

Multilayer Ceramic Inductor

Super High-Q type

MHQ0603W Series

0.1 to 39nH

0.1 to 4.3nH 0.1step and
4.7 to 39nH all E24 series

[**Tight tolerance**]



MHQ0603W
(0201)

TDK Inductor web site : <http://product.tdk.com/inductor/ind/en/>

TDK Virtual Component Library : <http://www.tdk.co.jp/etvcl/index.htm>

TDK CORPORATION

Made in Japan



Please contact our Sales office when your application are considered the following:

1) The device's failure or malfunction may directly endanger human life
(e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)
製品の故障や誤動作が直接人命に係わるような機器 (自動車・航空機・医療機器・原子力
機器など)に本製品の使用を検討される場合、弊社営業へご連絡ください。

Please note that solderability may degrade in case of long-term storage.

長期保管した場合、はんだ濡れ性が劣化する可能性がありますので、ご注意願います。

Multilayer RF Inductor

----- Outline -----

NEW

Features

By make full use of the technology of advanced materials and structures design, we achieve corresponding high-Q value to wire wound inductor.

MHQ0603W realized the highest Q characteristic in Multi-layer type.

In addition, it is the product which did about 30% Q up than High-Q/MLG0603P/W type. *Reference : It is about 50% Q up than MLG0603S type*****

Also flexible inductance line-up 0.1nH steps & E24 is available, it's helpful to engineer's circuit design.

Specification

- Inductance range: [New] 0.1nH to 4.3nH (0.1nH step)

& 4.7 to 39nH (all E24 series)

- Inductance, Q value measurement frequency

Inductance : @ 100MHz

***Residual inductance of short bar = 0.00nH**

Q : @100MHz

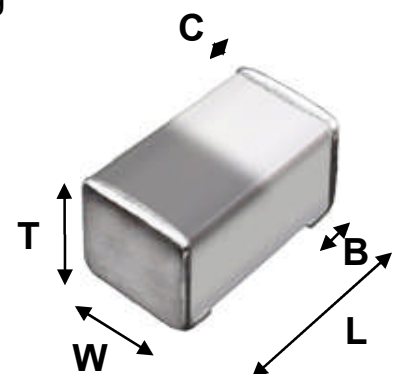
- **Tolerance: +/-0.1nH(B), & +/-3%(H)**

(In the future, we plan to narrow tolerance +/-0.1nH, & +/-2%, +/-3%)

-Operating & storage temperature range: -55 to +125 deg

-Shape: L:0.65*W:0.35*T:0.35mm

| Unit: mm | |
|----------|-------------|
| L | 0.65+/-0.05 |
| W | 0.35+/-0.05 |
| T | 0.35+/-0.05 |
| B | 0.15+/-0.05 |
| C | 0.09+/-0.04 |



Environment

- Lead free. Correspond to Lead free soldering

- RoHS Compliance

Multilayer RF Inductor

----- ELECTRICAL CHARACTERISTICS -----

NEW

MHQ0603W series [0.1 to 4.3nH 0.1step+4.7 to 39nH all E24, Tight tolerance]

