MFBA2V2012

Automotive multilayer chip ferrite bead

Product features

- AEC-Q200
- Multilayer monolithic construction yields high reliability
- 0805 (2012 metric) surface mount package
- Ultra-low direct current resistance (DCR)
- Impedance range: 30 ohms to 1000 ohms
- Moisture sensitivity level (MSL): 1

Applications

- Body electronics (keyless entry, ECU, antennas)
- Advanced driver assistance systems (ADAS)
- Infotainment and cluster electronics
- Safety electronics systems
- WLAN, WiFi, Bluetooth
- Portable medical devices
- Inventory management equipment
- Displays/monitors
- IoT, remote monitoring
- Testing equipment
- Automation equipment
- Sensors

Environmental compliance and general specifications

- Operating temperature range: -55 °C to +150 °C (ambient plus self-temperature rise)
- Storage temperature (component): -55 °C to +150 °C
- Solder reflow temperature: J-STD-020 (latest revision) compliant

Pb HALOGEN HF FREE RoHS

Powering Business Worldwide

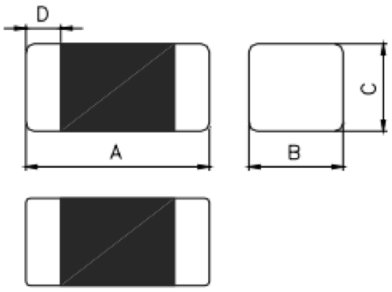
Product specifications

Part number[2]	Impedance (Ω) 100 MHz, ±25%, @ +25°C	DCR (Ω) maximum @ +25 °C	Rated current[1] (mA) maximum
MFBA2V2012-300-R	30	0.04	3000
MFBA2V2012-800-R	80	0.04	3000
MFBA2V2012-121-R	120	0.1	2000
MFBA2V2012-151-R	150	0.1	2000
MFBA2V2012-221-R	220	0.1	2000
MFBA2V2012-301-R	300	0.2	1000
MFBA2V2012-471-R	470	0.2	1000
MFBA2V2012-601-R	600	0.2	1000
MFBA2V2012-102-R	1000	0.15	1500
MFBA2V2012P-700-R	70	0.009	6000
MFBA2V2012P-111-R	110	0.013	5000
MFBA2V2012P-181-R	180	0.02	4000
MFBA2V2012P-331-R	330	0.04	2800
MFBA2V2012P-471-R	470	0.05	2500
MFBA2V2012P-601-R	600	0.06	2300

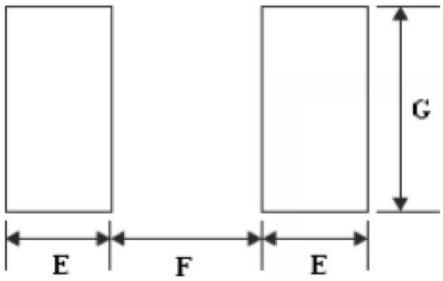
1. Rated current: DC current rating for an approximate self-temperature rise of 40 °C or less.

2. Part number definition: MFBA2V2012-xxx-R or MFBA2V2012P-xxx-R
MFBA2V2012 = Product code and size
MFBA2V2012P = Product code and size
xxx = Impedance value in Ω, last character equals number of zeros
-R suffix = RoHS compliant

Mechanical parameters (mm)



Recommended pad layout



Schematic

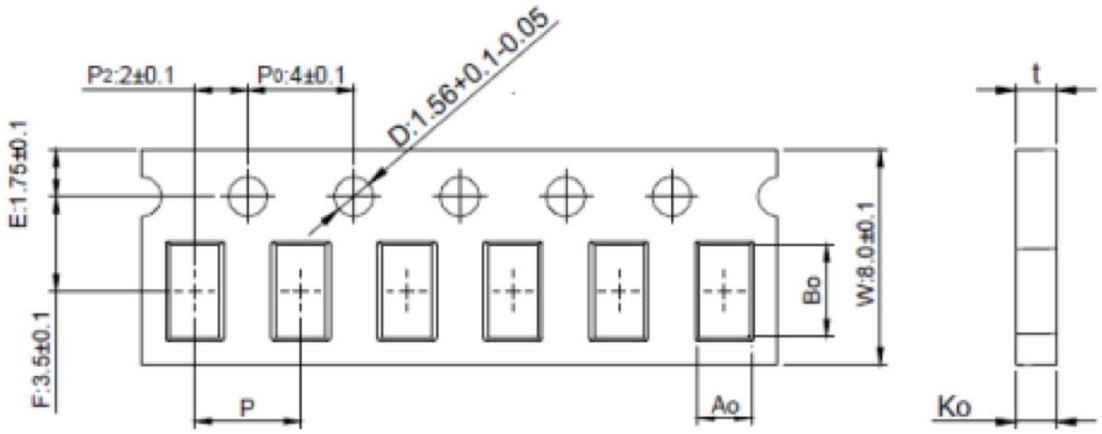
Part number	A	B	C	D	E (ref.)	F (ref.)	G (ref.)
MFBA2V2012(P)-xxx-R	2.0 ±0.20	1.25 ±0.20	0.85 ±0.20	0.50 ±0.30	1.05	1.00	1.45

