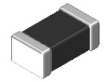


## Multilayer Chip Ferrite Inductors---MLF Series



### Feature

- High reliability.
- No cross coupling due to magnetic shield.
- Perfect shape for mounting with no directionality.
- RoHS compliant.
- Operating temperature range  $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$  (Including self - temperature rise).

### Application

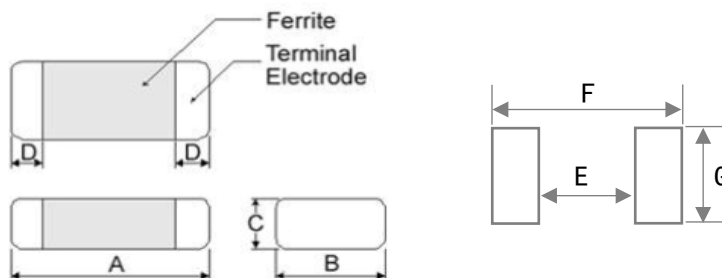
- Communications, Computer, Remote control, etc.
- Filter switches.
- Adjustment networks.

### Production identification

MLF  
①
1608  
②
- 2R2  
③
K  
④

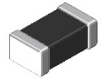
- ① Series name
- ② Size:  $1.6 \times 0.8 \times 0.8\text{mm}$
- ③ Inductance:  $2.2\mu\text{H}$
- ④ Tolerance: K= $\pm 10\%$ , M= $20\%$

### Series Shape and Dimensions (Unit:mm)



| Series    | A(mm)          | B(mm)          | C(mm)          | D(mm)          | $E_{\text{Typ}}$ | $F_{\text{Typ}}$ | $G_{\text{Typ}}$ | SPQ   |
|-----------|----------------|----------------|----------------|----------------|------------------|------------------|------------------|-------|
| MLF1005   | $1.0 \pm 0.15$ | $0.5 \pm 0.15$ | $0.5 \pm 0.15$ | $0.25 \pm 0.1$ | 0.5              | 1.2              | 0.5              | 10000 |
| MLF1608/A | $1.6 \pm 0.2$  | $0.8 \pm 0.2$  | $0.8 \pm 0.2$  | $0.3 \pm 0.2$  | 0.7              | 2.2              | 0.8              | 4000  |
| MLF2012/A | $2.0 \pm 0.2$  | $1.2 \pm 0.2$  | $0.9 \pm 0.2$  | $0.5 \pm 0.3$  | 1.2              | 3.0              | 1.0              | 4000  |
|           |                |                | $1.2 \pm 0.2$  |                |                  |                  |                  | 3000  |
| MLF3216/A | $3.2 \pm 0.2$  | $1.6 \pm 0.2$  | $0.9 \pm 0.2$  | $0.5 \pm 0.3$  | 2.0              | 4.2              | 1.2              | 4000  |
|           |                |                | $1.1 \pm 0.2$  |                |                  |                  |                  | 3000  |