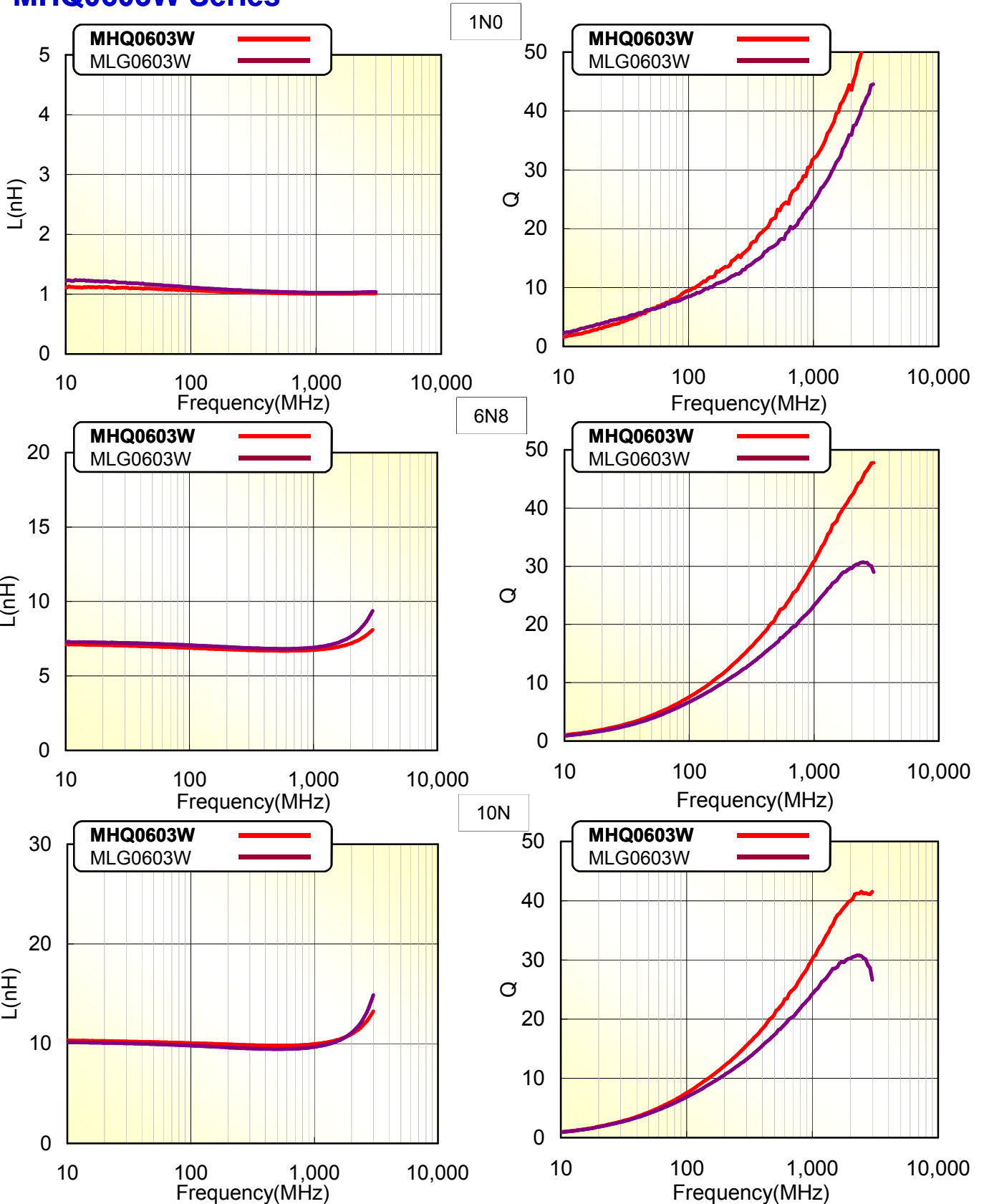
0.1 step
E12 series
E24 series

| | Item | L [nH] | Q min. | RDC [ohm] | | SRF [GHz] | | IDC [mA] |
|-----|------------------|-----------|-----------|-----------|------|-----------|------|----------|
| | | at 100MHz | at 100MHz | max. | typ. | min. | typ. | max. |
| New | MHQ0603W0N1BT000 | 0.1±0.1nH | - | 0.07 | 0.02 | 10.0 | 20.0 | 1000 |
| New | MHQ0603W0N2BT000 | 0.2±0.1nH | - | 0.07 | 0.02 | 10.0 | 20.0 | 1000 |
| New | MHQ0603W0N3BT000 | 0.3±0.1nH | - | 0.07 | 0.02 | 10.0 | 20.0 | 1000 |
| New | MHQ0603W0N4BT000 | 0.4±0.1nH | - | 0.07 | 0.02 | 10.0 | 18.8 | 1000 |
| New | MHQ0603W0N5BT000 | 0.5±0.1nH | - | 0.07 | 0.03 | 10.0 | 19.3 | 1000 |
| New | MHQ0603W0N6BT000 | 0.6±0.1nH | - | 0.07 | 0.03 | 10.0 | 19.3 | 1000 |
| New | MHQ0603W0N7BT000 | 0.7±0.1nH | - | 0.08 | 0.04 | 10.0 | 20.0 | 1000 |
| New | MHQ0603W0N8BT000 | 0.8±0.1nH | - | 0.10 | 0.06 | 10.0 | 20.0 | 800 |
| New | MHQ0603W0N9BT000 | 0.9±0.1nH | - | 0.10 | 0.06 | 10.0 | 18.6 | 800 |
| | MHQ0603W1N0BT000 | 1.0±0.1nH | 7 | 0.10 | 0.05 | 10.0 | 19.5 | 800 |
| | MHQ0603W1N1BT000 | 1.1±0.1nH | 7 | 0.10 | 0.06 | 10.0 | 17.5 | 800 |
| | MHQ0603W1N2BT000 | 1.2±0.1nH | 7 | 0.10 | 0.07 | 10.0 | 16.7 | 800 |
| | MHQ0603W1N3BT000 | 1.3±0.1nH | 7 | 0.12 | 0.07 | 10.0 | 15.8 | 700 |
| New | MHQ0603W1N4BT000 | 1.4±0.1nH | 7 | 0.12 | 0.08 | 10.0 | 16.1 | 700 |
| | MHQ0603W1N5BT000 | 1.5±0.1nH | 7 | 0.12 | 0.08 | 10.0 | 13.8 | 700 |
| | MHQ0603W1N6BT000 | 1.6±0.1nH | 7 | 0.15 | 0.08 | 10.0 | 12.7 | 700 |
| New | MHQ0603W1N7BT000 | 1.7±0.1nH | 7 | 0.15 | 0.09 | 10.0 | 13.2 | 700 |
| | MHQ0603W1N8BT000 | 1.8±0.1nH | 7 | 0.15 | 0.08 | 10.0 | 12.5 | 700 |
