

Inductors

For General Applications SMD

MLF Series MLF2012 Type

FEATURES

- High-reliability monolithic structure.
- Ferrite core and magnetic shielding enables the design of compact circuits with high packing density.
- Excellent solderability and high heat resistance permits either flow or reflow soldering.

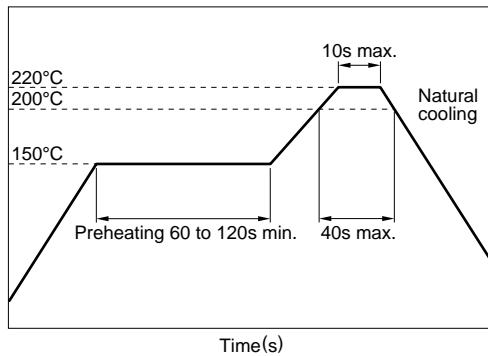
APPLICATIONS

Personal computers, HDDs, or other various electronic appliances.

SPECIFICATIONS

| | |
|-----------------------------|--------------------------------|
| Operating temperature range | -25 to +85°C |
| Storage temperature range | -40 to +85°C[Unit of products] |

RECOMMENDED REFLOW SOLDERING CONDITIONS



PRODUCT IDENTIFICATION

| | | | | | |
|-----|------|-----|-----|-----|-----|
| MLF | 1608 | A | 1R0 | K | T |
| (1) | (2) | (3) | (4) | (5) | (6) |

(1) Series name

(2) Dimensions L×W

| | |
|------|------------|
| 1608 | 1.6×0.8mm |
| 2012 | 2.0×1.25mm |

(3) Material code

(4) Inductance value

| | |
|-----|---------------|
| 47N | 47nH[0.047μH] |
| R15 | 0.15μH |
| 1R0 | 1μH |
| 100 | 10μH |

(5) Inductance tolerance

| | |
|---|------|
| K | ±10% |
| M | ±20% |

(6) Packaging style

| | |
|---|---------------|
| T | Taping [reel] |
|---|---------------|

PACKAGING STYLE AND QUANTITIES

| Packaging style | Product's thickness | Quantity |
|-----------------|---------------------|------------------|
| Taping | 0.8/0.85mm | 4000 pieces/reel |
| | 1.25mm | 2000 pieces/reel |

HANDLING AND PRECAUTIONS

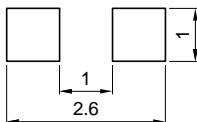
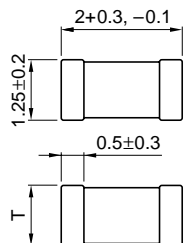
- Before soldering, be sure to preheat components.
The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- The inductance value may change due to magnetic saturation if the current exceeds the rated maximum.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 300°C. Soldering time should not exceed 3 seconds.

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SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



