

# AEC-Q200 Automotive Mini Molded Power Inductor



AOTA-B201612Q

Request Samples



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2.0 x 1.6 x 1.2mm

RoHS/RoHS II Compliant

MSL Level = 1

## Features

- PPAP ready and supported
- TS16949 certified production lines
- AEC-Q200 Grade 0 qualified (-40°C ~ +150°C)
- Shielded construction
- Soft saturation
- Low DCR, High Efficiency
- High temperature current rating

## Applications

- Body electronics and comfort system
- Infotainment and entertainment
- Electric vehicles
- Lighting
- Solar inverters and power
- Industrial and robotics
- Medium and high-power switch mode power supplies.

## Electrical Specifications

| Part Number*       | Inductance | Tolerance | DC Resistance |      | Saturation Current |      | Temperature Rise Current |      |
|--------------------|------------|-----------|---------------|------|--------------------|------|--------------------------|------|
|                    | 1MHz/1.0V  |           | Typ.          | Max. | Typ.               | Max. | Typ.                     | Max. |
| Units              | μH         | %         | mΩ            |      | A                  |      | A                        |      |
| Symbol             | L          | M         | DCR           |      | Isat               |      | Irms                     |      |
| AOTA-B201612QR10MT | 0.10       | 20        | 5             | 9    | 10                 | 9    | 8                        | 6.8  |
| AOTA-B201612QR24MT | 0.24       | 20        | 14            | 17   | 8                  | 6.8  | 5.8                      | 5.2  |
| AOTA-B201612QR33MT | 0.33       | 20        | 18            | 22   | 6.4                | 5.4  | 5.5                      | 4.9  |
| AOTA-B201612QR47MT | 0.47       | 20        | 21            | 25   | 5.4                | 4.8  | 4.5                      | 4.7  |
| AOTA-B201612Q1R0MT | 1.0        | 20        | 39            | 45   | 3.8                | 3.3  | 3.6                      | 3.2  |
| AOTA-B201612Q1R5MT | 1.5        | 20        | 67            | 80   | 3.2                | 2.8  | 2.5                      | 2.3  |
| AOTA-B201612Q2R2MT | 2.2        | 20        | 105           | 120  | 2.8                | 2.5  | 2.0                      | 1.8  |
| AOTA-B201612Q3R3MT | 3.3        | 20        | 210           | 250  | 1.8                | 1.5  | 1.3                      | 1.2  |
| AOTA-B201612Q4R7MT | 4.7        | 20        | 315           | 378  | 1.4                | 1.2  | 1.2                      | 1.0  |

\*The “T” at the end of the part numbers refers to “Tape & Reel” packaging. For other options, please refer to the Part Identification section.

## Test Conditions

**Isat:** DC current at which the inductance drops 30% from its initial value.

**Irms:** DC current that causes the temperature rise ( $\Delta T$ , approximate 40 °C) from 20°C ambient.

**Operating Temperature:** -50°C ~ +150°C (including self-temperature rise)

**Storage Condition:** -50°C ~ +150°C (on board), -10°C ~ +40°C (with packaging) and R.H. 70% max.

AOTA-B201612Q Series is **RoHS Compliant and Pb free**.

AOTA-B201612Q is AEC-Q200 Automotive qualified (grade 0)