## Multilayer Chip Ferrite Inductors---MLF Series

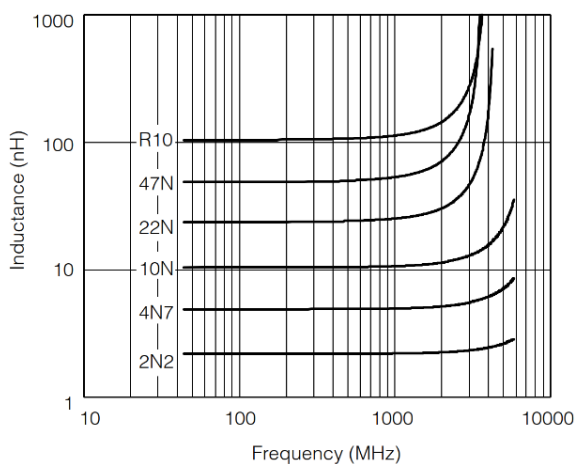


### Electrical Characteristics

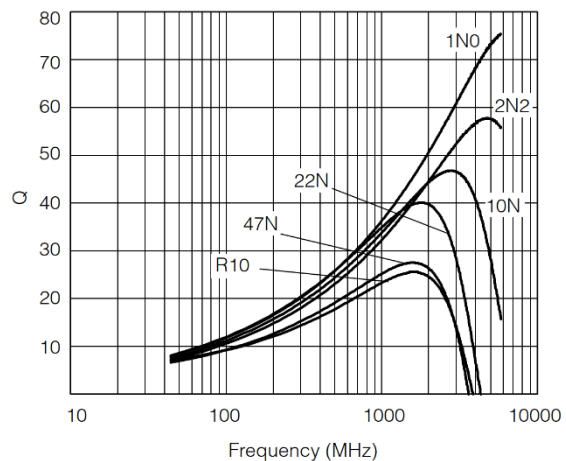
| Part Number  | Inductance (μH) | Quality Factor(Min) | Test Freq. (MHz) | S.R.F (MHz) | DCR Max(Ω) | Current (mA) |
|--------------|-----------------|---------------------|------------------|-------------|------------|--------------|
| MLF1005-47NK | 0.047           | 10                  | 50               | 220         | 0.45       | 25           |
| MLF1005-56NK | 0.056           | 10                  | 50               | 210         | 0.45       | 25           |
| MLF1005-68NK | 0.068           | 10                  | 50               | 210         | 0.45       | 25           |
| MLF1005-82NK | 0.082           | 10                  | 50               | 200         | 0.45       | 25           |
| MLF1005-R10K | 0.10            | 15                  | 25               | 200         | 0.70       | 25           |
| MLF1005-R12K | 0.12            | 15                  | 25               | 165         | 0.70       | 25           |
| MLF1005-R15K | 0.15            | 15                  | 25               | 140         | 0.80       | 25           |
| MLF1005-R18K | 0.18            | 15                  | 25               | 120         | 0.80       | 25           |
| MLF1005-R22K | 0.22            | 15                  | 25               | 110         | 1.00       | 25           |
| MLF1005-R27K | 0.27            | 15                  | 25               | 95          | 1.20       | 25           |
| MLF1005-R33K | 0.33            | 15                  | 25               | 85          | 1.20       | 25           |
| MLF1005-R39k | 0.39            | 15                  | 10               | 70          | 0.60       | 20           |
| MLF1005-R47K | 0.47            | 15                  | 10               | 68          | 0.70       | 20           |
| MLF1005-R56K | 0.56            | 15                  | 10               | 55          | 0.80       | 20           |
| MLF1005-R68K | 0.68            | 15                  | 10               | 50          | 0.90       | 20           |
| MLF1005-R82K | 0.82            | 15                  | 10               | 45          | 0.90       | 18           |
| MLF1005-1R0K | 1.0             | 20                  | 10               | 40          | 0.90       | 15           |
| MLF1005-1R2K | 1.2             | 20                  | 10               | 35          | 1.20       | 15           |

