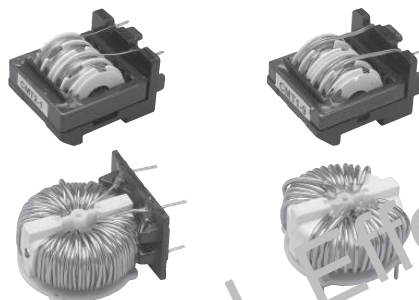


# CMT

## Common mode inductors, through-hole



### Product description

- Four sizes of through-hole off-line common mode inductors
- Inductance range from 0.53 - 66 mH
- Current range up to 6.5 Amps
- Noise attenuation up to 68 dB
- Frequency range up to 6 MHz
- Meets UL94V-0 flammability standard
- Ferrite core material

### Applications

- Protects AC input from effects of switching regulators
- Off-line power supplies
- EMI filters
- DC/DC converters
- Computer, TV, audio and office equipment

### Environmental data

- Storage temperature range (component): -40°C to +125°C
- Operating temperature range: -40°C to +125°C (ambient + self-temperature rise).



Product specifications

| Part number | OCL (mH)<br>minimum (1-2) | OCL (mH)<br>minimum (4-3) | I rms.<br>Amperes max | DCR ( $\Omega$ ) typ<br>@ 20°C (1-2) | DCR ( $\Omega$ ) typ<br>@ 20°C (4-3) |
|-------------|---------------------------|---------------------------|-----------------------|--------------------------------------|--------------------------------------|
| CMT1-1-R    | 66.0                      | 66.0                      | 0.74                  | 1.20                                 | 1.20                                 |
| CMT1-2-R    | 49.0                      | 49.0                      | 0.88                  | 0.85                                 | 0.85                                 |
| CMT1-3-R    | 28.0                      | 28.0                      | 1.13                  | 0.50                                 | 0.50                                 |
| CMT1-4-R    | 21                        | 21                        | 1.37                  | 0.35                                 | 0.35                                 |
| CMT1-5-R    | 13                        | 13                        | 1.76                  | 0.20                                 | 0.20                                 |
| CMT1-6-R    | 7.50                      | 7.50                      | 2.27                  | 0.13                                 | 0.13                                 |
| CMT1-7-R    | 4.20                      | 4.20                      | 2.89                  | 0.08                                 | 0.08                                 |
| CMT1-8-R    | 2.40                      | 2.40                      | 3.85                  | 0.045                                | 0.045                                |
| CMT1-9-R    | 1.85                      | 1.85                      | 4.53                  | 0.033                                | 0.033                                |
| CMT1-10-R   | 0.94                      | 0.94                      | 6.05                  | 0.018                                | 0.018                                |
| CMT2-1-R    | 30                        | 30                        | 1.50                  | 0.350                                | 0.350                                |
| CMT2-2-R    | 20                        | 20                        | 1.95                  | 0.220                                | 0.220                                |
| CMT2-3-R    | 12                        | 12                        | 2.45                  | 0.135                                | 0.135                                |
| CMT2-4-R    | 8.0                       | 8.0                       | 2.8                   | 0.100                                | 0.100                                |
| CMT2-5-R    | 6.0                       | 6.0                       | 3.40                  | 0.070                                | 0.070                                |
| CMT2-6-R    | 4.8                       | 4.8                       | 3.95                  | 0.053                                | 0.053                                |
| CMT2-7-R    | 3.2                       | 3.2                       | 4.40                  | 0.042                                | 0.042                                |
| CMT2-8-R    | 2.4                       | 2.4                       | 4.75                  | 0.037                                | 0.037                                |
| CMT2-9-R    | 2.0                       | 2.0                       | 5.4                   | 0.028                                | 0.028                                |
| CMT2-10-R   | 1.6                       | 1.6                       | 5.75                  | 0.026                                | 0.026                                |
| CMT3-1-R    | 5.4                       | 5.4                       | 2.0                   | 0.12                                 | 0.12                                 |
| CMT3-2-R    | 3.5                       | 3.5                       | 2.6                   | 0.08                                 | 0.08                                 |
| CMT3-3-R    | 2.7                       | 2.7                       | 3.0                   | 0.055                                | 0.055                                |
| CMT3-4-R    | 1.3                       | 1.3                       | 4.0                   | 0.032                                | 0.032                                |
| CMT3-5-R    | 0.92                      | 0.92                      | 5.0                   | 0.021                                | 0.021                                |
| CMT3-6-R    | 0.53                      | 0.53                      | 6.5                   | 0.013                                | 0.013                                |
| CMT4-1-R    | 5.4                       | 5.4                       | 2.0                   | 0.12                                 | 0.12                                 |
| CMT4-2-R    | 3.5                       | 3.5                       | 2.6                   | 0.08                                 | 0.08                                 |
| CMT4-3-R    | 2.7                       | 2.7                       | 3.0                   | 0.055                                | 0.055                                |
| CMT4-4-R    | 1.3                       | 1.3                       | 4.0                   | 0.032                                | 0.032                                |
| CMT4-5-R    | 0.92                      | 0.92                      | 5.0                   | 0.021                                | 0.021                                |
| CMT4-6-R    | 0.53                      | 0.53                      | 6.5                   | 0.013                                | 0.013                                |

