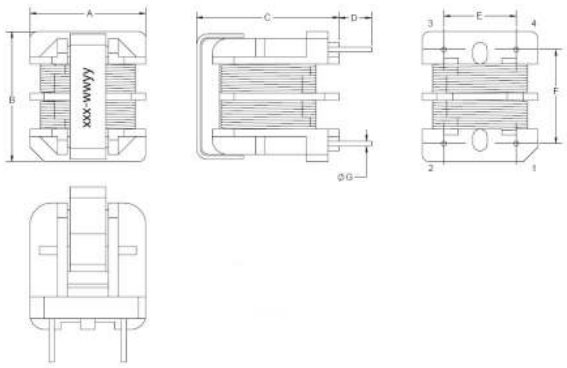
Product specifications

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
ECMT1V2023S-2R0-R	2.0	0.08	1.5	976	1500	1000	100
ECMT1V2017H-2R0-R	2.0	0.08	1.5	976	1500	1000	100
ECMT1V2023S-200-R	20	0.55	1.0	245	1500	1000	100
ECMT1V2017H-200-R	20	0.55	1.0	245	1500	1000	100
ECMT1V2023S-300-R	30	0.9	0.8	160	1500	1000	100
ECMT1V2017H-300-R	30	0.9	0.8	160	1500	1000	100
ECMT1V2023S-600-R	60	2.1	0.4	96	1500	1000	100
ECMT1V2017H-600-R	60	2.1	0.4	96	1500	1000	100

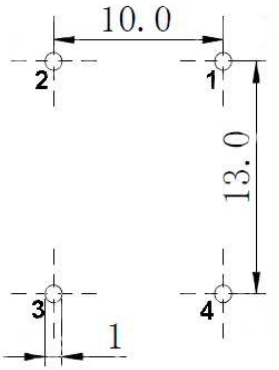
1. Open circuit inductance (OCL) Test parameters: 1 kHz, 0.25 Vrms, 0.0 Adc, +25 °C
2. DCR Test parameters: 4-wire method measured from the root of base, +25 °C
3. I_{rms}: Maximum DC current for an approximate temperature rise of 40 °C without core loss. Derating is necessary for AC currents. PCB layout,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

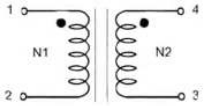
ECMT1V2023S-xxx-R



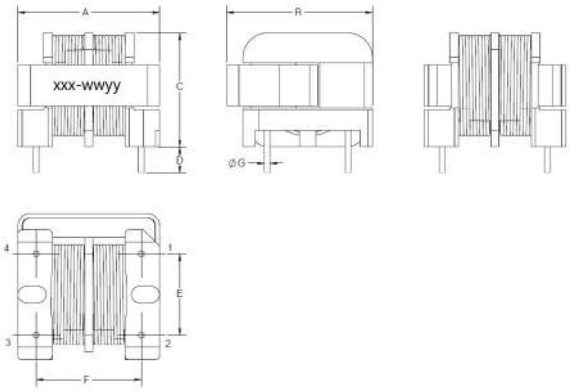
Recommended PCB layout



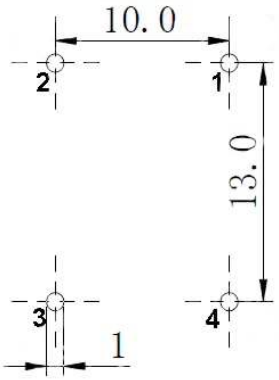
Schematic



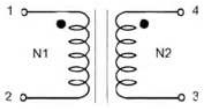
ECMT1V2017H-xxx-R



Recommended PCB layout



Schematic

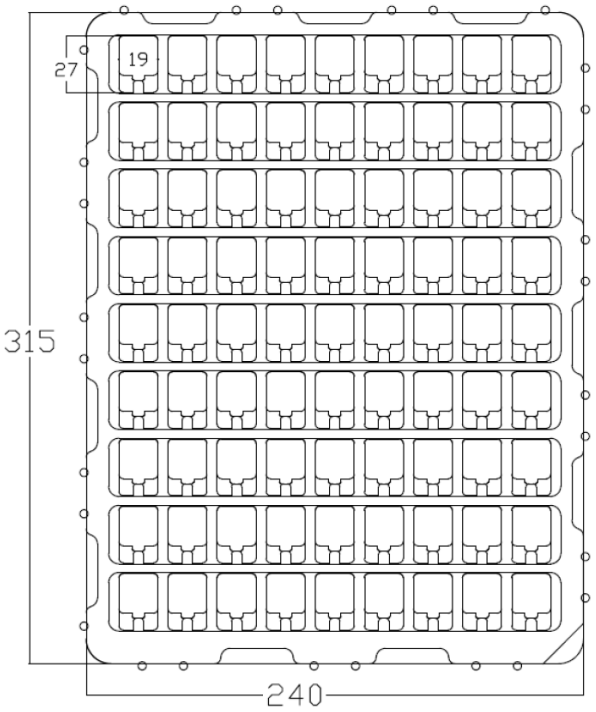


Part number	A	B	C	D	E	F	G
ECMT1V2023S-xxx-R	17.5 max.	20.0 max.	23.0 max.	3.5 ± 0.5	10.0 ± 0.5	13.0 ± 0.5	0.7 ± 0.1
ECMT1V2017H-xxx-R	19.5 max.	19.5 max.	17.0 max.	3.5 ± 0.5	10.0 ± 0.5	13.0 ± 0.5	0.7 ± 0.1