### Typical Electrical Graphs

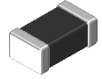
Inductance vs. Frequency



Q vs. Frequency



## Multilayer Chip Ferrite Inductors---MLF Series

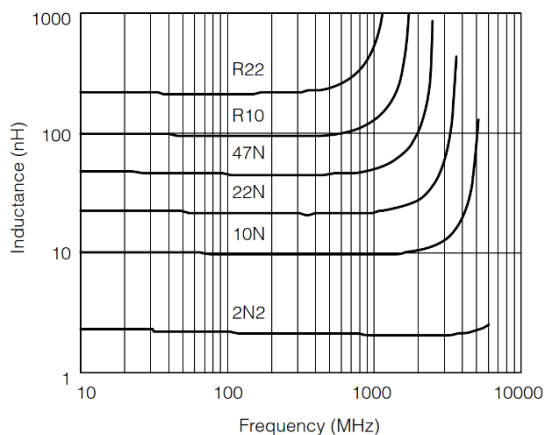


### MLF1608 Electrical Characteristics

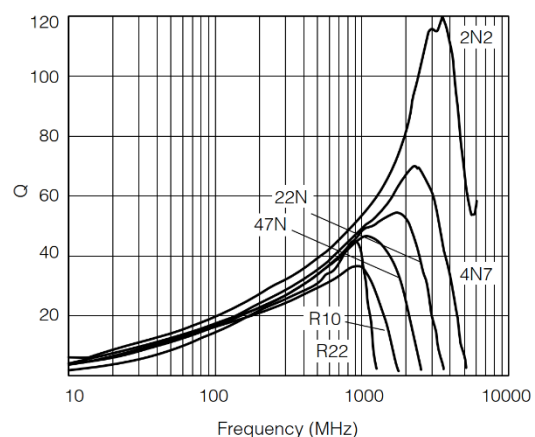
| Part Number  | Inductance (μH) | Quality Factor(Min) | Test Freq. (MHz) | S.R.F (MHz) | DCR Max(Ω) | Current (mA) |
|--------------|-----------------|---------------------|------------------|-------------|------------|--------------|
| MLF1608-47NK | 0.047           | 15                  | 50               | 260         | 0.20       | 50           |
| MLF1608-68NK | 0.068           | 15                  | 50               | 250         | 0.20       | 50           |
| MLF1608-R10K | 0.10            | 20                  | 25               | 240         | 0.25       | 50           |
| MLF1608-R15K | 0.15            | 20                  | 25               | 180         | 0.30       | 50           |
| MLF1608-R22K | 0.22            | 20                  | 25               | 150         | 0.40       | 50           |
| MLF1608-R27K | 0.27            | 20                  | 25               | 136         | 0.45       | 50           |
| MLF1608-R33K | 0.33            | 20                  | 25               | 125         | 0.50       | 50           |
| MLF1608-R39k | 0.39            | 20                  | 25               | 110         | 0.60       | 50           |
| MLF1608-R47K | 0.47            | 20                  | 25               | 105         | 0.70       | 50           |
| MLF1608-R56K | 0.56            | 20                  | 25               | 95          | 0.70       | 50           |
| MLF1608-R68K | 0.68            | 20                  | 25               | 90          | 0.90       | 50           |
| MLF1608-R82K | 0.82            | 20                  | 25               | 85          | 1.00       | 50           |
| MLF1608-1R0K | 1.0             | 25                  | 10               | 75          | 0.50       | 25           |
| MLF1608-1R5K | 1.5             | 25                  | 10               | 60          | 0.70       | 25           |
| MLF1608-1R8K | 1.8             | 25                  | 10               | 55          | 0.75       | 25           |
| MLF1608-2R2K | 2.2             | 25                  | 10               | 50          | 0.80       | 25           |
| MLF1608-2R7K | 2.7             | 25                  | 10               | 45          | 0.90       | 15           |
| MLF1608-3R3K | 3.3             | 25                  | 10               | 40          | 1.00       | 15           |
| MLF1608-4R7K | 4.7             | 25                  | 10               | 33          | 1.50       | 15           |
| MLF1608-5R6K | 5.6             | 12                  | 4                | 22          | 1.55       | 5            |
| MLF1608-6R8K | 6.8             | 12                  | 4                | 20          | 1.55       | 5            |
| MLF1608-8R2K | 8.2             | 12                  | 4                | 18          | 1.65       | 5            |
| MLF1608-100K | 10              | 20                  | 2                | 17          | 1.75       | 3            |
| MLF1608-120K | 12              | 20                  | 2                | 15          | 1.85       | 3            |
| MLF1608-150M | 15              | 20                  | 1                | 14          | 2.50       | 1            |
| MLF1608-180M | 18              | 20                  | 1                | 13          | 2.70       | 1            |
| MLF1608-220M | 22              | 20                  | 1                | 12          | 3.00       | 1            |