Definitions:

OCL = Open Circuit Inductance

DCR = Direct Current Resistance

I<sub>rms</sub> = rms current for 40°C max temperature rise at worst case ambient temperature of 85°C.

Electrical Characteristics:

OCL (1-2) 0.10Vrms, 10kHz, 0.0Adc: (See Chart)

OCL (4-3) 0.10Vrms, 10kHz, 0.0Adc: (See Chart)

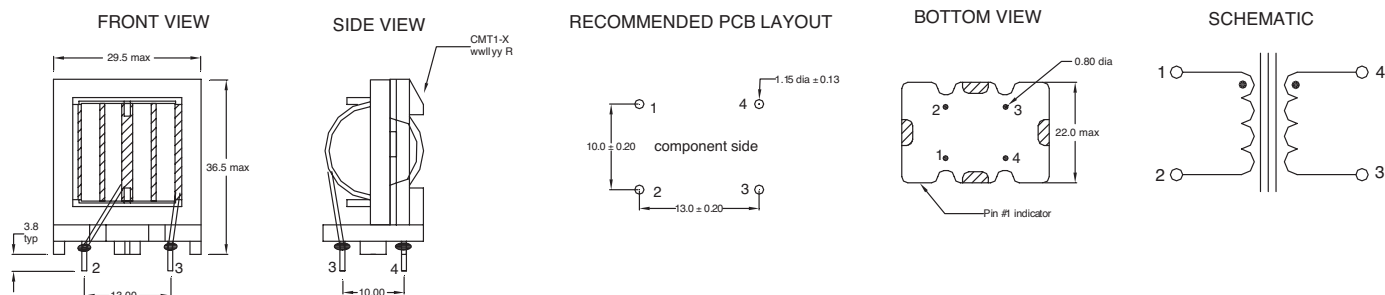
DCR (1-2) typ @ 20°C: (See Chart)

DCR (4-3) typ @ 20°C: (See Chart)

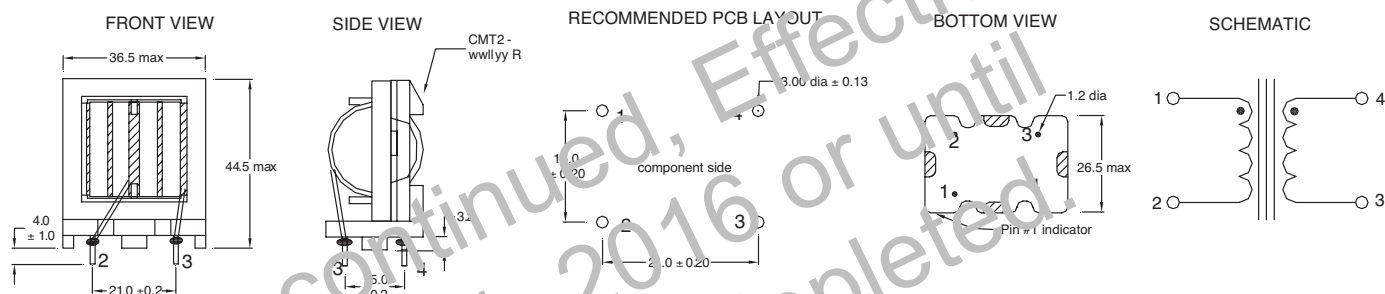
Hipot rating: winding to winding: 2400 Vac for 1 second. Turns Ratio: (1-2):(4-3) 1:1