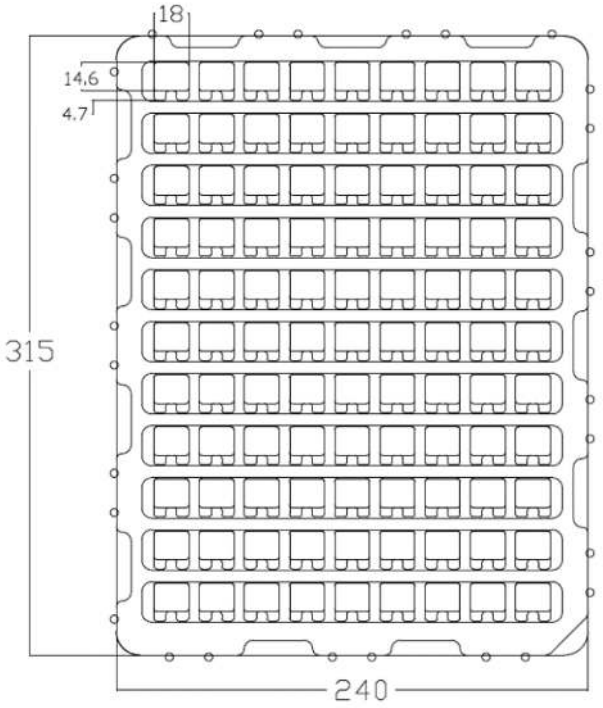
Part marking: xxx-wwyy, xxx =inductance value in mH, wwyy= lot code
Traces or vias underneath the inductor is not recommended

Packaging information (mm)

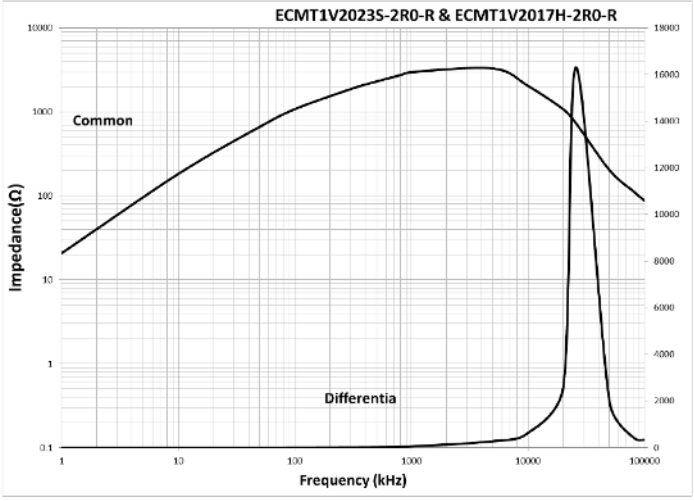
ECMT1V2023S-xxx-R
Supplied in tray, 10 trays per carton. (81 parts per tray x 10 trays per box = 810 parts per carton)
(Tray height 22 mm)