Part marking: No marking
All soldering surfaces to be coplanar within 0.1 millimeters
Tolerances are ±0.1 millimeters unless stated otherwise
Pad layout dimensions are reference only
Traces or vias underneath the inductor is not recommended

Packaging information (mm)

Drawing not to scale

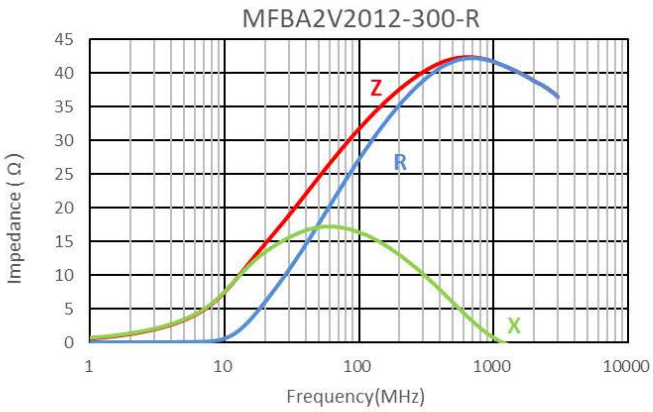
Supplied in tape and reel packaging, 4000 parts per 7" diameter reel (EIA-481 compliant)

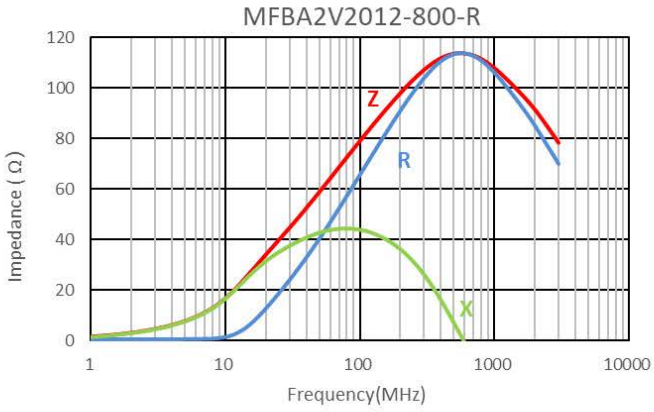


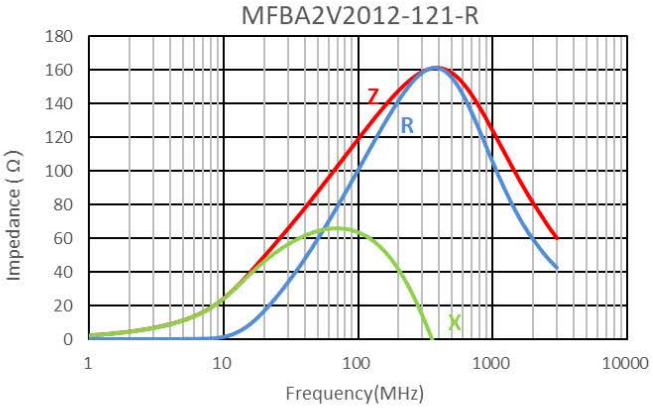
Bo	2.10 ± 0.05
Ao	1.30 ± 0.05
Ko	0.95 ± 0.05
P	4.0 ± 0.10
t	0.95 ± 0.05