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**MSL Level = 1**

## Part Identification

AOTA-B201612Q

### Inductance Code

See Electrical Specification table

### Tolerance

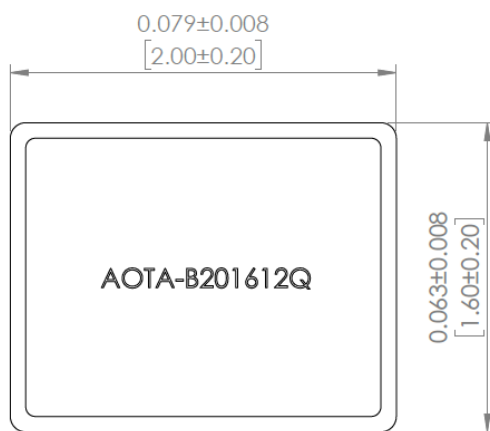
M =  $\pm 20\%$

### Packaging

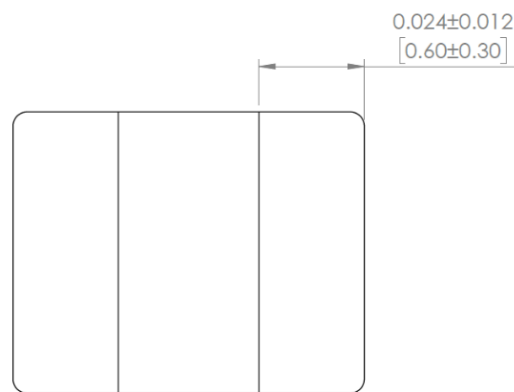
T: Tape and Reel (See Packaging)

B: Bulk

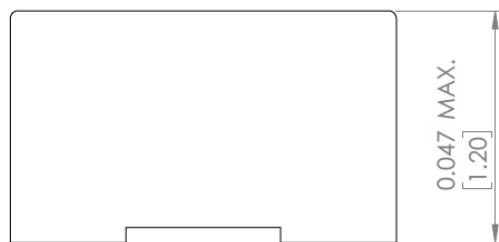
## Mechanical Specifications



**TOP VIEW**



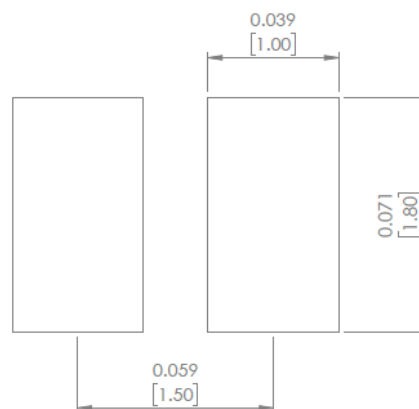
**BOTTOM VIEW**



**FRONT VIEW**

Marking on Top view is for illustration purposes only

### Recommended Land Pattern



**Dimensions: Inches[mm]**



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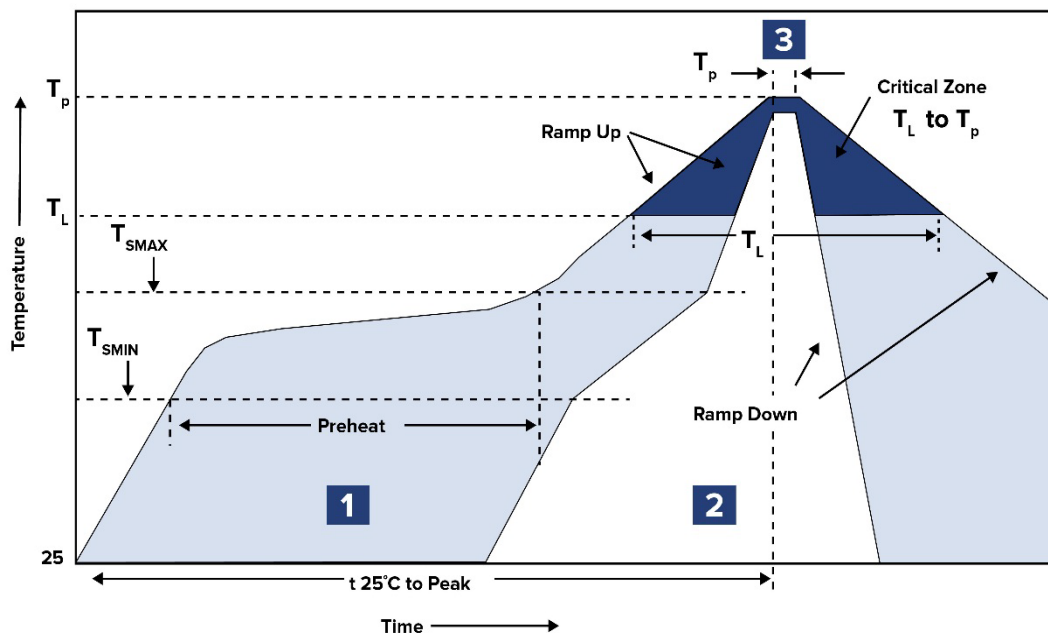


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RoHS/RoHS II Compliant  
MSL Level = 1

