

# MCLA3216V1

## Automotive grade multilayer inductor



### Product features

- AEC-Q200 qualified
- 1206 (3216 metric) package
- Multilayer monolithic construction yields high reliability
- Inductance range from 0.047 uH to 12 uH
- Moisture sensitivity level (MSL): 1

### Applications

- ADAS
- Infotainment
- Wireless communications
- Wifi, bluetooth, satellite
- Antenna tuning
- On board computer

### Environmental data

- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)



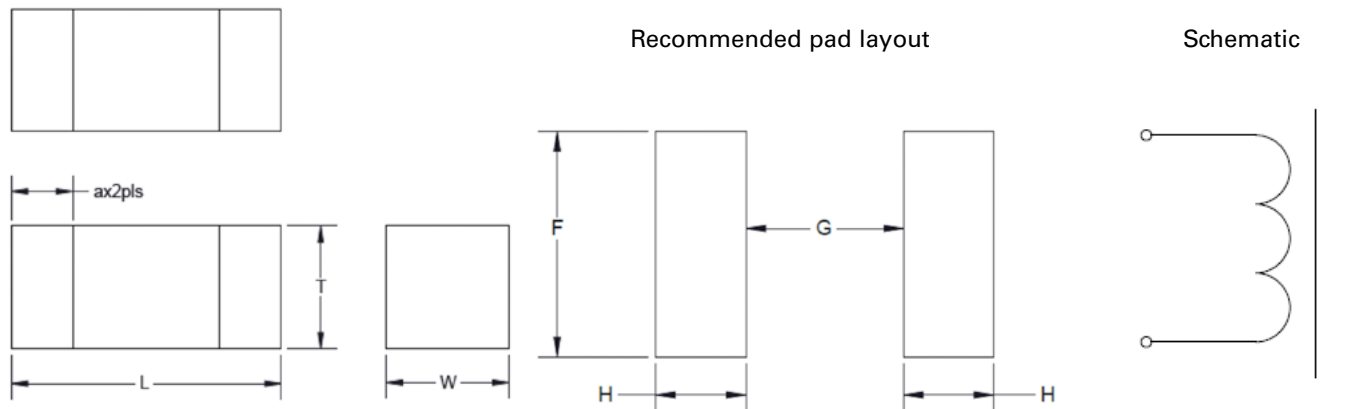
Product specifications

| Part number       | OCL Tolerance (%) | OCL (μH) | Q minimum | DCR@ (Ω) @ +25 °C maximum | Test frequency (MHz) | Test voltage (mV) | SRF (MHz) minimum | I Rated (mA) |
|-------------------|-------------------|----------|-----------|---------------------------|----------------------|-------------------|-------------------|--------------|
| MCLA3216V1-R047-R | ±10               | 0.047    | 30        | 0.15                      | 50                   | 50                | 320               | 300          |
| MCLA3216V1-R056-R | ±10               | 0.056    | 30        | 0.2                       | 50                   | 50                | 320               | 300          |
| MCLA3216V1-R068-R | ±10               | 0.068    | 30        | 0.25                      | 50                   | 50                | 280               | 300          |
| MCLA3216V1-R082-R | ±10               | 0.082    | 30        | 0.25                      | 50                   | 50                | 280               | 300          |
| MCLA3216V1-R100-R | ±10               | 0.1      | 25        | 0.25                      | 25                   | 50                | 235               | 250          |
| MCLA3216V1-R120-R | ±10               | 0.12     | 25        | 0.25                      | 25                   | 50                | 220               | 250          |
| MCLA3216V1-R150-R | ±10               | 0.15     | 25        | 0.25                      | 25                   | 50                | 200               | 250          |
| MCLA3216V1-R180-R | ±10               | 0.18     | 25        | 0.3                       | 25                   | 50                | 185               | 250          |
| MCLA3216V1-R220-R | ±10               | 0.22     | 25        | 0.3                       | 25                   | 50                | 170               | 250          |
| MCLA3216V1-R270-R | ±10               | 0.27     | 25        | 0.3                       | 25                   | 50                | 150               | 250          |
| MCLA3216V1-R330-R | ±10               | 0.33     | 25        | 0.3                       | 25                   | 50                | 145               | 250          |
| MCLA3216V1-R390-R | ±10               | 0.39     | 30        | 0.5                       | 25                   | 50                | 135               | 200          |
| MCLA3216V1-R470-R | ±10               | 0.47     | 30        | 0.5                       | 25                   | 50                | 125               | 200          |
| MCLA3216V1-R560-R | ±10               | 0.56     | 30        | 0.5                       | 25                   | 50                | 115               | 150          |
| MCLA3216V1-R680-R | ±10               | 0.68     | 30        | 0.5                       | 25                   | 50                | 105               | 150          |