## Dimensions—mm

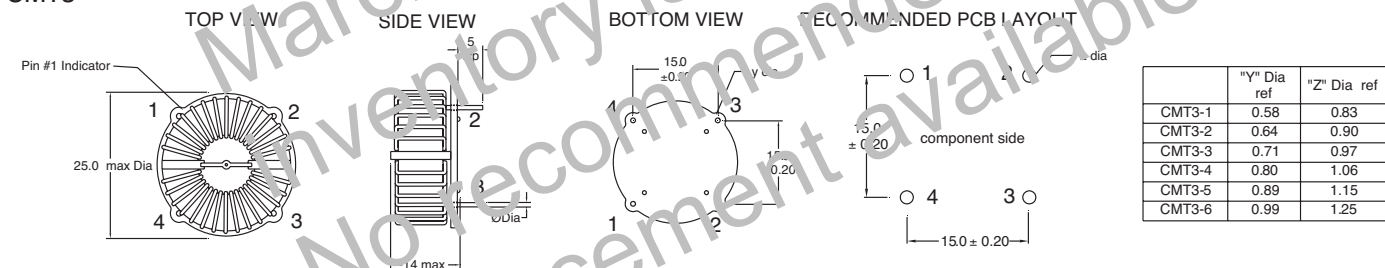
### CMT1



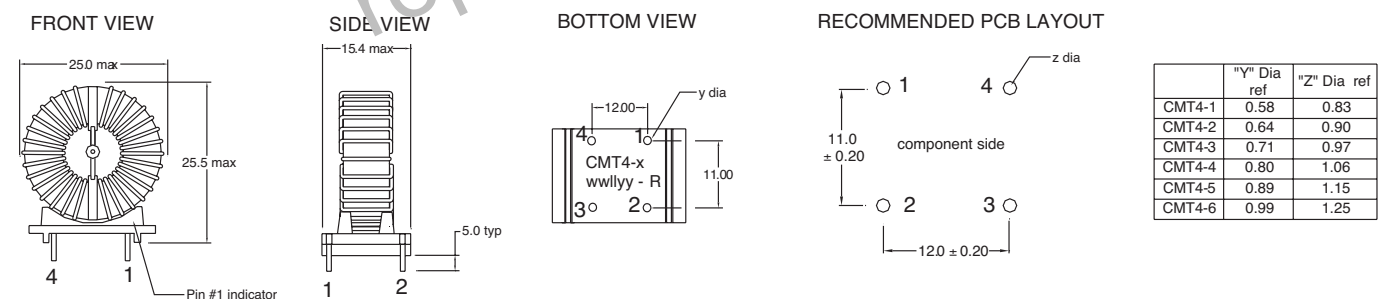
### CMT2



### CMT3

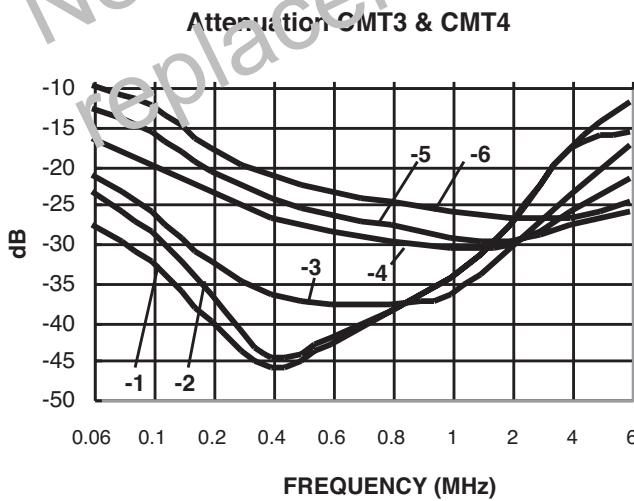
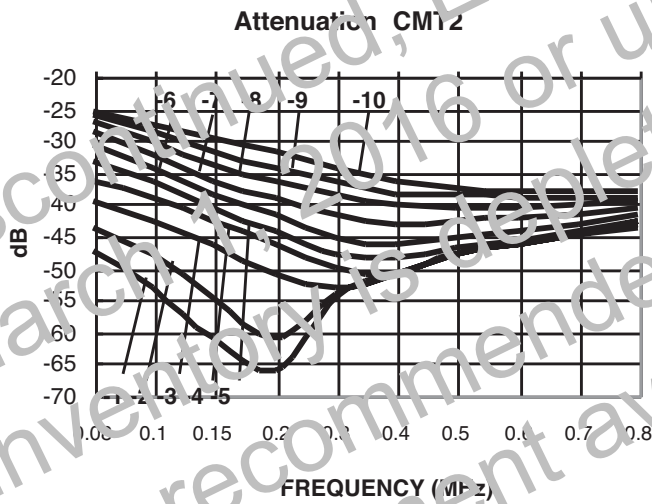
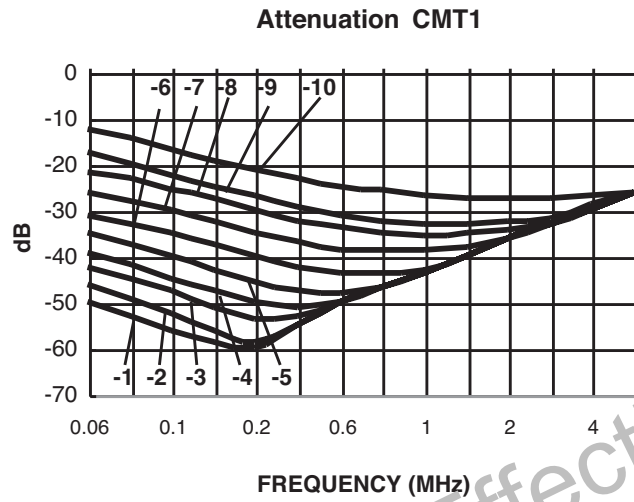


