

### 1. Scope

This specification applies to MLB-F Series of multi-layer ferrite chip bead.

### 2. Product Description and Identification (Part Number)

- 1) Description:  
MLB-F Series of multi-layer ferrite chip bead.
- 2) Product Identification (Part Number)



### 3. Rating

Operating Temperature:  $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$  (Including self - temperature rise)

Storage Temperature:  $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$  (after PCB)

$-5^{\circ}\text{C} \sim 40^{\circ}\text{C}$ , Humidity 40% ~ 70% (before PCB)

### 4. Shape and Dimensions

- 1) Dimensions and recommended PCB pattern for reflow soldering: See Fig.4-1, Fig.4-2 and Table 4-1.
- 2) Structure: See Fig. 4-3 and Fig. 4-4.



Fig. 4-1

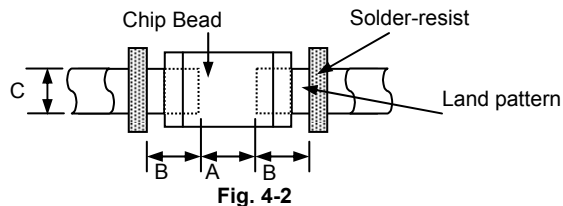


Fig. 4-2

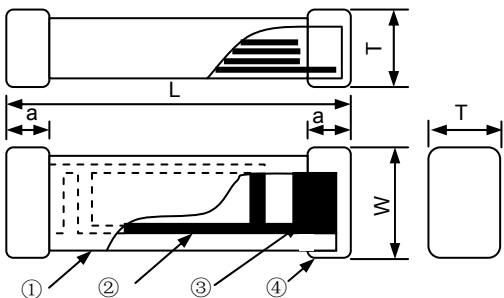


Fig. 4-3

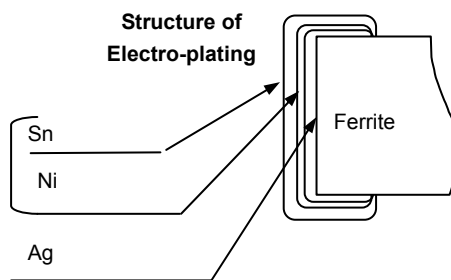


Fig. 4-4

- ① Ferrite for Bead Series
- ② Internal electrode (Ag)
- ③ Pull out electrode (Ag)
- ④-1 Terminal electrode: Inside (Ag)
- ④-2 Outside (Electro-plating Ni-Sn)

[Table 4-1]

Unit: mm [inch]

Type	L	W	T	a	A	B	C
0603 [0201]	$0.6 \pm 0.05$ [.024 ± 0.002]	$0.3 \pm 0.05$ [.012 ± 0.002]	$0.3 \pm 0.05$ [.012 ± 0.002]	$0.15 \pm 0.05$ [.006 ± 0.002]	0.2~0.3	0.2~0.3	0.3~0.35
1005 [0402]	$1.0 \pm 0.15$ [0.039 ± 0.006]	$0.5 \pm 0.15$ [0.020 ± 0.006]	$0.5 \pm 0.15$ [0.020 ± 0.006]	$0.25 \pm 0.1$ [0.010 ± 0.004]	0.45~0.55	0.40~0.50	0.45~0.55
1608 [0603]	$1.6 \pm 0.15$ [0.063 ± 0.006]	$0.8 \pm 0.15$ [0.031 ± 0.006]	$0.8 \pm 0.15$ [0.031 ± 0.006]	$0.3 \pm 0.2$ [0.012 ± 0.008]	0.60~0.80	0.60~0.80	0.60~0.80
2012 [0805]	$2.0 (+0.3, -0.1)$ [0.079 (+0.012, -0.004)]	$1.25 \pm 0.2$ [0.049 ± 0.008]	$0.85 \pm 0.2$ [0.033 ± 0.008]	$0.5 \pm 0.3$ [0.020 ± 0.012]	0.80~1.20	0.80~1.20	0.90~1.60
3216 [1206]	$3.2 \pm 0.2$ [0.126 ± 0.008]	$1.6 \pm 0.2$ [0.063 ± 0.008]	$0.85 \pm 0.2$ [0.033 ± 0.008]	$0.5 \pm 0.3$ [0.020 ± 0.012]	1.80~2.50	1.00~1.50	1.20~2.00

**Appendix A: Electrical Characteristics**
**I. MLB0603 Series of Beads**

Part Number	Impedance ( $\Omega$ )	Z Test Freq. (MHz)	DCR ( $\Omega$ ) Max.	I <sub>r</sub> (mA) Max.	Thickness (mm) [inch]
MLB0603F-300T	30 $\pm$ 25%	100	0.35	300	0.3 $\pm$ 0.05 [.012 $\pm$ .002]
MLB0603F-600T	60 $\pm$ 25%	100	0.40	200	
MLB0603F-800T	80 $\pm$ 25%	100	0.40	200	
MLB0603F-121T	120 $\pm$ 25%	100	0.80	200	
MLB0603F-221T	220 $\pm$ 25%	100	1.00	200	
MLB0603F-601T	600 $\pm$ 25%	100	1.70	200	