| New | MHQ0603W1N9BT000 | 1.9±0.1nH | 7 | 0.15 | 0.08 | 8.0 | 11.7 | 700 |
| | MHQ0603W2N0BT000 | 2.0±0.1nH | 6 | 0.25 | 0.17 | 8.0 | 11.1 | 500 |
| New | MHQ0603W2N1BT000 | 2.1±0.1nH | 6 | 0.25 | 0.16 | 8.0 | 11.1 | 500 |
| | MHQ0603W2N2BT000 | 2.2±0.1nH | 6 | 0.25 | 0.16 | 8.0 | 10.5 | 500 |
| New | MHQ0603W2N3BT000 | 2.3±0.1nH | 6 | 0.25 | 0.18 | 8.0 | 10.6 | 500 |
| | MHQ0603W2N4BT000 | 2.4±0.1nH | 6 | 0.30 | 0.19 | 8.0 | 10.8 | 450 |
| New | MHQ0603W2N5BT000 | 2.5±0.1nH | 6 | 0.30 | 0.19 | 8.0 | 10.3 | 450 |
| New | MHQ0603W2N6BT000 | 2.6±0.1nH | 6 | 0.30 | 0.19 | 8.0 | 10.5 | 450 |
| | MHQ0603W2N7BT000 | 2.7±0.1nH | 7 | 0.20 | 0.13 | 7.0 | 9.5 | 550 |
| New | MHQ0603W2N8BT000 | 2.8±0.1nH | 7 | 0.20 | 0.13 | 7.0 | 9.5 | 550 |
| New | MHQ0603W2N9BT000 | 2.9±0.1nH | 7 | 0.25 | 0.15 | 7.0 | 9.6 | 500 |
| | MHQ0603W3N0BT000 | 3.0±0.1nH | 7 | 0.25 | 0.14 | 6.5 | 9.3 | 500 |
| New | MHQ0603W3N1BT000 | 3.1±0.1nH | 7 | 0.25 | 0.17 | 6.5 | 9.5 | 500 |
| New | MHQ0603W3N2BT000 | 3.2±0.1nH | 7 | 0.25 | 0.16 | 6.5 | 9.1 | 500 |
| | MHQ0603W3N3BT000 | 3.3±0.1nH | 7 | 0.25 | 0.17 | 6.5 | 9.1 | 450 |
| New | MHQ0603W3N4BT000 | 3.4±0.1nH | 7 | 0.30 | 0.19 | 6.5 | 9.1 | 450 |
| New | MHQ0603W3N5BT000 | 3.5±0.1nH | 7 | 0.35 | 0.23 | 6.5 | 9.2 | 400 |
| | MHQ0603W3N6BT000 | 3.6±0.1nH | 7 | 0.35 | 0.26 | 6.0 | 8.5 | 400 |
| New | MHQ0603W3N7BT000 | 3.7±0.1nH | 7 | 0.35 | 0.22 | 6.0 | 8.3 | 400 |
| New | MHQ0603W3N8BT000 | 3.8±0.1nH | 7 | 0.35 | 0.23 | 6.0 | 8.2 | 400 |
| | MHQ0603W3N9BT000 | 3.9±0.1nH | 7 | 0.35 | 0.23 | 6.0 | 8.2 | 400 |
| New | MHQ0603W4N0BT000 | 4.0±0.1nH | 7 | 0.35 | 0.24 | 6.0 | 8.1 | 400 |
| New | MHQ0603W4N1BT000 | 4.1±0.1nH | 7 | 0.40 | 0.28 | 6.0 | 8.0 | 350 |