### Typical Electrical Graphs

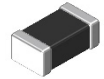
#### Inductance vs. Frequency



#### Q vs. Frequency



## Multilayer Chip Ferrite Inductors---MLF Series

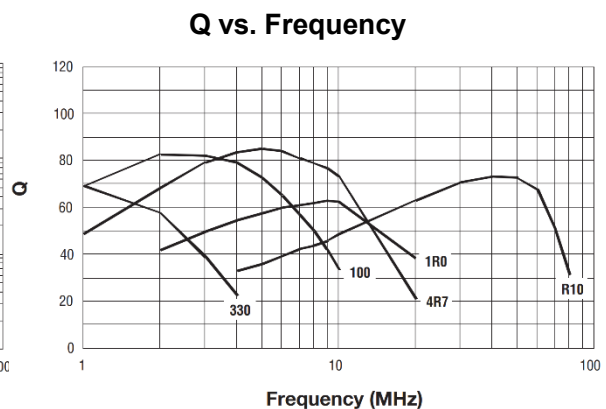
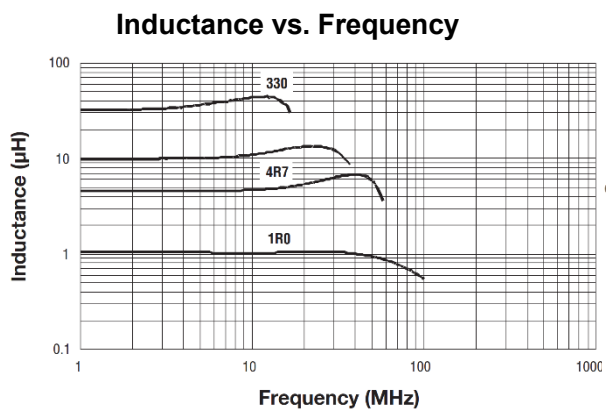


### MLF2012 Electrical Characteristics

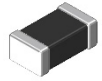
| Part Number   | Inductance (μH) | Quality Factor(Min) | Test Freq. (MHz) | S.R.F (MHz) | DCR Max(Ω) | Current (mA) |
|---------------|-----------------|---------------------|------------------|-------------|------------|--------------|
| MLF2012-47NK  | 0.047           | 25                  | 50               | 320         | 0.15       | 300          |
| MLF2012-R10K  | 0.10            | 20                  | 25               | 235         | 0.20       | 250          |
| MLF2012-R15K  | 0.15            | 20                  | 25               | 200         | 0.25       | 250          |
| MLF2012-R22K  | 0.22            | 20                  | 25               | 170         | 0.30       | 250          |
| MLF2012-R27K  | 0.27            | 20                  | 25               | 150         | 0.40       | 250          |
| MLF2012-R33K  | 0.33            | 20                  | 25               | 145         | 0.40       | 250          |
| MLF2012-R47K  | 0.47            | 25                  | 25               | 125         | 0.50       | 200          |
| MLF2012-R56K  | 0.56            | 25                  | 25               | 115         | 0.60       | 150          |
| MLF2012-R68K  | 0.68            | 25                  | 25               | 105         | 0.65       | 150          |
| MLF2012-R82K  | 0.82            | 25                  | 25               | 100         | 0.82       | 150          |
| MLF2012-1R0K  | 1.0             | 35                  | 10               | 75          | 0.40       | 50           |
| MLF2012-1R5K  | 1.5             | 35                  | 10               | 60          | 0.40       | 50           |
| MLF2012-1R8K  | 1.8             | 35                  | 10               | 55          | 0.40       | 50           |
| MLF2012-2R2K  | 2.2             | 35                  | 10               | 50          | 0.60       | 50           |
| MLF2012-3R3K  | 3.3             | 35                  | 10               | 41          | 0.60       | 50           |
| MLF2012-4R7K  | 4.7             | 35                  | 10               | 35          | 0.90       | 30           |
| MLF2012-5R6K  | 5.6             | 30                  | 4                | 32          | 1.00       | 15           |
| MLF2012-6R8K  | 6.8             | 30                  | 4                | 29          | 1.05       | 15           |
| MLF2012-8R2K  | 8.2             | 30                  | 4                | 26          | 1.05       | 15           |
| MLF2012-100K  | 10              | 30                  | 2                | 24          | 1.15       | 15           |
| MLF2012-120K  | 12              | 30                  | 2                | 22          | 1.15       | 15           |
| MLF2012-150K  | 15              | 25                  | 1                | 18          | 1.15       | 5            |
| MLF2012-180K  | 18              | 25                  | 1                | 16          | 1.20       | 5            |
| MLF2012-220K  | 22              | 25                  | 1                | 16          | 1.20       | 5            |
| MLF2012-330M  | 33              | 25                  | 1                | 16          | 1.50       | 5            |
| MLF2012-390M* | 39              | 25                  | 1                | 16          | 1.50       | 5            |
| MLF2012-470M* | 47              | 25                  | 1                | 15          | 1.70       | 5            |