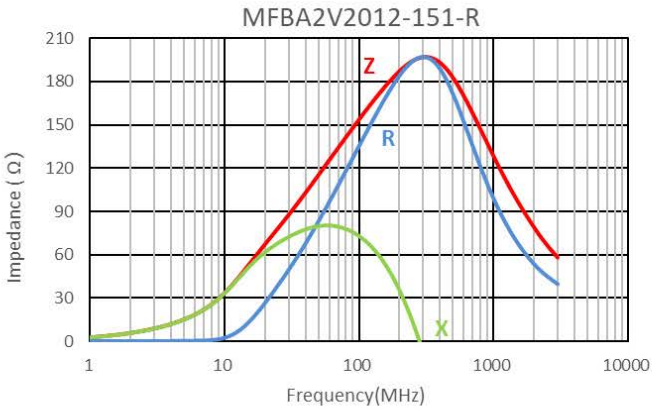
Performance curves

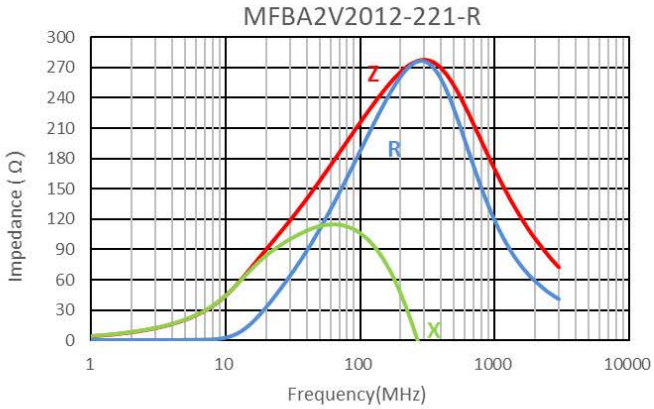
Z= impedance, R= resistance, X= reactance

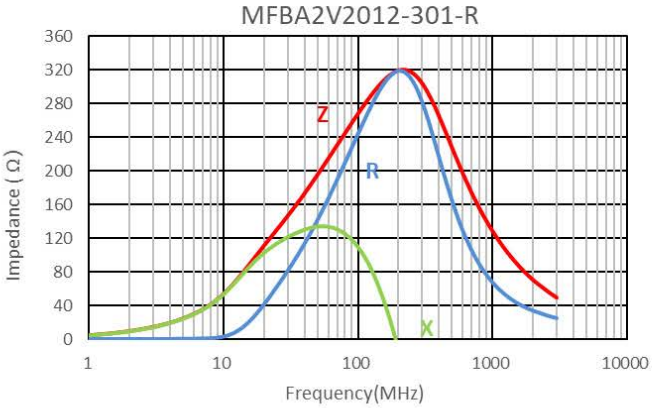












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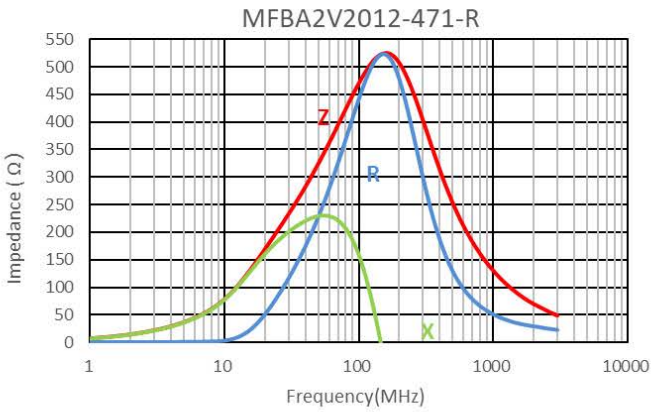