**I. MLB1005 Series of Beads**

Part Number	Impedance ( $\Omega$ )	Z Test Freq. (MHz)	DCR ( $\Omega$ ) Max.	I <sub>r</sub> (mA) Max.	Thickness (mm) [inch]
MLB1005F-000T	0~10	100	0.05	500	0.5 $\pm$ 0.15 [.020 $\pm$ .006]
MLB1005F-100T	7~15	100	0.05	500	
MLB1005F-300T	30 $\pm$ 25%	100	0.20	300	
MLB1005F-310T	31 $\pm$ 25%	100	0.20	300	
MLB1005F-470T	47 $\pm$ 25%	100	0.25	300	
MLB1005F-600T	60 $\pm$ 25%	100	0.30	300	
MLB1005F-700T	70 $\pm$ 25%	100	0.30	200	
MLB1005F-800T	80 $\pm$ 25%	100	0.35	200	
MLB1005F-101T	100 $\pm$ 25%	100	0.40	200	
MLB1005F-121T	120 $\pm$ 25%	100	0.40	200	
MLB1005F-181T	180 $\pm$ 25%	100	0.45	150	
MLB1005F-221T	220 $\pm$ 25%	100	0.45	150	
MLB1005F-241T	240 $\pm$ 25%	100	0.50	150	
MLB1005F-301T	300 $\pm$ 25%	100	0.50	100	
MLB1005F-331T	330 $\pm$ 25%	100	0.50	100	
MLB1005F-421T	420 $\pm$ 25%	100	0.60	100	
MLB1005F-501T	500 $\pm$ 25%	100	0.80	100	
MLB1005F-601T	600 $\pm$ 25%	100	0.90	100	
MLB1005F-751T	750 $\pm$ 25%	100	1.00	100	
MLB1005F-102T	1000 $\pm$ 25%	100	1.20	100	
MLB1005F-152T	1500 $\pm$ 25%	100	1.60	100	
MLB1005F-182T	1800 $\pm$ 25%	100	1.80	100	

**II. MLB1608 Series of Beads**

Part Number	Impedance ( $\Omega$ )	Z Test Freq. (MHz)	DCR ( $\Omega$ ) Max.	I <sub>r</sub> (mA) Max.	Thickness (mm) [inch]
MLB1608F-000T	0~7	100	0.05	1000	0.8 $\pm$ 0.15 [.031 $\pm$ .006]
MLB1608F-070T	0~11	100	0.05	1000	
MLB1608F-100T	7~15	100	0.05	1000	
MLB1608F-150T	9~21	100	0.05	800	
MLB1608F-300T	30 $\pm$ 25%	100	0.10	600	
MLB1608F-310T	31 $\pm$ 25%	100	0.10	600	
MLB1608F-470T	47 $\pm$ 25%	100	0.10	600	
MLB1608F-600T	60 $\pm$ 25%	100	0.20	600	
MLB1608F-800T	80 $\pm$ 25%	100	0.20	600	
MLB1608F-101T	100 $\pm$ 25%	100	0.20	500	
MLB1608F-121T	120 $\pm$ 25%	100	0.20	500	
MLB1608F-151T	150 $\pm$ 25%	100	0.30	400	
MLB1608F-221T	220 $\pm$ 25%	100	0.30	400	
MLB1608F-301T	300 $\pm$ 25%	100	0.35	300	
MLB1608F-471T	470 $\pm$ 25%	100	0.50	300	
MLB1608F-501T	500 $\pm$ 25%	100	0.50	300	
MLB1608F-601T	600 $\pm$ 25%	100	0.50	300	
MLB1608F-801T	800 $\pm$ 25%	100	0.60	250	
MLB1608F-102T	1000 $\pm$ 25%	100	0.60	250	
MLB1608F-122T	1200 $\pm$ 25%	100	0.85	200	

**II. MLB1608 Series of Beads**

Part Number	Impedance ( $\Omega$ )	Z Test Freq. (MHz)	DCR ( $\Omega$ ) Max.	I <sub>r</sub> (mA) Max.	Thickness (mm) [inch]
MLB1608F-152T	1500±25%	100	0.85	200	0.8±0.15 [.031±.006]
MLB1608F-182T	1800±25%	100	1.10	100	
MLB1608F-202T	2000±25%	100	1.10	100	
MLB1608F-222T	2200±25%	100	1.20	100	
MLB1608F-252T	2500±25%	100	1.20	100	
MLB1608F-272T	2700±25%	100	1.30	100	