### CMT4

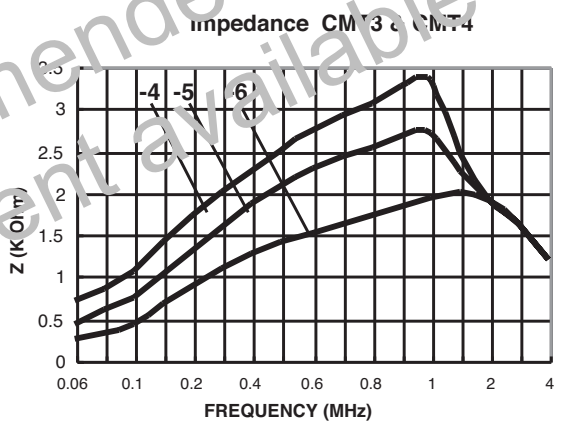
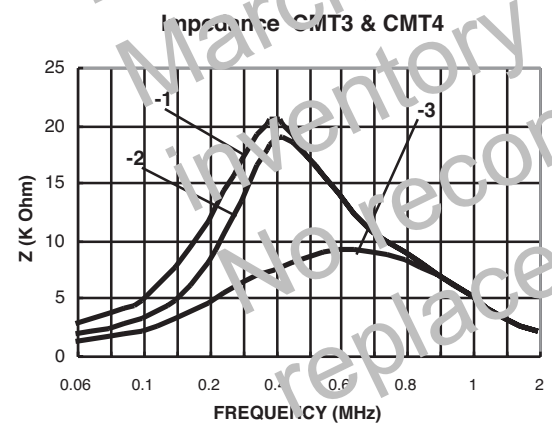
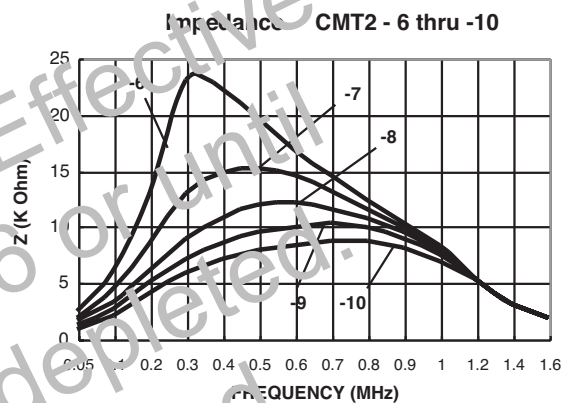
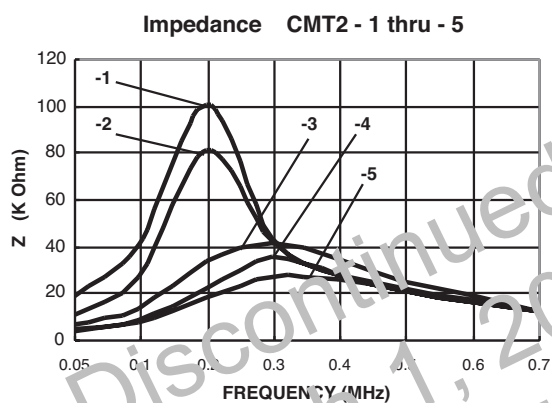
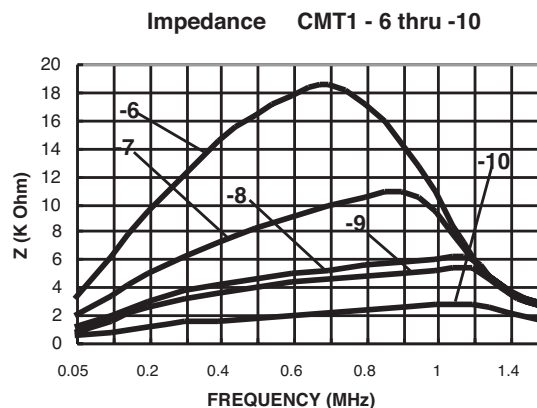
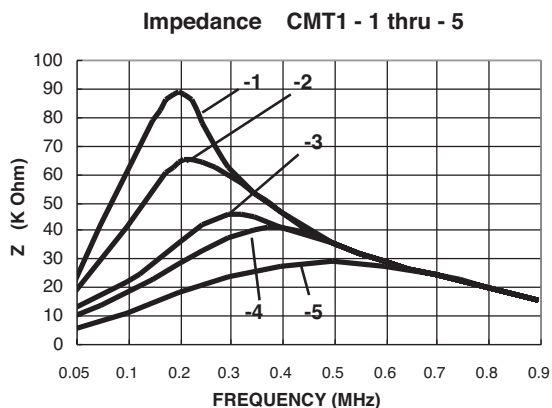


