

# Ultra High Current EMI Ferrite Chip Beads



**Steward's** family of monolithic surface mount ferrites provide compact, cost effective EMI filtering for today's densely packed single and double sided surface mount PCB designs. Successful EMI filtering often depends on reducing high frequency noise at its source, our small footprint SMT ferrite enables designers to place high performance filtering very close to troublesome high frequency devices.

## Features:

- High current performance (up to **10 amps** continuous operation)
- Peak impedance at approximately 2 GHz
- Small footprint
- Economical component for high current applications requiring discrete signal filtering
- High impedance retention under DC Bias
- Superior retention under bias when compared to older wire wound components
- Vibration resistant, monolithic construction
- Lead Free

## Applications:

- High current products
- Differential mode filtering of power input pins of oscillators and logic devices using high speed clocks
- Filtering of low frequency input/output signals entering/leaving shielded enclosures
- High frequency filtering of medium speed clocks and video signals
- Preventing oscillations in high frequency amplifiers
- Discrete component filtration in power supplies

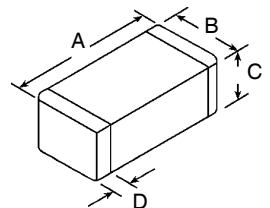
## Test Specifications:

- Maximum current ratings ( rated I MAX ) are determined by testing to a maximum temperature rise of 40°C with continuous current.
- Board level components are rated up to a maximum of 75 volts

**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

## Steward PART NUMBERING SYSTEM EXAMPLE

<b>DM</b>	<b>1612</b>	<b>X</b>	<b>560</b>	<b>R</b>	<b>-10</b>
Product Series Code	Part Size Code	Rated Continuous Current Code	Impedance Value Code	Packaging Code	Additional Description



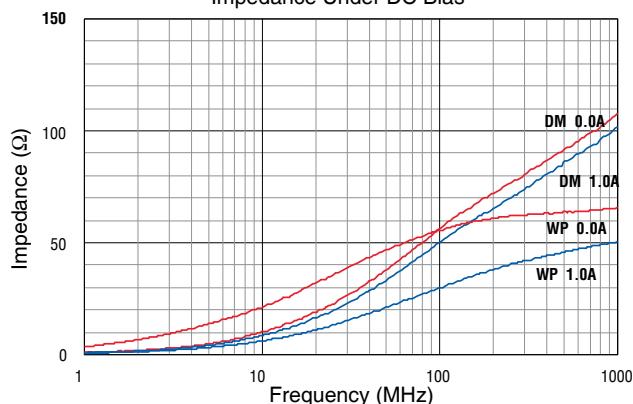
Ambient Temperature Range: -55°C to +125°C

PART NUMBER	FIGURE # (ON BACK)	A mm (inches)	B mm (inches)	C mm (inches)	D mm (inches)	IMPEDANCE (Z) TYPICAL OHMS @			DCR MAX (Ohms)	RATED I MAX (continuous) mA
						100 MHz	500 MHz	1 GHz		
DM1612X560R-10	1	4.06 ± 0.200 (0.160 ± 0.008)	3.05 ± 0.200 (0.120 ± 0.008)	2.28 ± 0.200 (0.090 ± 0.008)	0.46 ± 0.200 (0.018 ± 0.008)	56	90	100	0.004	10000
DM3312X101R-10	2	8.50 ± 0.200 (0.335 ± 0.008)	3.05 ± 0.200 (0.120 ± 0.008)	2.28 ± 0.200 (0.090 ± 0.008)	0.51 ± 0.200 (0.020 ± 0.010)	100	175	225	0.004	10000

## Comparison of impedance (under bias) to older wire type parts

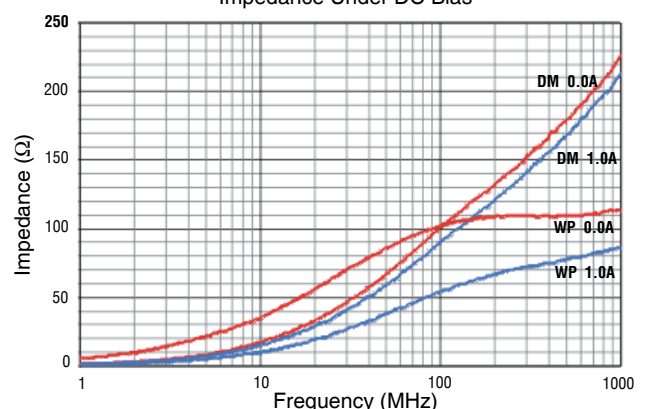
DM1612 (DM) vs. Conventional Wound Part (WP)

Z vs. Frequency  
Impedance Under DC Bias

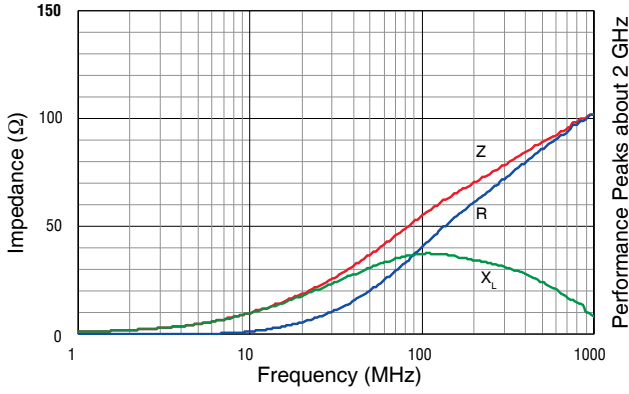


DM3312 (DM) vs. Conventional Wound Part (WP)