| MCLA3216V1-R820-R | ±10               | 0.82     | 30        | 0.6                       | 25                   | 50                | 100               | 150          |
| MCLA3216V1-1R0-R  | ±10               | 1.0      | 35        | 0.3                       | 10                   | 50                | 75                | 100          |
| MCLA3216V1-1R2-R  | ±10               | 1.2      | 35        | 0.4                       | 10                   | 50                | 65                | 100          |
| MCLA3216V1-1R5-R  | ±10               | 1.5      | 35        | 0.4                       | 10                   | 50                | 60                | 50           |
| MCLA3216V1-1R8-R  | ±10               | 1.8      | 35        | 0.4                       | 10                   | 50                | 55                | 50           |
| MCLA3216V1-2R2-R  | ±10               | 2.2      | 35        | 0.5                       | 10                   | 50                | 50                | 50           |
| MCLA3216V1-2R7-R  | ±10               | 2.7      | 35        | 0.5                       | 10                   | 50                | 45                | 50           |
| MCLA3216V1-3R3-R  | ±10               | 3.3      | 35        | 0.5                       | 10                   | 50                | 41                | 50           |
| MCLA3216V1-3R9-R  | ±10               | 3.9      | 35        | 0.6                       | 10                   | 50                | 38                | 50           |
| MCLA3216V1-4R7-R  | ±10               | 4.7      | 35        | 0.65                      | 10                   | 50                | 35                | 25           |
| MCLA3216V1-5R6-R  | ±10               | 5.6      | 35        | 0.8                       | 4                    | 50                | 32                | 25           |
| MCLA3216V1-6R8-R  | ±10               | 6.8      | 35        | 0.8                       | 4                    | 50                | 29                | 25           |
| MCLA3216V1-8R2-R  | ±10               | 8.2      | 35        | 0.8                       | 4                    | 50                | 26                | 25           |
| MCLA3216V1-100-R  | ±10               | 10       | 35        | 0.8                       | 2                    | 50                | 24                | 25           |
| MCLA3216V1-120-R  | ±10               | 12       | 35        | 0.9                       | 2                    | 50                | 22                | 15           |

1. Test frequency and voltage is for open circuit inductance (OCL) and Q at +25 °C  
2. Rated I: When rated I is applied to the product, self-temperature rise will be 40 °C or less.

3. Part Number Definition: MCLA3216V1-xxx-R  
MCLA3216V1 = Product code and size  
xxx= inductance value in μH, R= decimal point,  
If no R is present then last character equals number of zeros  
-R suffix = RoHS compliant

**Mechanical parameters, schematic, pad layout (mm)**

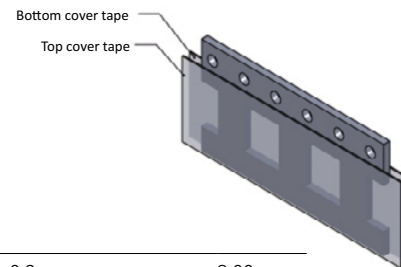
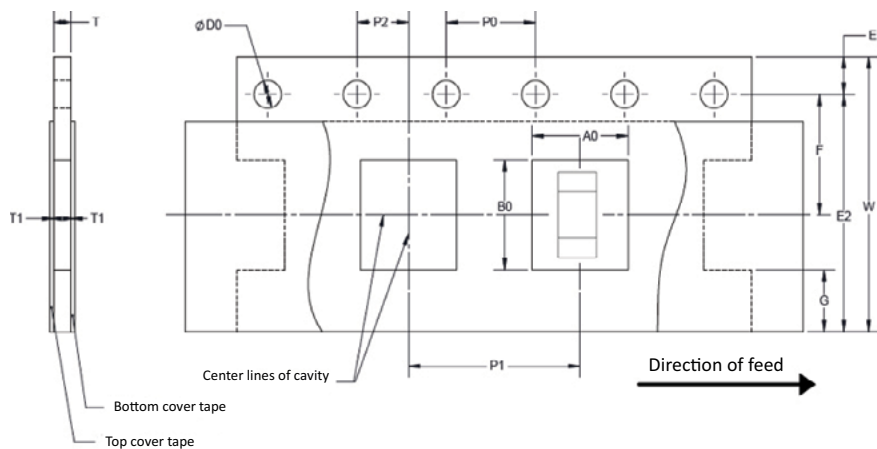


| Part Number      | L         | W         | T         | a         | F        | G        | H        |
|------------------|-----------|-----------|-----------|-----------|----------|----------|----------|
| MCLA3216V1-xxx-R | 3.20±0.20 | 1.60±0.20 | 0.90±0.20 | 0.50±0.30 | 2.00 ref | 1.40 ref | 1.20 ref |