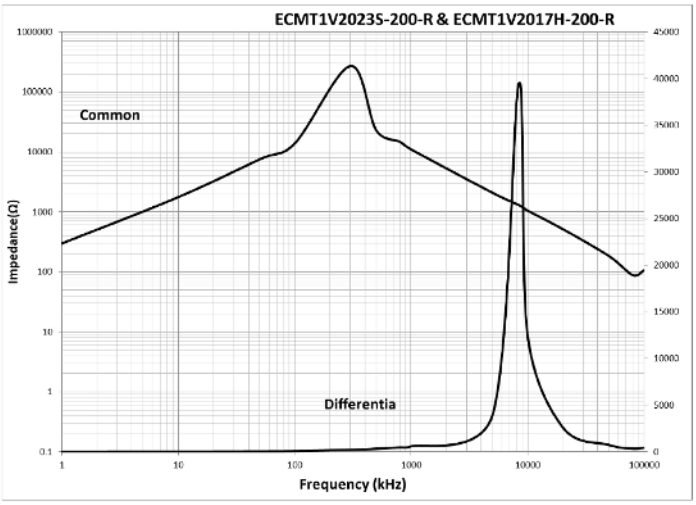


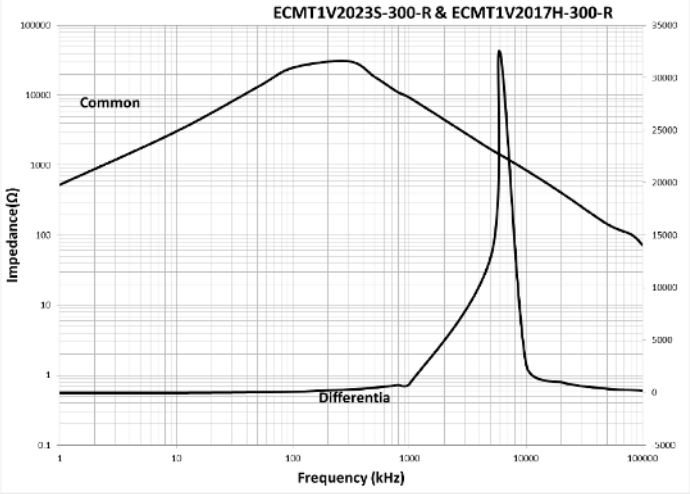
ECMT1V2017H-xxx-R
Supplied in tray, 10 trays per carton. (99 parts per tray x 10 trays per box = 990 parts per carton)
(Tray height 24 mm)