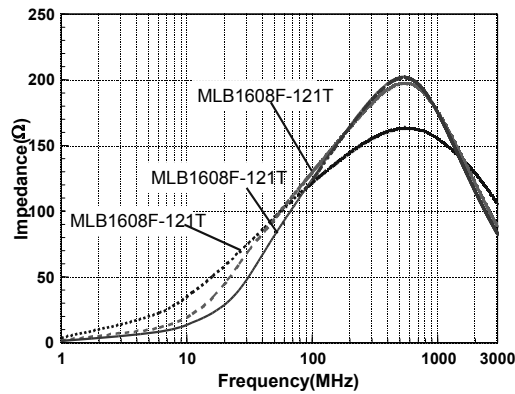
**III. MLB2012 Series of Beads**

Part Number	Impedance ( $\Omega$ )	Z Test Freq. (MHz)	DCR ( $\Omega$ ) Max.	I <sub>r</sub> (mA) Max.	Thickness (mm) [inch]
MLB2012F-000T	0~7	100	0.08	1500	0.85±0.2 [.033±.008]
MLB2012F-050T	0~11	100	0.08	1500	
MLB2012F-100T	7~15	100	0.10	1000	
MLB2012F-220T	22±25%	100	0.10	1000	
MLB2012F-300T	30±25%	100	0.10	1000	
MLB2012F-470T	47±25%	100	0.15	900	
MLB2012F-600T	60±25%	100	0.15	900	
MLB2012F-700T	70±25%	100	0.15	800	
MLB2012F-800T	80±25%	100	0.18	800	
MLB2012F-101T	100±25%	100	0.18	800	
MLB2012F-121T	120±25%	100	0.18	800	
MLB2012F-151T	150±25%	100	0.20	500	
MLB2012F-181T	180±25%	100	0.20	500	
MLB2012F-221T	220±25%	100	0.20	500	
MLB2012F-301T	300±25%	100	0.25	400	
MLB2012F-331T	330±25%	100	0.25	400	
MLB2012F-391T	390±25%	100	0.30	400	
MLB2012F-421T	420±25%	100	0.30	400	
MLB2012F-471T	470±25%	100	0.35	300	
MLB2012F-501T	500±25%	100	0.35	300	
MLB2012F-601T	600±25%	100	0.35	300	
MLB2012F-801T	800±25%	100	0.40	300	
MLB2012F-102T	1000±25%	100	0.35	300	
MLB2012F-122T	1200±25%	100	0.60	200	
MLB2012F-152T	1500±25%	100	0.70	200	
MLB2012F-182T	1800±25%	100	0.80	200	
MLB2012F-202T	2000±25%	100	0.90	100	
MLB2012F-222T	2200±25%	100	0.90	100	
MLB2012F-252T	2500±25%	100	1.20	100	
MLB2012F-272T	2700±25%	100	1.30	100	

**IV. MLB 3216 Series of Beads**

Part Number	Impedance ( $\Omega$ )	Z Test Freq. (MHz)	DCR ( $\Omega$ ) Max.	Ir (mA) Max.	Thickness (mm) [inch]
MLB3216F-000T	0~15	100	0.03	2200	0.85±0.2 [.033±.008]
MLB3216F-100T	0~15	100	0.03	2200	
MLB3216F-220T	22±25%	100	0.05	2000	
MLB3216F-300T	30±25%	100	0.05	2000	
MLB3216F-310T	31±25%	100	0.05	2000	
MLB3216F-500T	50±25%	100	0.10	1000	
MLB3216F-600T	60±25%	100	0.10	1000	
MLB3216F-800T	80±25%	100	0.10	1000	
MLB3216F-900T	90±25%	100	0.10	1000	
MLB3216F-101T	100±25%	100	0.10	1000	
MLB3216F-121T	120±25%	100	0.10	1000	
MLB3216F-181T	180±25%	100	0.20	600	
MLB3216F-221T	220±25%	100	0.20	600	
MLB3216F-301T	300±25%	100	0.20	600	
MLB3216F-331T	330±25%	100	0.20	600	
MLB3216F-391T	390±25%	100	0.25	600	
MLB3216F-471T	470±25%	100	0.30	600	
MLB3216F-501T	500±25%	100	0.30	600	
MLB3216F-601T	600±25%	100	0.30	600	
MLB3216F-801T	800±25%	100	0.35	500	
MLB3216F-102T	1000±25%	100	0.60	500	
MLB3216F-122T	1200±25%	100	0.70	300	
MLB3216F-152T	1500±25%	100	0.80	200	
MLB3216F-202T	2000±25%	100	1.00	100	
MLB3216F-252T	2500±25%	100	1.20	100	
MLB3216F-272T	2700±25%	100	1.50	100	

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**Impedance Frequency Characteristics**

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