

## 2 Line Ferrite Common Mode Power Chokes

**Steward's** common mode power/data filter products provide the most economical EMI filtering available for common mode noise. They provide EMI suppression for conductors such as power traces (tracks), and for high speed input/output circuitry (including network and storage subsystems). They exhibit high frequency impedance essentially independent of DC bias current.

Protected by one or more of the following US Patents: 5,455,552 and 5,568,111

### Features:

- High current capability (10 amps continuous operation)
- Up to 170 ohms impedance @100MHz or 300 ohms @1GHz
- Parts available in both thru-hole (B) and surface mount (R) versions
- Parts available in broad band and high frequency materials
- Economical common mode EMI filtering
- Compact size

### Applications:

- Filtering DC power on PC boards, especially in applications of greater than 3.0 amperes
- Filtering common mode EMI on high speed differential lines such as network and SCSI subsystems
- Cost sensitive designs
- Applications where low DCR is needed

### Part & Test Specifications:

•Maximum current ratings (I MAX) are determined by testing to a maximum temperature rise of 40°C with continuous operating current

•Board level components are rated up to a maximum of 75 volts

•Part performance is shown with curves for Common, Open and Normal Mode Impedances measured along two conductors.

**Common Mode** Impedance is the impedance of EMI noise conducted in the same direction along two conductors.

**Open Circuit** Impedance is the impedance measured across a single leg of the common mode choke.

**Normal Mode** Impedance is the total impedance to the differential circuit (both out and back).

**Tested with:**

- HP4396A (100KHz - 1.8 GHz) or HP8753 (to 6 GHz) Network/Spectrum Analyzer
- HP43961A Impedance Test Kit
- HP16192A Test Fixture or Inter-Continental Microwave custom fixtures
- HP16200A DC Bias Adapter
- Philips PM2811 DC Power Supply
- Ambient Temperature 23.5°C ± 2°
- Bandwidth 3 kHz
- Sweep Time 423 ms
- Impedance is rated at ± 25% @100MHz

### PART NUMBERING SYSTEM

|                        |                   |                       |                         |                   |   |                           |
|------------------------|-------------------|-----------------------|-------------------------|-------------------|---|---------------------------|
| <u>CM</u>              | <u>2545</u>       | <u>X</u>              | <u>111</u>              | <u>B</u>          | - | <u>00</u>                 |
| PRODUCT<br>SERIES CODE | PART<br>SIZE CODE | RATED<br>CURRENT CODE | IMPEDANCE<br>VALUE CODE | PACKAGING<br>CODE |   | ADDITIONAL<br>DESCRIPTION |

Ambient Operating Temperature Range: -55° C to +125° C

| PART NUMBER      | Fig # | A mm (inches)                  | B mm (inches)                   | C mm (inches)                  | D mm (inches)                  | E mm (inches)                  | IMPEDANCE (Z) TYPICAL OHMS @ |        |      | DCR MAX OHMS | RATED I MAX (continuous) mA |
|------------------|-------|--------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------|--------|------|--------------|-----------------------------|
|                  |       |                                |                                 |                                |                                |                                | 100MHz                       | 500MHz | 1GHz |              |                             |
| * CM2545X111B-00 | 1     | 6.30 ± 0.25<br>(0.248 ± 0.010) | 11.38 ± 0.25<br>(0.448 ± 0.010) | 9.32 ± 0.25<br>(0.367 ± 0.010) | 7.62 ± 0.10<br>(0.300 ± 0.004) | 2.54 ± 0.10<br>(0.100 ± 0.004) | 110                          | 260    | 175  | 0.003        | 10,000                      |
| * CM2545X111R-00 | 2     | 6.30 ± 0.25<br>(0.248 ± 0.010) | 11.38 ± 0.25<br>(0.448 ± 0.010) | 9.32 ± 0.25<br>(0.367 ± 0.010) | 7.62 ± 0.10<br>(0.300 ± 0.004) | 2.54 ± 0.10<br>(0.100 ± 0.004) | 110                          | 260    | 175  | 0.003        | 10,000                      |
| CM2545X171B-00   | 1     | 6.30 ± 0.25<br>(0.248 ± 0.010) | 11.38 ± 0.25<br>(0.448 ± 0.010) | 9.32 ± 0.25<br>(0.367 ± 0.010) | 7.62 ± 0.10<br>(0.300 ± 0.004) | 2.54 ± 0.10<br>(0.100 ± 0.004) | 170                          | 235    | 320  | 0.003        | 10,000                      |
| CM2545X171R-00   | 2     | 6.30 ± 0.25<br>(0.248 ± 0.010) | 11.38 ± 0.25<br>(0.448 ± 0.010) | 9.32 ± 0.25<br>(0.367 ± 0.010) | 7.62 ± 0.10<br>(0.300 ± 0.004) | 2.54 ± 0.10<br>(0.100 ± 0.004) | 170                          | 235    | 320  | 0.003        | 10,000                      |