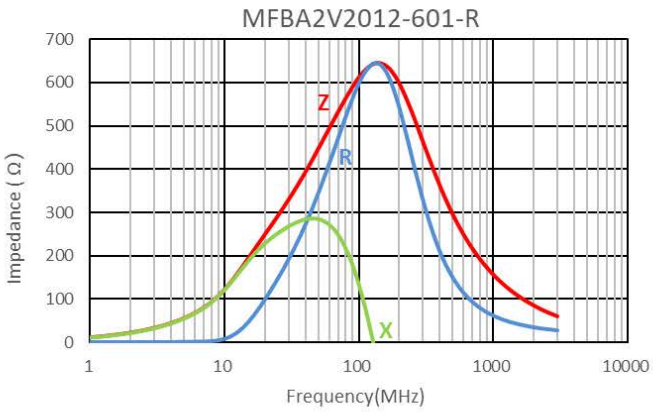

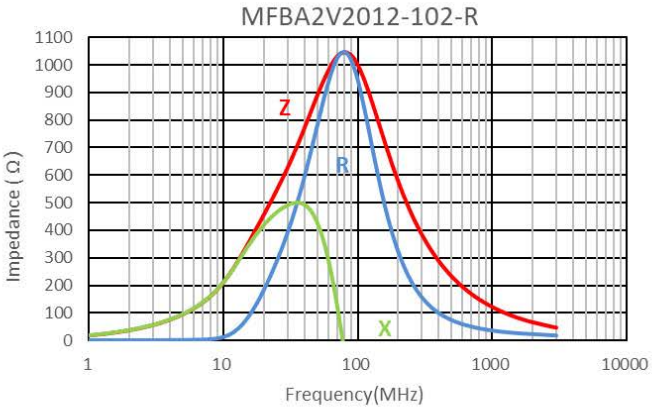

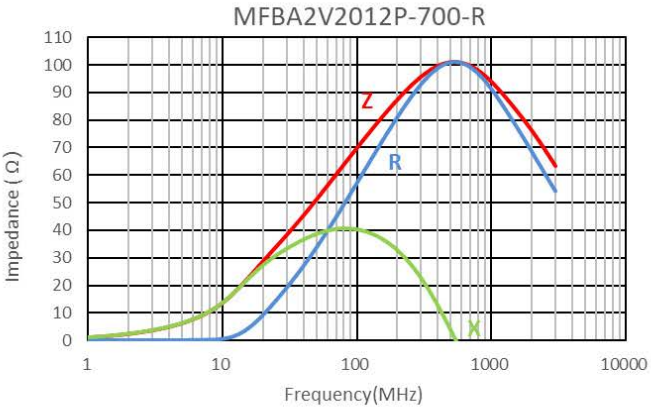

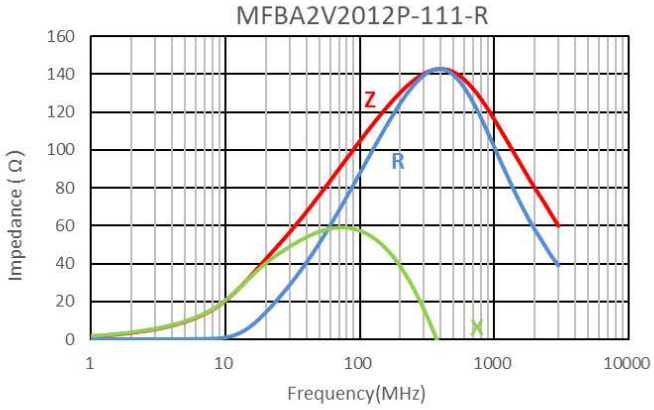

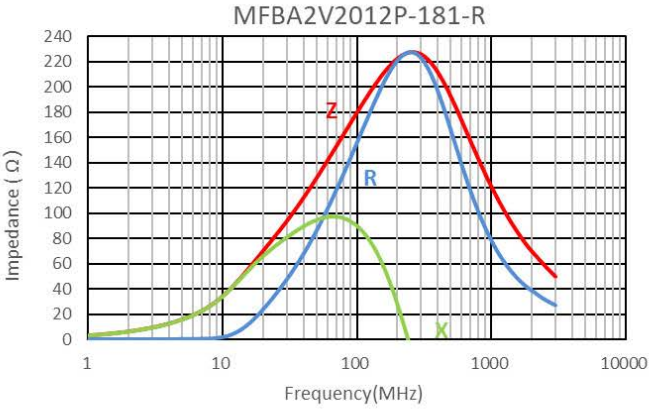

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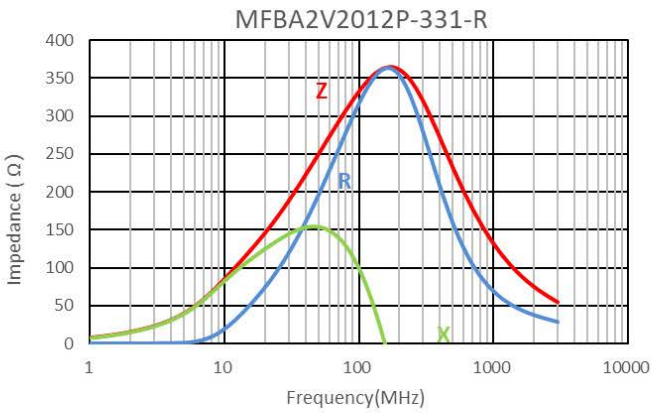
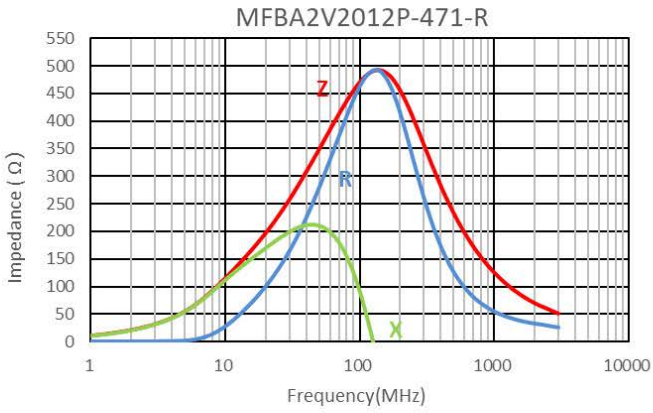
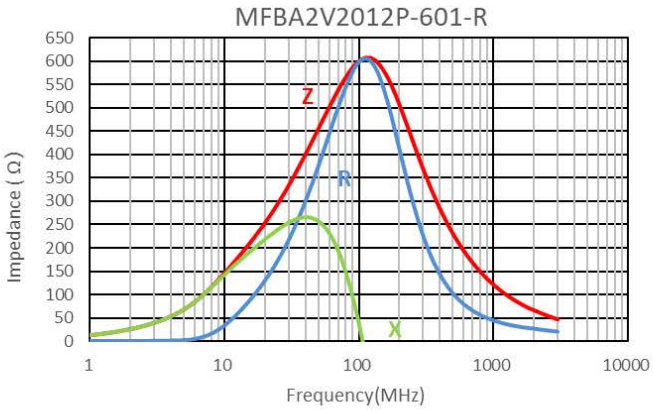
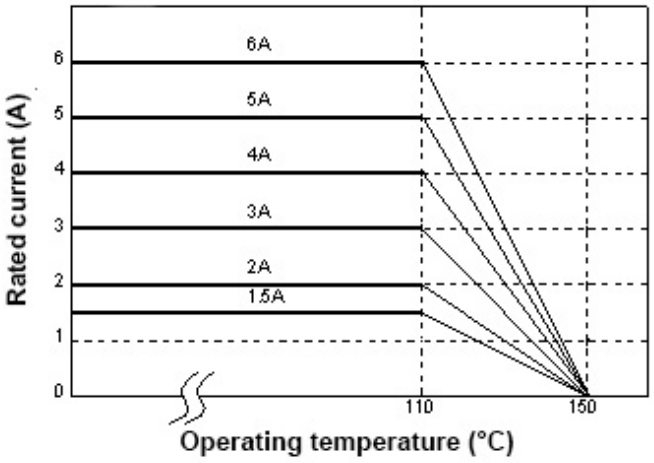






Derating curve



Solder reflow profile

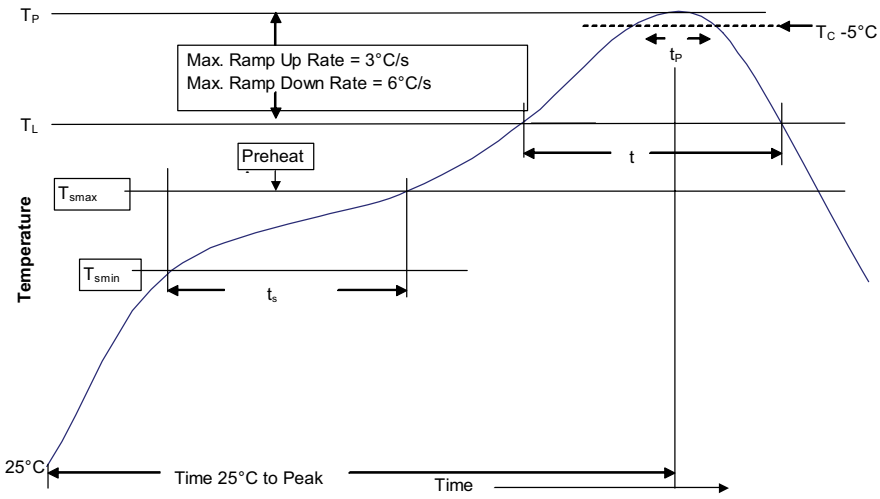


Table 1 - Standard SnPb solder (T_C)

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature		Standard SnPb solder	Lead (Pb) free solder
Preheat and soak	• Temperature min. (T_{smin})	100 °C	150 °C
	• Temperature max. (T_{smax})	150 °C	200 °C
	• Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds	60-120 seconds
Ramp up rate T_L to T_p		3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L		183 °C 60-150 seconds	217 °C 60-150 seconds
Peak package body temperature (T_P)*		Table 1	Table 2
Time (t_p)* within 5 °C of the specified classification temperature (T_C)		20 seconds*	30 seconds*
Ramp-down rate (T_p to T_L)		6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature		6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

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