- (1) All Dimensions are in millimeters unless otherwise specified  
(2) Tolerances are  $\pm 0.20$ mm unless stated otherwise.  
(3) wwlyy = (Date Code) R = (Revision Level)  
Schematic is the same for all the series

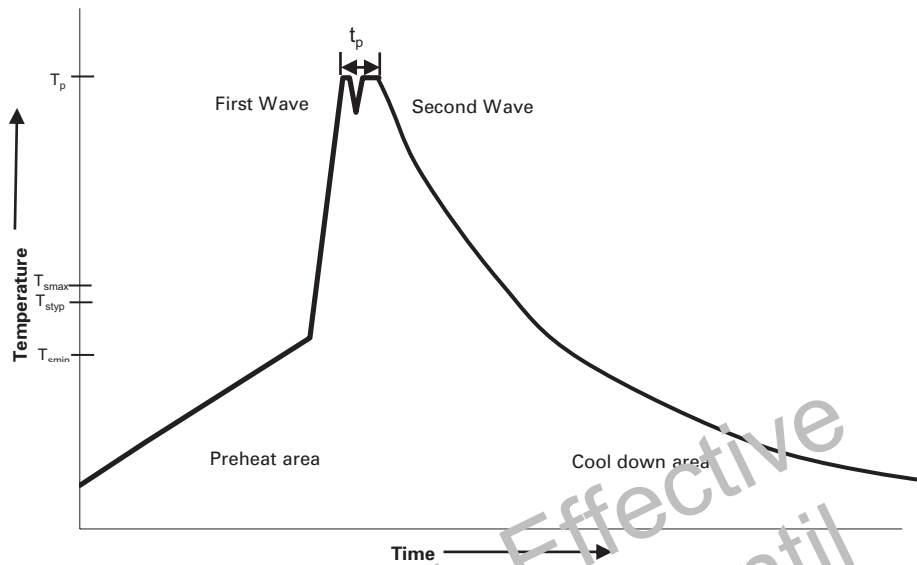
Attenuation Curves



## Impedance Curves



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                                |
| $\Delta$ preheat to max Temperature |                                               | 150°C max.                                | 150°C max.                                |
| Peak temperature ( $T_p$ )*         |                                               | 235°C ~ 260°C                             | 230°C ~ 260°C                             |
| Time at peak temperature ( $t_p$ )  |                                               | 10 seconds max<br>5 seconds max each wave | 10 seconds max<br>5 seconds max each wave |
| Ramp-down rate                      |                                               | ~ 2 K/s min<br>~3.5 K/s typ<br>~5 K/s max | ~ 2 K/s min<br>~3.5 K/s typ<br>~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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