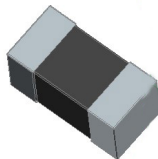


# MFBA2V1608

## Automotive multilayer chip ferrite bead



### Product features

- AEC-Q200 qualified
- Multilayer monolithic construction yields high reliability
- 0603 (1608 metric) surface mount package
- Ultra-low direct current resistance (DCR)
- Impedance range: 30 ohms to 600 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



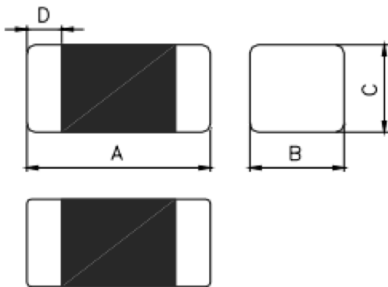
**Product specifications**

Part number <sup>2</sup>	Impedance ( $\Omega$ ) 100 MHz, $\pm 25\%$ , @ +25°C	DCR ( $\Omega$ ) maximum @ +25°C	Rated current <sup>1</sup> (mA) maximum
MFBA2V1608-300-R	30	0.04	3000
MFBA2V1608-800-R	80	0.04	3000
MFBA2V1608-121-R	120	0.10	2000
MFBA2V1608-151-R	150	0.10	2000
MFBA2V1608-221-R	220	0.10	2000
MFBA2V1608-301-R	300	0.20	1000
MFBA2V1608-471-R	470	0.20	1000
MFBA2V1608-601-R	600	0.20	1000

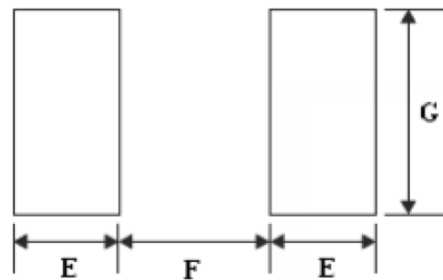
1. Rated current: Current rating for an approximate self-temperature rise of 40 °C or less.

2. Part number definition: MFBA2V1608-xxx-R  
MFBA2V1608 = Product code and size  
xxx = Impedance value in  $\Omega$ , last character equals number of zeros  
-R suffix = RoHS compliant

**Mechanical parameters (mm)**



**Recommended pad layout**



**Schematic**



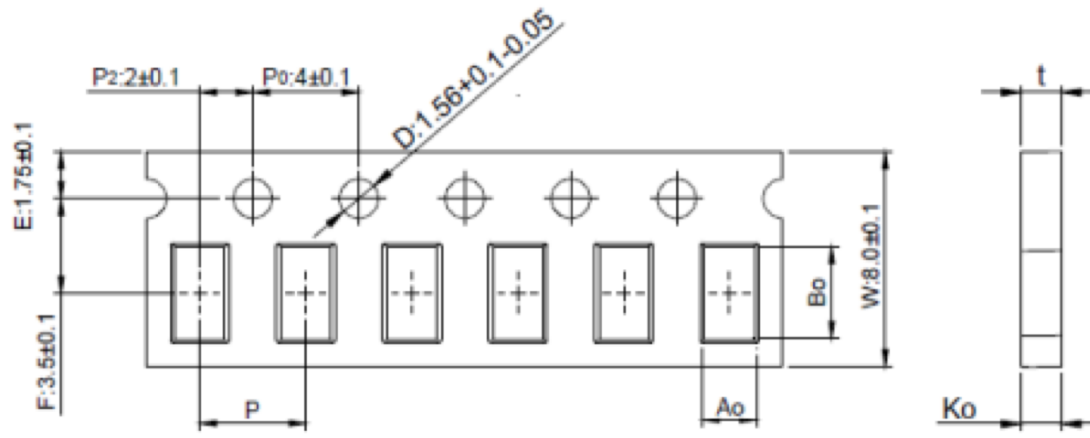
Part number	A	B	C	D	E (ref.)	F (ref.)	G (ref.)
MFBA2V1608-***-R	1.6 $\pm$ 0.15	0.80 $\pm$ 0.15	0.80 $\pm$ 0.15	0.30 $\pm$ 0.20	0.80	0.85	0.95

Part marking: No marking  
All soldering surfaces to be coplanar within 0.1 millimeters  
Tolerances are  $\pm 0.1$  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

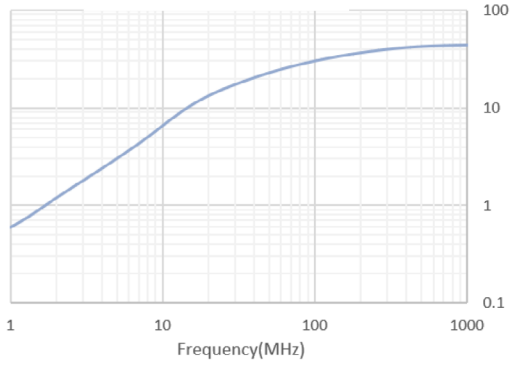
Supplied in tape and reel packaging, 4000 parts per 7" diameter reel (EIA-481 compliant)