## Reflow Profile



| Zone | Description | Temperature                                                            | Times         |
|------|-------------|------------------------------------------------------------------------|---------------|
| 1    | Preheat     | $T_{SMIN} \sim T_{SMAX}$<br>$150^\circ\text{C} \sim 200^\circ\text{C}$ | 60 ~ 120 sec. |
| 2    | Reflow      | $T_L$<br>$217^\circ\text{C}$                                           | 60 ~ 90 sec.  |
| 3    | Peak heat   | $T_P$<br>$260^\circ\text{C}$                                           | 5 sec. MAX    |

Ref. solder paste: Sn/3.0Ag/0.5Cu

Ramp up rate:  $3^\circ\text{C/s}$  Max.

Ramp down rate:  $6^\circ\text{C/s}$  Max.

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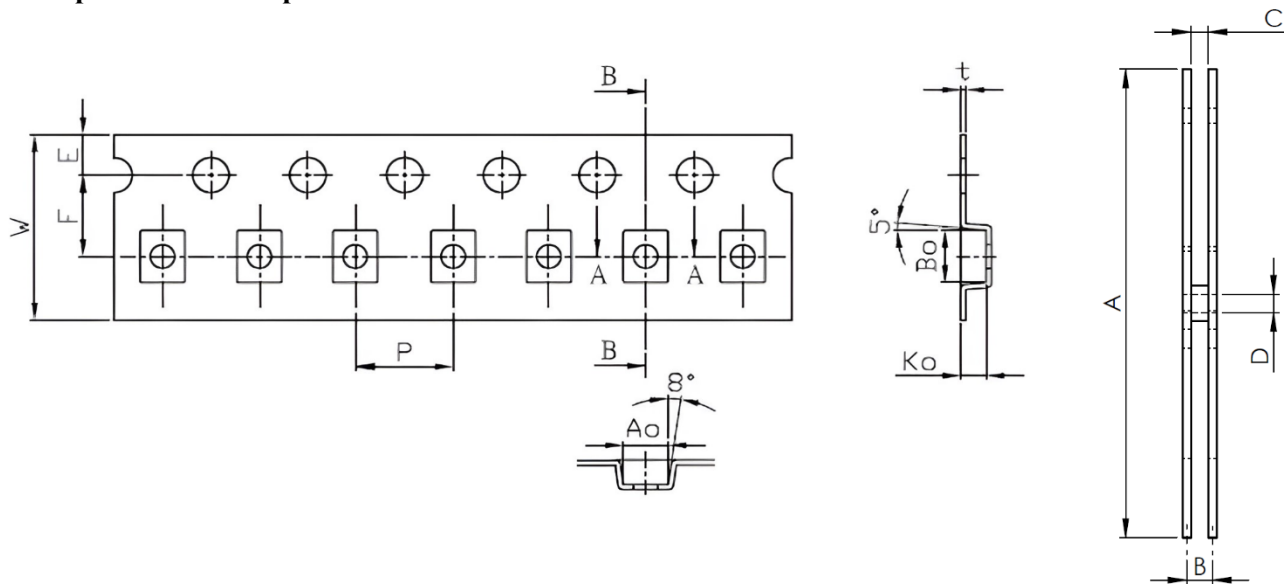
Check Inventory



**2.0 x 1.6 x 1.2mm**  
**RoHS/RoHS II Compliant**  
**MSL Level = 1**

## Packaging

**Tape & Reel: 2000 pcs/reel**



| W        | F         | E         | P        | Ao       | Bo       | K0        | t          | A        | B         | C             | D         |
|----------|-----------|-----------|----------|----------|----------|-----------|------------|----------|-----------|---------------|-----------|
| 8.0 ±0.1 | 3.5 ±0.05 | 1.75 ±0.1 | 4.0 ±0.1 | 1.8 ±0.1 | 2.2 ±0.1 | 1.35 ±0.1 | 0.25 ±0.05 | 178 ±2.0 | 14.4 Max. | 8.4 +1.5/-0.0 | 13.5 ±0.2 |

**Dimensions: mm**

**ATTENTION:** Abracon LLC's products are Commercial-Off-The-Shelf (COTS, which are designed, intended and validated for use in commercial, industrial and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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