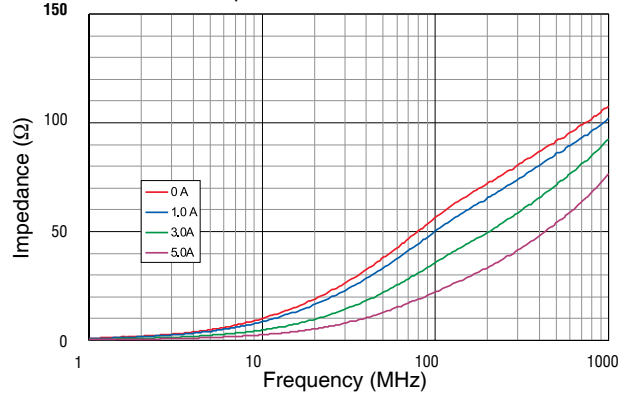
Z vs. Frequency  
Impedance Under DC Bias



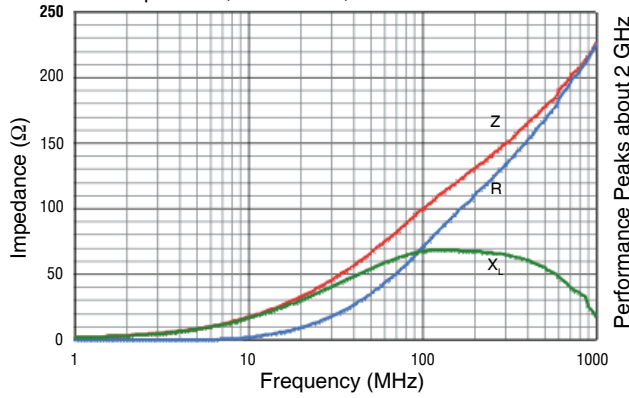
**DM1612X560R-10**  
Z, R, X<sub>L</sub> vs Frequency  
Impedance, Resistance, Inductive Reactance



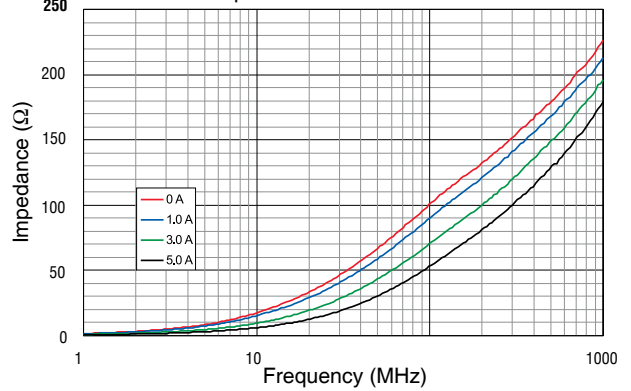
**DM1612X560R-10**  
Z vs. Frequency  
Impedance Under DC Bias



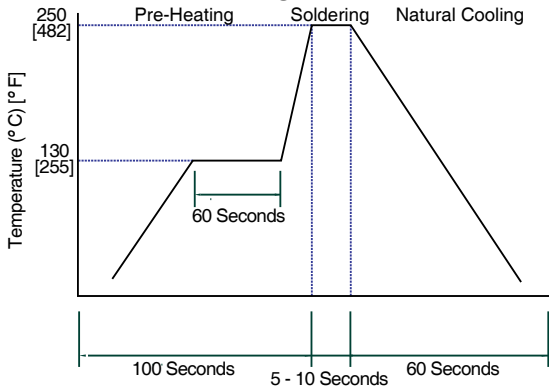
**DM3312X101R-10**  
Z, R, X<sub>L</sub> vs Frequency  
Impedance, Resistance, Inductive Reactance



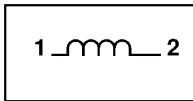
**DM3312X101R-10**  
Z vs. Frequency  
Impedance Under DC Bias



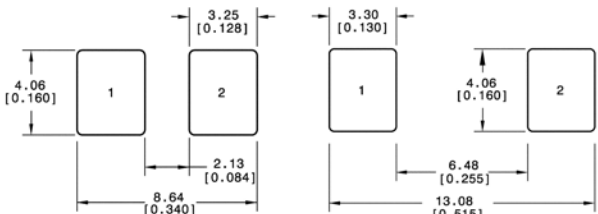
**Recommended Lead Free Soldering Conditions**



**Equivalent Circuit**



**Land Patterns for Reflow Soldering**



**Figure 1**  
**DM1612**

**Figure 2**  
**DM3312**

Steward Ultra High Current  
EMI Ferrite Chip Beads  
Brochure 008 Rev 4.01 01/2006

Steward produces an extensive line of ferrite products for inductive and EMI filtering applications. Products include ferrite EMI cable cores, connector plates, unique common mode chokes, can-bus chokes, high current thru hole and surface mount components, impedance chip beads, surface mount inductors, toroid inductor cores and ferrite powders. Please consult our web site, Steward's EMI and Inductive Components full catalog, or contact your nearest Steward office or representative for additional information.

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