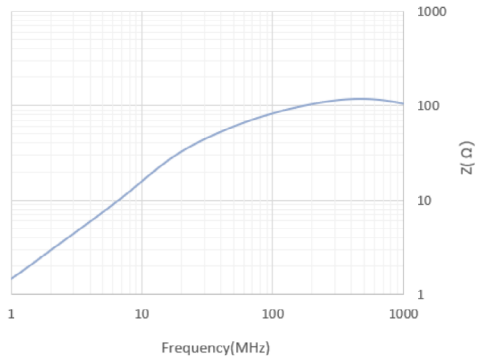
Bo	1.80 ± 0.05
Ao	0.96 + 0.05/-0.03
Ko	0.95 ± 0.05
P	4.0 ± 0.10
t	0.95 ± 0.05

Impedance vs frequency

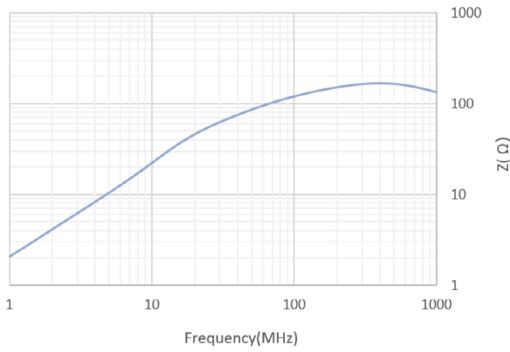
MFBA2V1608-300-R



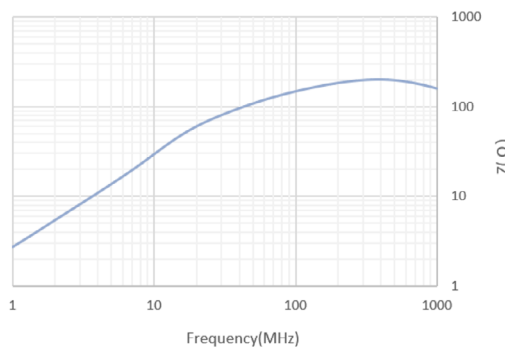
MFBA2V1608-800-R



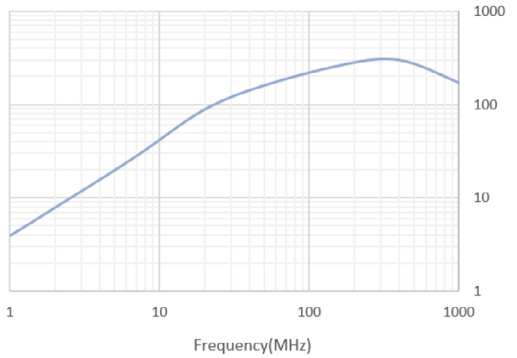
MFBA2V1608-121-R



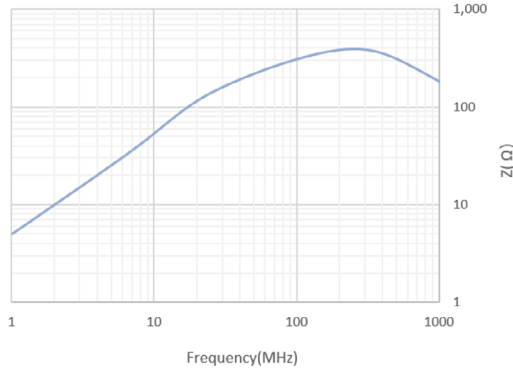
MFBA2V1608-151-R



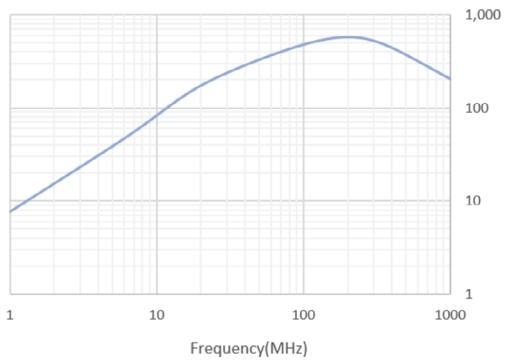
MFBA2V1608-221-R



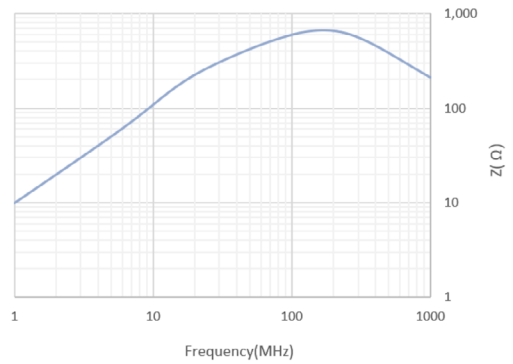
MFBA2V1608-301-R



MFBA2V1608-471-R



MFBA2V1608-601-R



Solder reflow profile



Table 1 - Standard SnPb solder (T<sub>C</sub>)

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T<sub>C</sub>)

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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 <sub>smin</sub> )	100 °C	150 °C
• Temperature max. (T <sub>smax</sub> )	150 °C	200 °C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 seconds	60-120 seconds
Ramp up rate T <sub>L</sub> to T <sub>p</sub>	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T <sub>L</sub> )	183 °C	217 °C
Time (t <sub>L</sub> ) maintained above T <sub>L</sub>	60-150 seconds	60-150 seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )* within 5 °C of the specified classification temperature (T <sub>C</sub> )	20 seconds*	30 seconds*
Ramp-down rate (T <sub>p</sub> to T <sub>L</sub> )	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<sub>p</sub>) is defined as a supplier minimum and a user maximum.

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