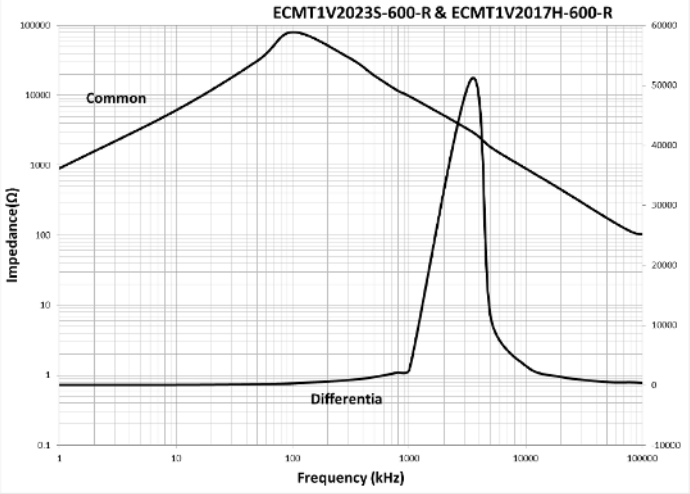


Impedance vs frequency

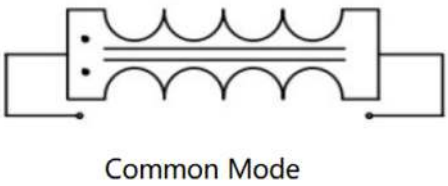


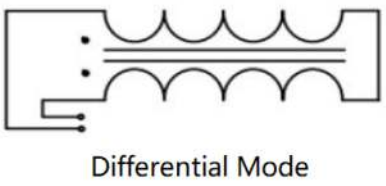




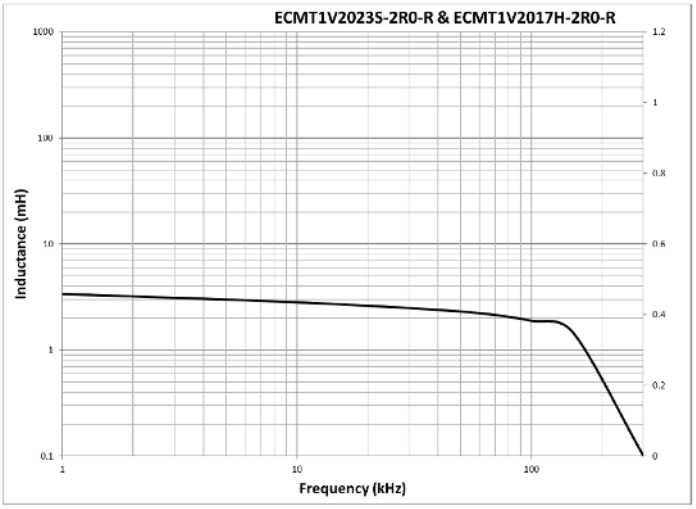


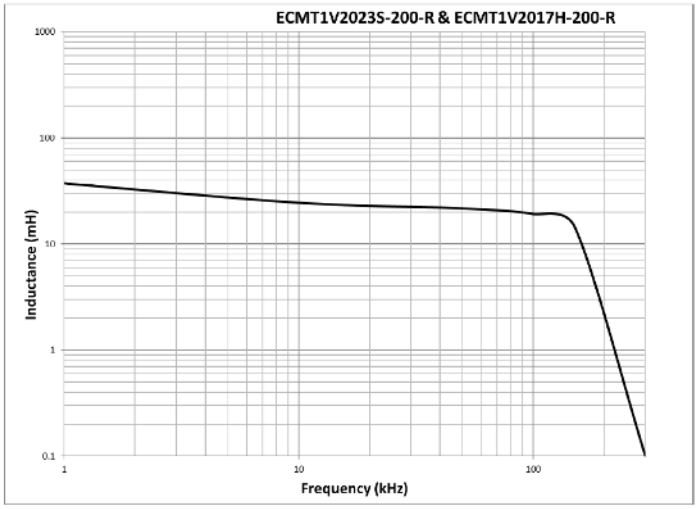
Measurement method

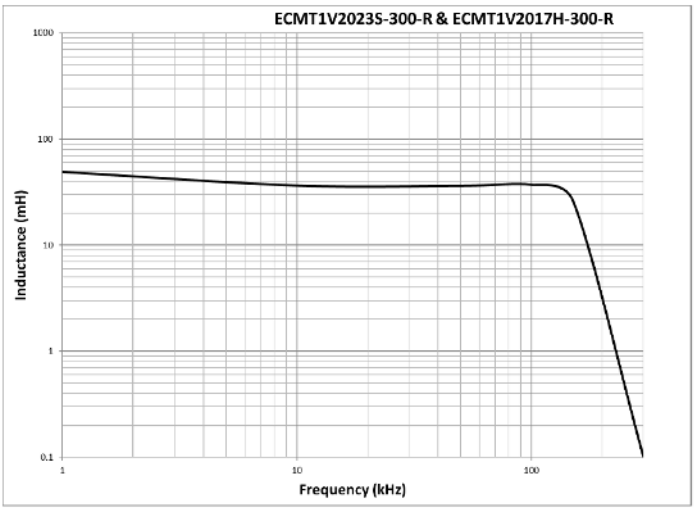


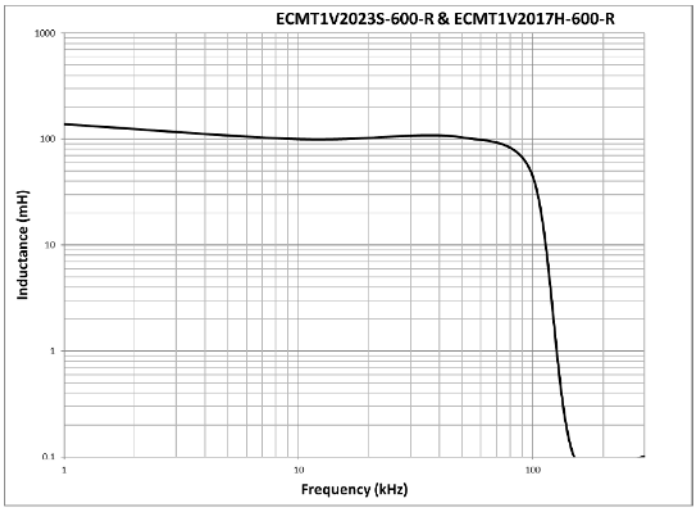


Inductance vs frequency

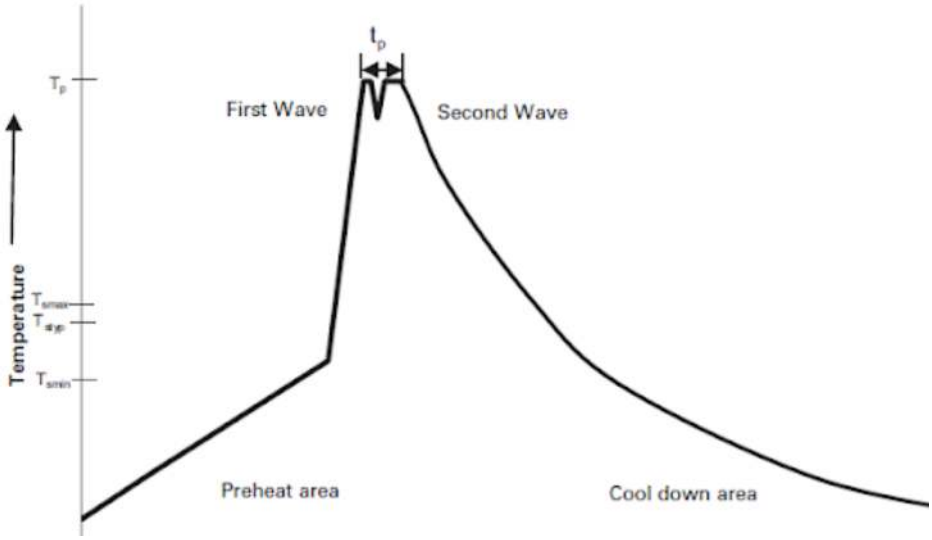








Wave solder profile



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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