| New | MHQ0603W4N2BT000 | 4.2±0.1nH | 7 | 0.40 | 0.29 | 6.0 | 8.1 | 350 |
| | MHQ0603W4N3HT000 | 4.3±3% | 7 | 0.40 | 0.25 | 5.5 | 7.9 | 350 |
| | MHQ0603W4N7HT000 | 4.7±3% | 7 | 0.40 | 0.24 | 5.5 | 7.8 | 350 |
| | MHQ0603W5N1HT000 | 5.1±3% | 6 | 0.40 | 0.29 | 5.0 | 6.7 | 350 |
| | MHQ0603W5N6HT000 | 5.6±3% | 7 | 0.40 | 0.30 | 5.0 | 6.9 | 350 |
| | MHQ0603W6N2HT000 | 6.2±3% | 6 | 0.70 | 0.52 | 4.0 | 6.6 | 300 |
| | MHQ0603W6N8HT000 | 6.8±3% | 6 | 0.70 | 0.48 | 4.0 | 6.3 | 300 |
| | MHQ0603W7N5HT000 | 7.5±3% | 7 | 0.50 | 0.37 | 3.8 | 5.6 | 250 |
| | MHQ0603W8N2HT000 | 8.2±3% | 6 | 0.90 | 0.63 | 3.8 | 5.6 | 250 |
| | MHQ0603W9N1HT000 | 9.1±3% | 6 | 0.90 | 0.61 | 3.5 | 5.5 | 250 |
| | MHQ0603W10NHT000 | 10±3% | 6 | 1.20 | 0.86 | 3.5 | 5.2 | 240 |
| New | MHQ0603W11NHT000 | 11±3% | 5 | 1.30 | 0.89 | 3.2 | 4.6 | 240 |
| | MHQ0603W12NHT000 | 12±3% | 6 | 1.40 | 0.77 | 3.2 | 4.6 | 240 |
| New | MHQ0603W13NHT000 | 13±3% | 5 | 1.50 | 1.01 | 3.2 | 4.5 | 180 |
| | MHQ0603W15NHT000 | 15±3% | 6 | 1.50 | 1.05 | 2.8 | 4.2 | 180 |
| New | MHQ0603W16NHT000 | 16±3% | 6 | 1.70 | 1.21 | 2.5 | 4.0 | 180 |
| | MHQ0603W18NHT000 | 18±3% | 6 | 1.70 | 1.21 | 2.4 | 3.7 | 180 |
| New | MHQ0603W20NHT000 | 20±3% | 5 | 2.00 | 1.38 | 2.4 | 3.5 | 160 |
| | MHQ0603W22NHT000 | 22±3% | 6 | 2.00 | 1.40 | 2.2 | 3.3 | 160 |
| New | MHQ0603W24NHT000 | 24±3% | 6 | 2.20 | 1.55 | 2.1 | 3.1 | 160 |
| | MHQ0603W27NHT000 | 27±3% | 7 | 2.20 | 1.55 | 2.0 | 2.9 | 160 |
| New | MHQ0603W30NHT000 | 30±3% | 7 | 2.70 | 1.98 | 1.9 | 2.7 | 160 |
| | MHQ0603W33NHT000 | 33±3% | 7 | 2.80 | 2.06 | 1.8 | 2.5 | 160 |
| New | MHQ0603W36NHT000 | 36±3% | 7 | 2.80 | 2.08 | 1.7 | 2.4 | 160 |
| | MHQ0603W39NHT000 | 39±3% | 7 | 3.00 | 2.24 | 1.6 | 2.3 | 160 |