\* High Frequency Material

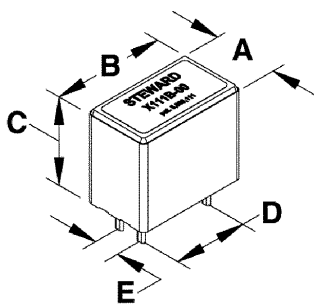


Figure 1

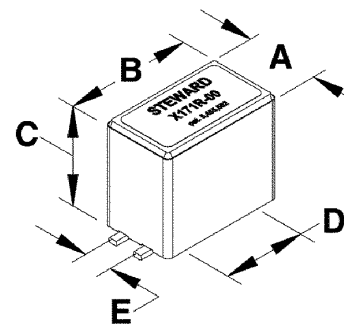
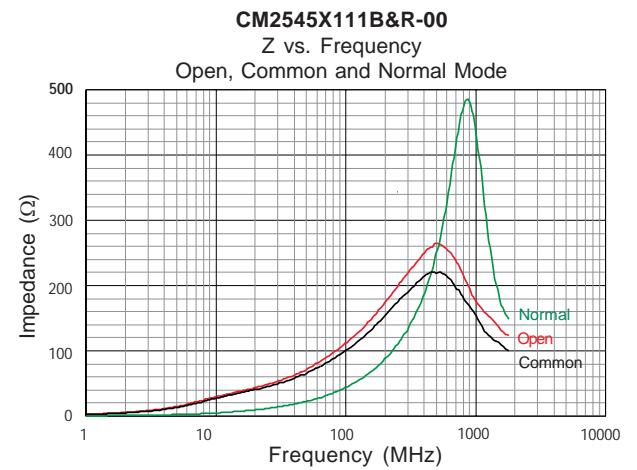
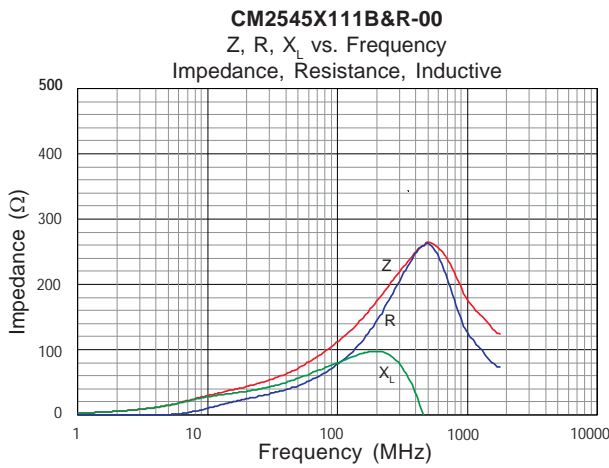
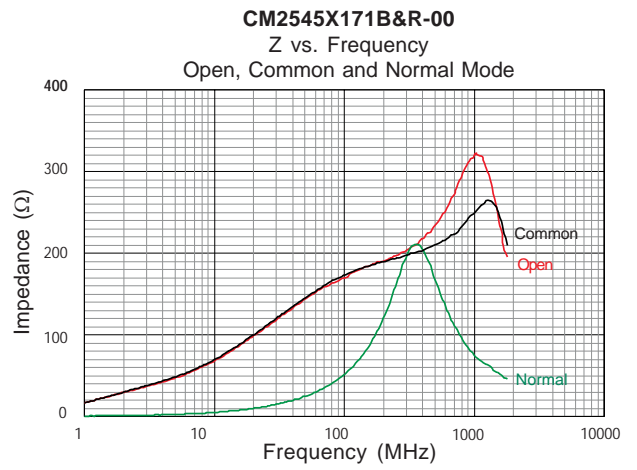
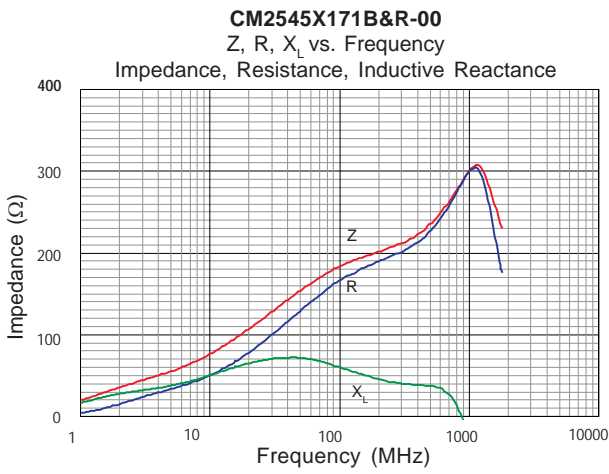
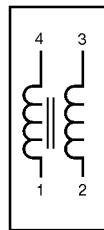


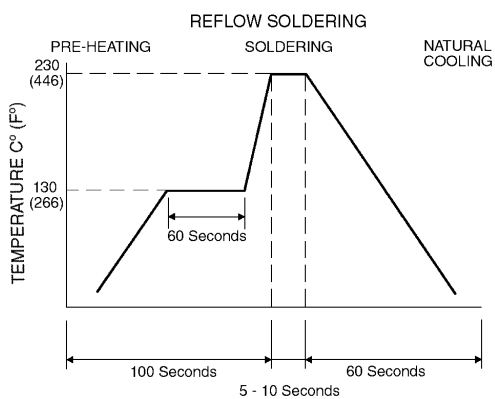
Figure 2



**Equivalent Circuits**



**Recommended Soldering Conditions**



Wave soldering will require additional pre-heat time.

**Land Patterns for Reflow Soldering**

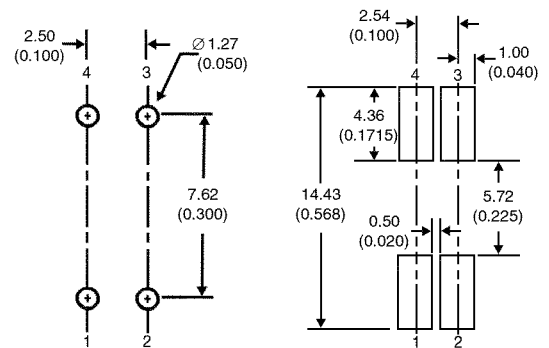


Figure 1

Figure 2