\* The height is 1.2±0.2 mm, the other height is 0.9±0.2mm.

### Typical Electrical Graphs



## Multilayer Chip Ferrite Inductors---MLF Series

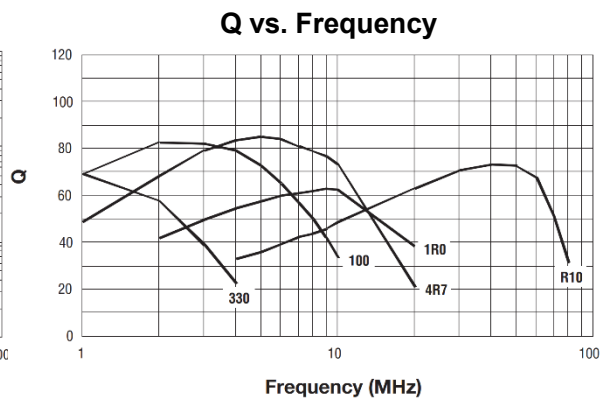
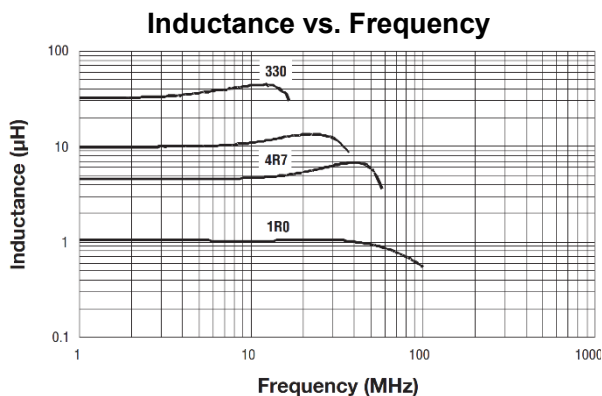