| T | Weight(mg) |
|----------|------------|
| 0.85±0.2 | 10 |
| 1.25±0.2 | 14 |

Dimensions in mm

ELECTRICAL CHARACTERISTICS

| Inductance (μH) | Inductance tolerance | Q | | Test frequency L, Q (MHz) | Self-resonant frequency (MHz) | | DC resistance (Ω) | | Rated current (mA) max. | Thickness T (mm) | Part No. |
|-----------------|----------------------|------|------|---------------------------|-------------------------------|------|-------------------|------|-------------------------|------------------|-------------------|
| | | min. | nom. | | min. | nom. | max. | nom. | | | |
| 0.047 | ±20% | 15 | 25 | 50 | 320 | 400 | 0.2 | 0.11 | 300 | 0.85 | MLF2012D47N*1X*2T |
| 0.068 | ±20% | 15 | 25 | 50 | 280 | 350 | 0.2 | 0.11 | 300 | 0.85 | MLF2012D68NXT |
| 0.082 | ±20% | 15 | 25 | 50 | 255 | 320 | 0.2 | 0.11 | 300 | 0.85 | MLF2012D82NXT |
| 0.1 | ±20, ±10% | 20 | 30 | 25 | 235 | 300 | 0.3 | 0.16 | 250 | 0.85 | MLF2012DR10XT |
| 0.12 | ±20, ±10% | 20 | 30 | 25 | 220 | 280 | 0.3 | 0.16 | 250 | 0.85 | MLF2012DR12XT |
| 0.15 | ±20, ±10% | 20 | 30 | 25 | 200 | 250 | 0.4 | 0.21 | 250 | 0.85 | MLF2012DR15XT |
| 0.18 | ±20, ±10% | 20 | 30 | 25 | 185 | 230 | 0.4 | 0.21 | 250 | 0.85 | MLF2012DR18XT |
| 0.22 | ±20, ±10% | 20 | 30 | 25 | 170 | 220 | 0.5 | 0.26 | 250 | 0.85 | MLF2012DR22XT |
| 0.27 | ±20, ±10% | 20 | 30 | 25 | 150 | 200 | 0.5 | 0.26 | 250 | 0.85 | MLF2012DR27XT |
| 0.33 | ±20, ±10% | 20 | 30 | 25 | 145 | 180 | 0.55 | 0.31 | 250 | 0.85 | MLF2012DR33XT |
| 0.39 | ±20, ±10% | 25 | 35 | 25 | 135 | 170 | 0.65 | 0.36 | 200 | 0.85 | MLF2012DR39XT |
| 0.47 | ±20, ±10% | 25 | 35 | 25 | 125 | 160 | 0.65 | 0.36 | 200 | 1.25 | MLF2012DR47XT |
| 0.56 | ±20, ±10% | 25 | 35 | 25 | 115 | 150 | 0.75 | 0.41 | 150 | 1.25 | MLF2012DR56XT |
| 0.68 | ±20, ±10% | 25 | 35 | 25 | 105 | 135 | 0.8 | 0.46 | 150 | 1.25 | MLF2012DR68XT |
| 0.82 | ±20, ±10% | 25 | 35 | 25 | 100 | 125 | 1 | 0.56 | 150 | 1.25 | MLF2012DR82XT |
| 1 | ±20, ±10% | 45 | 55 | 10 | 75 | 105 | 0.4 | 0.21 | 50 | 0.85 | MLF2012A1R0XT |
| 1.2 | ±20, ±10% | 45 | 55 | 10 | 65 | 95 | 0.5 | 0.26 | 50 | 0.85 | MLF2012A1R2XT |
| 1.5 | ±20, ±10% | 45 | 55 | 10 | 60 | 85 | 0.5 | 0.26 | 50 | 0.85 | MLF2012A1R5XT |
| 1.8 | ±20, ±10% | 45 | 55 | 10 | 55 | 78 | 0.6 | 0.31 | 50 | 0.85 | MLF2012A1R8XT |
| 2.2 | ±20, ±10% | 45 | 60 | 10 | 50 | 70 | 0.65 | 0.36 | 30 | 0.85 | MLF2012A2R2XT |
| 2.7 | ±20, ±10% | 45 | 60 | 10 | 45 | 64 | 0.75 | 0.41 | 30 | 1.25 | MLF2012A2R7XT |
| 3.3 | ±20, ±10% | 45 | 60 | 10 | 41 | 58 | 0.8 | 0.46 | 30 | 1.25 | MLF2012A3R3XT |
| 3.9 | ±20, ±10% | 45 | 60 | 10 | 38 | 53 | 0.9 | 0.51 | 30 | 1.25 | MLF2012A3R9XT |
| 4.7 | ±20, ±10% | 45 | 60 | 10 | 35 | 48 | 1 | 0.56 | 30 | 1.25 | MLF2012A4R7XT |
| 5.6 | ±20, ±10% | 50 | 60 | 4 | 32 | 44 | 0.9 | 0.51 | 15 | 1.25 | MLF2012E5R6XT |
| 6.8 | ±20, ±10% | 50 | 60 | 4 | 29 | 40 | 1 | 0.56 | 15 | 1.25 | MLF2012E6R8XT |
| 8.2 | ±20, ±10% | 50 | 60 | 4 | 26 | 36 | 1.1 | 0.61 | 15 | 1.25 | MLF2012E8R2XT |
| 10 | ±20, ±10% | 50 | 60 | 2 | 24 | 33 | 1.15 | 0.66 | 15 | 1.25 | MLF2012E100XT |
| 12 | ±20, ±10% | 50 | 60 | 2 | 22 | 30 | 1.25 | 0.71 | 15 | 1.25 | MLF2012E120XT |
| 15 | ±20, ±10% | 30 | 40 | 1 | 19 | 27 | 0.8 | 0.46 | 5 | 1.25 | MLF2012C150XT |
| 18 | ±20, ±10% | 30 | 40 | 1 | 18 | 25 | 0.9 | 0.51 | 5 | 1.25 | MLF2012C180XT |
| 22 | ±20, ±10% | 30 | 40 | 1 | 16 | 22 | 1.1 | 0.61 | 5 | 1.25 | MLF2012C220XT |
| 27 | ±20, ±10% | 30 | 40 | 1 | 14 | 20 | 1.15 | 0.66 | 5 | 1.25 | MLF2012C270XT |
| 33 | ±20, ±10% | 30 | 40 | 0.4 | 13 | 18 | 1.25 | 0.71 | 5 | 1.25 | MLF2012C330XT |
| 39 | ±20, ±10% | 35 | 55 | 2 | 8 | 15 | 2.9 | 2 | 4 | 1.25 | MLF2012K390XT |
| 47 | ±20, ±10% | 35 | 55 | 2 | 7.5 | 14 | 3 | 2.1 | 4 | 1.25 | MLF2012K470XT |
| 56 | ±20, ±10% | 35 | 55 | 2 | 7 | 13 | 3.1 | 2.2 | 4 | 1.25 | MLF2012K560XT |
| 68 | ±20, ±10% | 25 | 40 | 1 | 6.5 | 12 | 2.9 | 2 | 2 | 1.25 | MLF2012C680XT |
| 82 | ±20, ±10% | 25 | 40 | 1 | 6 | 11 | 3 | 2.1 | 2 | 1.25 | MLF2012C820XT |
| 100 | ±20, ±10% | 25 | 40 | 1 | 5.5 | 10 | 3.1 | 2.2 | 2 | 1.25 | MLF2012C101XT |