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

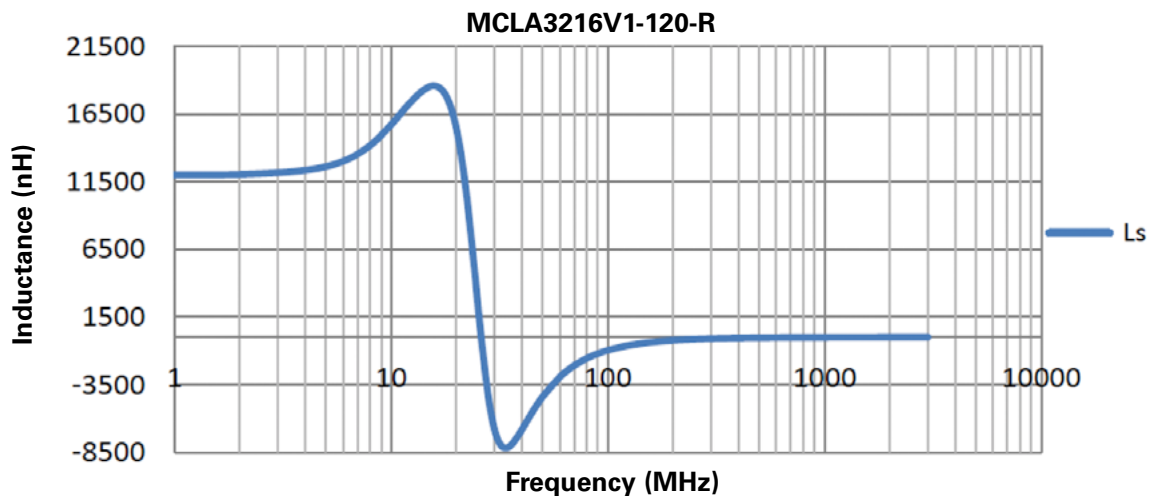
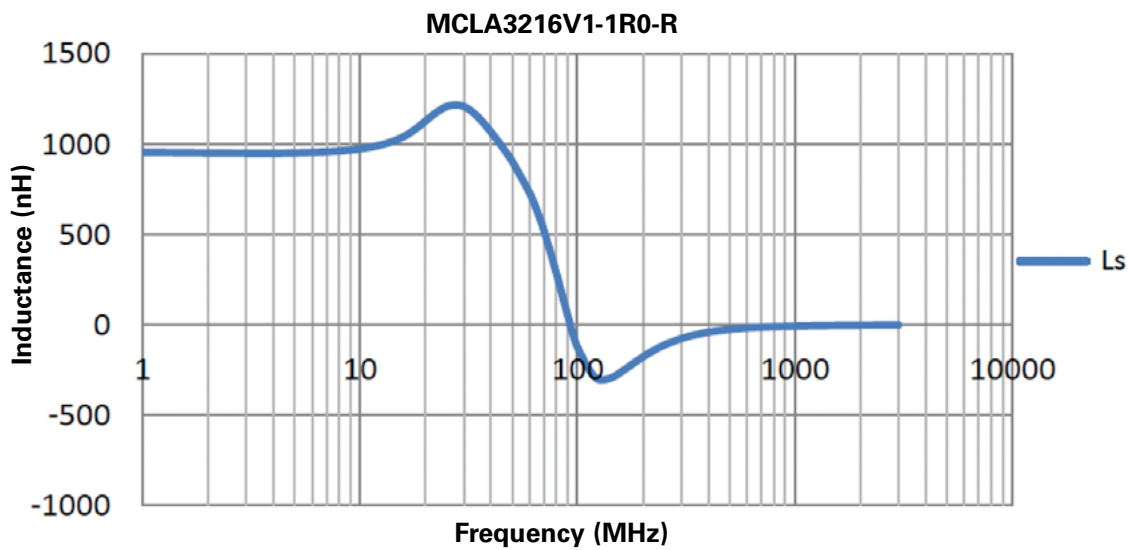
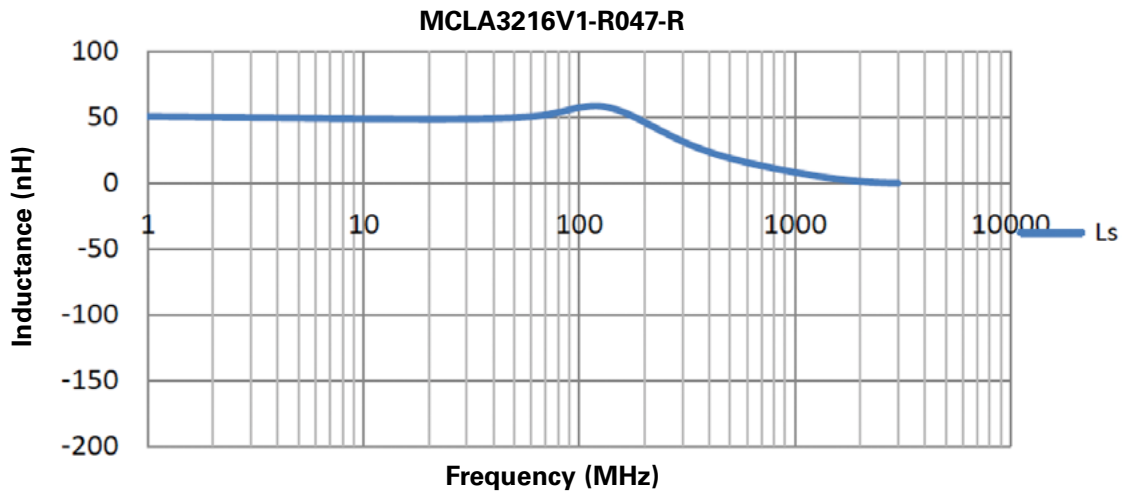
**Packaging information (mm)**