### MLF3216 Electrical Characteristics

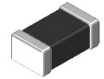
| Part Number   | Inductance (μH) | Quality Factor(Min) | Test Freq. (MHz) | S.R.F (MHz) | DCR Max(Ω) | Current (mA) |
|---------------|-----------------|---------------------|------------------|-------------|------------|--------------|
| MLF3216-47NK  | 0.047           | 30                  | 50               | 320         | 0.15       | 300          |
| MLF3216-R10K  | 0.10            | 25                  | 25               | 235         | 0.25       | 250          |
| MLF3216-R15K  | 0.15            | 25                  | 25               | 200         | 0.25       | 250          |
| MLF3216-R22K  | 0.22            | 25                  | 25               | 170         | 0.30       | 250          |
| MLF3216-R33K  | 0.33            | 25                  | 25               | 145         | 0.30       | 250          |
| MLF3216-R47K  | 0.47            | 30                  | 25               | 125         | 0.50       | 200          |
| MLF3216-R68K  | 0.68            | 30                  | 25               | 105         | 0.50       | 150          |
| MLF3216-1R0K  | 1.0             | 35                  | 10               | 75          | 0.30       | 100          |
| MLF3216-1R2K  | 1.2             | 35                  | 10               | 65          | 0.40       | 100          |
| MLF3216-1R5K  | 1.5             | 35                  | 10               | 60          | 0.40       | 50           |
| MLF3216-1R8K  | 1.8             | 35                  | 10               | 55          | 0.40       | 50           |
| MLF3216-2R2K  | 2.2             | 35                  | 10               | 50          | 0.50       | 50           |
| MLF3216-2R7K  | 2.7             | 35                  | 10               | 45          | 0.50       | 50           |
| MLF3216-3R3K  | 3.3             | 35                  | 10               | 41          | 0.50       | 50           |
| MLF3216-3R9K  | 3.9             | 35                  | 10               | 38          | 0.60       | 50           |
| MLF3216-4R7K  | 4.7             | 35                  | 10               | 35          | 0.65       | 25           |
| MLF3216-6R8K  | 6.8             | 35                  | 4                | 29          | 0.80       | 25           |
| MLF3216-8R2K  | 8.2             | 35                  | 4                | 26          | 0.80       | 25           |
| MLF3216-100K  | 10              | 35                  | 2                | 24          | 0.80       | 25           |
| MLF3216-220K  | 22              | 30                  | 1                | 16          | 1.20       | 5            |
| MLF3216-330K  | 33              | 30                  | 1                | 13          | 1.30       | 5            |
| MLF3216-390K  | 39              | 30                  | 1                | 13          | 1.30       | 5            |
| MLF3216-470K* | 47              | 30                  | 1                | 12          | 1.60       | 5            |
| MLF3216-560M* | 56              | 30                  | 1                | 12          | 1.80       | 5            |
| MLF3216-680M* | 68              | 30                  | 1                | 11          | 2.00       | 5            |

\* The height is 1.1±0.2 mm, the other height is 0.9±0.2mm.

### Typical Electrical Graphs



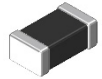
## Multilayer Chip Ferrite Inductors---MLF Series