*1 47N means for 47nH (0.047μH).

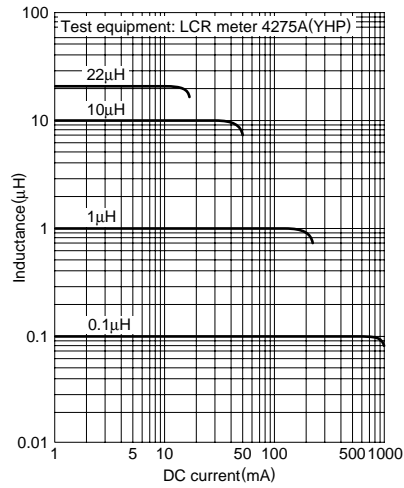
*2 X: Please specify inductance tolerance, M(±20%) or K(±10%)

Inductors

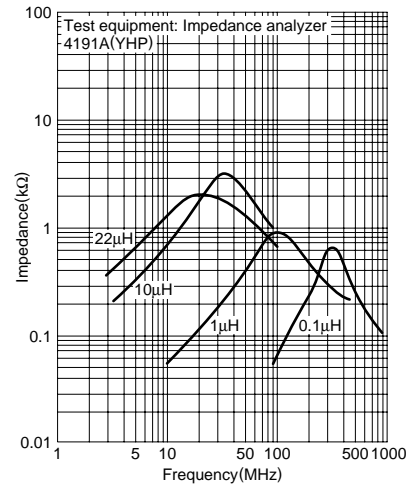
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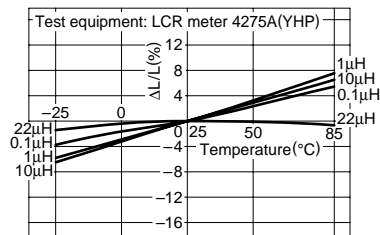
TYPICAL ELECTRICAL CHARACTERISTICS INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



IMPEDANCE vs. FREQUENCY CHARACTERISTICS



INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



Q vs. FREQUENCY CHARACTERISTICS