Drawing not to scale  
 Supplied in tape and reel packaging, 4000 parts per 7" diameter reel

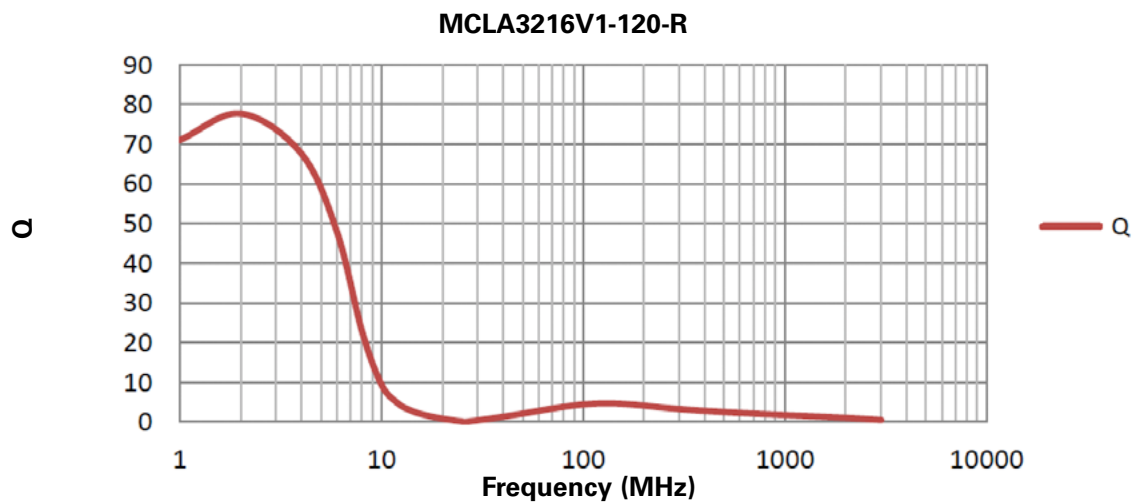
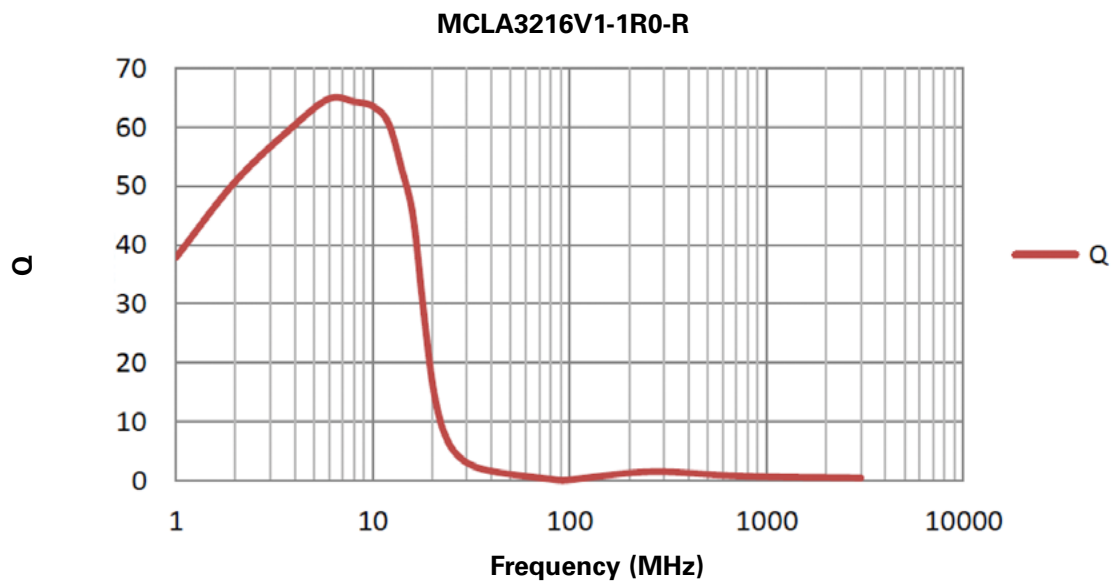
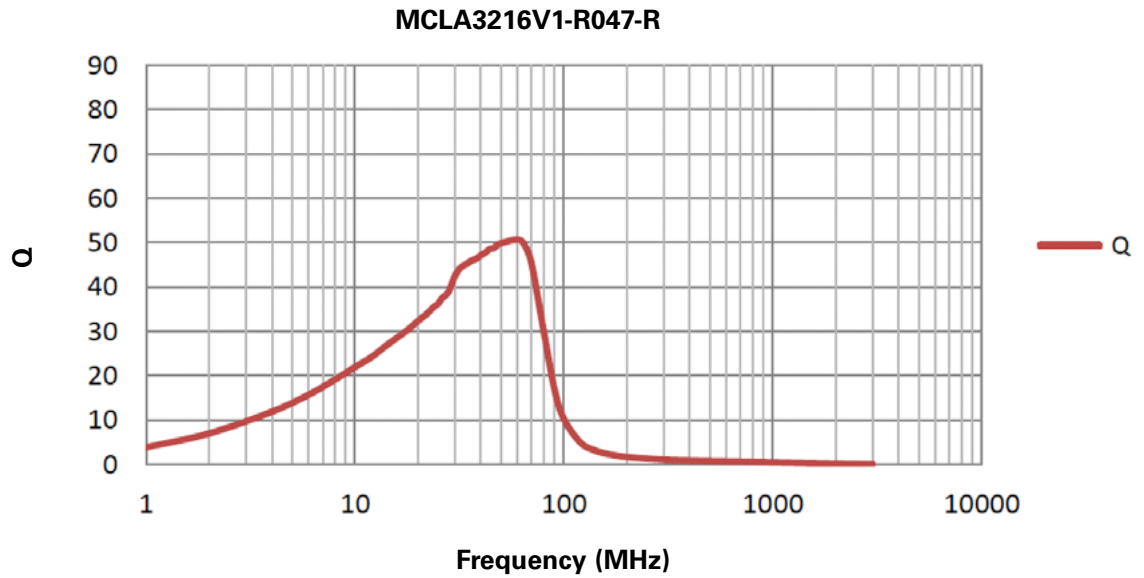


|        |          |
|--------|----------|
| W±0.2  | 8.00     |
| F±0.1  | 3.50     |
| E1±0.2 | 1.75     |
| E2 Min | na       |
| P0±0.2 | 4.00     |
| P1±0.2 | 4.00     |
| P2±0.1 | 2.00     |
| D0±0.1 | 1.55     |
| A0     | 1.9±0.2  |
| B0     | 3.5±0.2  |
| T      | 0.95±0.1 |
| T1 Max | na       |

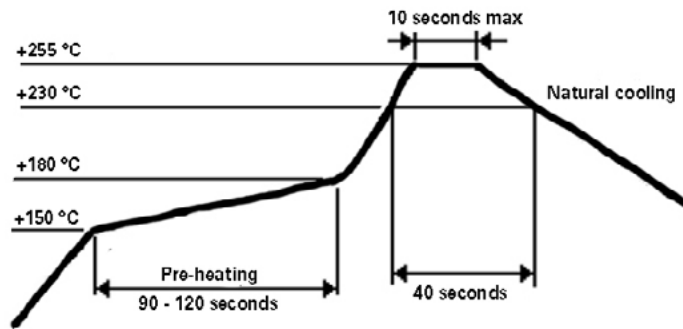
Inductance vs frequency



Q vs frequency



**Solder reflow profile**



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