### MLF1608A Electrical Characteristics

| Part Number   | Inductance (μH) | Tolerance (±%) | Test Freq. (MHz) | S.R.F (MHz) | DCR Max(Ω) | Current (mA) |
|---------------|-----------------|----------------|------------------|-------------|------------|--------------|
| MLF1608A-47NM | 0.047           | 20             | 1                | 260         | 0.12       | 150          |
| MLF1608A-47NM | 0.056           | 20             | 1                | 260         | 0.12       | 150          |
| MLF1608A-68NM | 0.068           | 20             | 1                | 250         | 0.12       | 150          |
| MLF1608A-82NM | 0.082           | 20             | 1                | 245         | 0.12       | 150          |
| MLF1608A-R10M | 0.10            | 20             | 1                | 240         | 0.15       | 150          |
| MLF1608A-R12M | 0.12            | 20             | 1                | 205         | 0.20       | 150          |
| MLF1608A-R15M | 0.15            | 20             | 1                | 180         | 0.20       | 150          |
| MLF1608A-R18M | 0.18            | 20             | 1                | 165         | 0.20       | 150          |
| MLF1608A-R22M | 0.22            | 20             | 1                | 150         | 0.25       | 150          |
| MLF1608A-R27M | 0.27            | 20             | 1                | 136         | 0.30       | 100          |
| MLF1608A-R33M | 0.33            | 20             | 1                | 125         | 0.30       | 100          |
| MLF1608A-R39M | 0.39            | 20             | 1                | 110         | 0.35       | 100          |
| MLF1608A-R47M | 0.47            | 20             | 1                | 105         | 0.45       | 100          |
| MLF1608A-R56M | 0.56            | 20             | 1                | 95          | 0.45       | 100          |
| MLF1608A-R68M | 0.68            | 20             | 1                | 90          | 0.55       | 100          |
| MLF1608A-R82M | 0.82            | 20             | 1                | 85          | 0.60       | 100          |
| MLF1608A-1R0M | 1.0             | 20             | 1                | 75          | 0.30       | 150          |
| MLF1608A-1R2M | 1.2             | 20             | 1                | 65          | 0.30       | 150          |
| MLF1608A-1R5M | 1.5             | 20             | 1                | 60          | 0.35       | 120          |
| MLF1608A-1R8M | 1.8             | 20             | 1                | 55          | 0.40       | 120          |
| MLF1608A-2R2M | 2.2             | 20             | 1                | 50          | 0.50       | 120          |
| MLF1608A-2R7M | 2.7             | 20             | 1                | 45          | 0.60       | 100          |
| MLF1608A-3R3M | 3.3             | 20             | 1                | 40          | 0.65       | 100          |
| MLF1608A-3R9M | 3.9             | 20             | 1                | 35          | 0.70       | 80           |
| MLF1608A-4R7M | 4.7             | 20             | 1                | 33          | 0.75       | 80           |
| MLF1608A-5R6M | 5.6             | 20             | 1                | 22          | 0.90       | 60           |
| MLF1608A-6R8M | 6.8             | 20             | 1                | 20          | 0.90       | 60           |
| MLF1608A-8R2M | 8.2             | 20             | 1                | 18          | 1.05       | 60           |
| MLF1608A-100M | 10              | 20             | 1                | 17          | 1.15       | 60           |
| MLF1608A-120M | 12              | 20             | 1                | 15          | 1.25       | 60           |

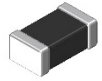
## Multilayer Chip Ferrite Inductors---MLF Series



### MLF2012A Electrical Characteristics

| Part Number   | Inductance (μH) | Tolerance (±%) | Test Freq. (MHz) | S.R.F (MHz) | DCR Max(Ω) | Current (mA) |
|---------------|-----------------|----------------|------------------|-------------|------------|--------------|
| MLF2012A-47NM | 0.047           | 20             | 1                | 280         | 0.10       | 1100         |
| MLF2012A-56NM | 0.056           | 20             | 1                | 280         | 0.10       | 1100         |
| MLF2012A-68NM | 0.068           | 20             | 1                | 250         | 0.15       | 1100         |
| MLF2012A-82NM | 0.082           | 20             | 1                | 250         | 0.15       | 1100         |
| MLF2012A-R10M | 0.10            | 20             | 1                | 210         | 0.15       | 1100         |
| MLF2012A-R12M | 0.12            | 20             | 1                | 200         | 0.15       | 1100         |
| MLF2012A-R15M | 0.15            | 20             | 1                | 175         | 0.15       | 1100         |
| MLF2012A-R18M | 0.18            | 20             | 1                | 160         | 0.15       | 1100         |
| MLF2012A-R22M | 0.22            | 20             | 1                | 150         | 0.15       | 1100         |
| MLF2012A-R27M | 0.27            | 20             | 1                | 130         | 0.15       | 1100         |
| MLF2012A-R33M | 0.33            | 20             | 1                | 120         | 0.15       | 1100         |
| MLF2012A-R39M | 0.39            | 20             | 1                | 110         | 0.15       | 1100         |
| MLF2012A-R47M | 0.47            | 20             | 1                | 100         | 0.15       | 1100         |
| MLF2012A-R56M | 0.56            | 20             | 1                | 100         | 0.36       | 800          |
| MLF2012A-R68M | 0.68            | 20             | 1                | 95          | 0.36       | 800          |
| MLF2012A-R82M | 0.82            | 20             | 1                | 90          | 0.36       | 800          |
| MLF2012A-1R0M | 1.0             | 20             | 1                | 75          | 0.24       | 800          |
| MLF2012A-1R2M | 1.2             | 20             | 1                | 65          | 0.24       | 800          |
| MLF2012A-1R5M | 1.5             | 20             | 1                | 60          | 0.30       | 700          |
| MLF2012A-1R8M | 1.8             | 20             | 1                | 55          | 0.36       | 600          |
| MLF2012A-2R2M | 2.2             | 20             | 1                | 50          | 0.36       | 600          |
| MLF2012A-2R7M | 2.7             | 20             | 1                | 45          | 0.36       | 600          |
| MLF2012A-3R3M | 3.3             | 20             | 1                | 41          | 0.40       | 350          |
| MLF2012A-3R9M | 3.9             | 20             | 1                | 38          | 0.40       | 350          |
| MLF2012A-4R7M | 4.7             | 20             | 1                | 35          | 0.40       | 350          |
| MLF2012A-5R6M | 5.6             | 20             | 1                | 32          | 0.50       | 250          |
| MLF2012A-6R8M | 6.8             | 20             | 1                | 29          | 0.50       | 250          |
| MLF2012A-8R2M | 8.2             | 20             | 1                | 26          | 0.56       | 250          |
| MLF2012A-100M | 10              | 20             | 1                | 24          | 0.56       | 250          |
| MLF2012A-120M | 12              | 20             | 1                | 22          | 0.56       | 250          |
| MLF2012A-150M | 15              | 20             | 1                | 19          | 0.65       | 100          |
| MLF2012A-180M | 18              | 20             | 1                | 18          | 0.65       | 100          |
| MLF2012A-220M | 22              | 20             | 1                | 16          | 0.65       | 100          |

## Multilayer Chip Ferrite Inductors---MLF Series



### MLF3216A Electrical Characteristics

| Part Number   | Inductance<br>( $\mu$ H) | Tolerance<br>( $\pm$ %) | Test Freq.<br>(MHz) | S.R.F<br>(MHz) | DCR<br>Max( $\Omega$ ) | Current<br>(mA) |
|---------------|--------------------------|-------------------------|---------------------|----------------|------------------------|-----------------|
| MLF3216A-1R0M | 1.0                      | 20                      | 1                   | 60             | 0.15                   | 1200            |
| MLF3216A-1R2M | 1.2                      | 20                      | 1                   | 65             | 0.15                   | 1200            |
| MLF3216A-1R5M | 1.5                      | 20                      | 1                   | 60             | 0.17                   | 1000            |
| MLF3216A-1R8M | 1.8                      | 20                      | 1                   | 55             | 0.24                   | 900             |
| MLF3216A-2R2M | 2.2                      | 20                      | 1                   | 50             | 0.24                   | 900             |
| MLF3216A-2R7M | 2.7                      | 20                      | 1                   | 45             | 0.30                   | 800             |
| MLF3216A-3R3M | 3.3                      | 20                      | 1                   | 41             | 0.30                   | 800             |
| MLF3216A-3R9M | 3.9                      | 20                      | 1                   | 38             | 0.38                   | 700             |
| MLF3216A-4R7M | 4.7                      | 20                      | 1                   | 35             | 0.38                   | 700             |
| MLF3216A-5R6M | 5.6                      | 20                      | 1                   | 32             | 0.45                   | 500             |
| MLF3216A-6R8M | 6.8                      | 20                      | 1                   | 29             | 0.45                   | 500             |
| MLF3216A-8R2M | 8.2                      | 20                      | 1                   | 26             | 0.55                   | 300             |
| MLF3216A-100M | 10                       | 20                      | 1                   | 24             | 0.55                   | 300             |
| MLF3216A-120M | 12                       | 20                      | 1                   | 22             | 0.55                   | 300             |
| MLF3216A-150M | 15                       | 20                      | 1                   | 19             | 0.65                   | 100             |
| MLF3216A-180M | 18                       | 20                      | 1                   | 18             | 0.65                   | 100             |



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