----- FREQUENCY CHARACTERISTICS -----

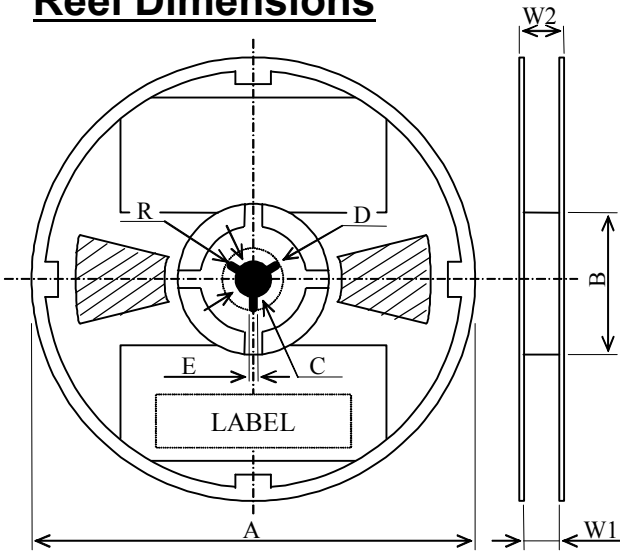
MHQ0603W Series



Multilayer RF Inductor

NEW

Reel Dimensions

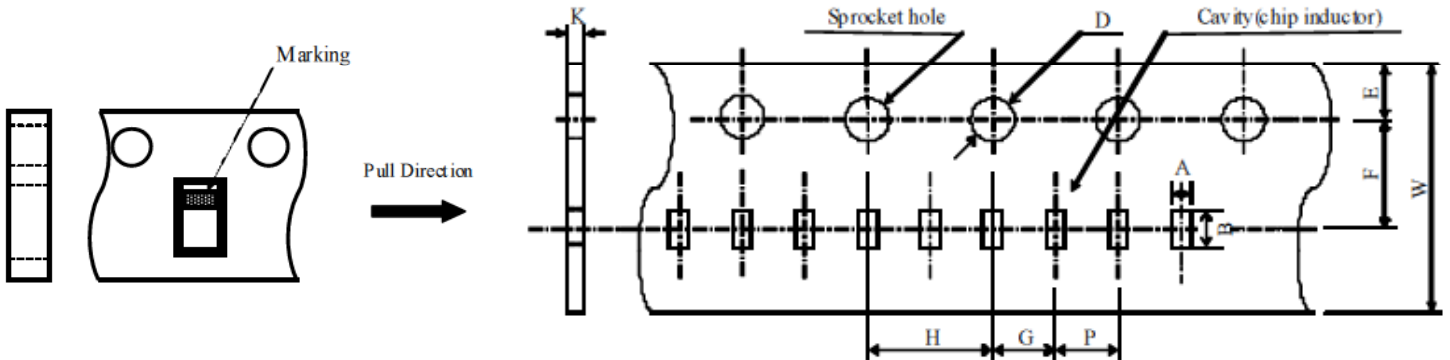


| Item | Quantity |
|----------|------------|
| MHQ0603W | 15,000 pcs |

(Unit: mm)

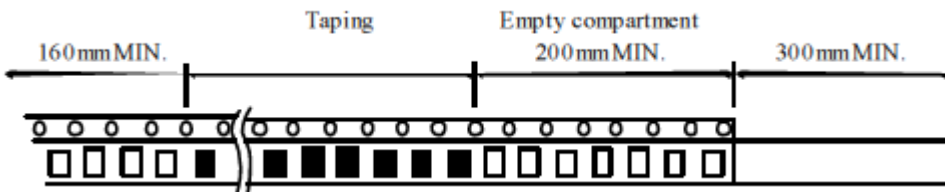
| | | | | | |
|-----------|----------------------|------------------|---------------------|---------------------|---------------|
| Mark | A | B | C | D | E |
| Dimension | $\Phi 180.0 \pm 2.0$ | $\Phi 60.0$ Min. | $\Phi 13.0 \pm 0.2$ | $\Phi 21.0 \pm 0.8$ | 2.0 ± 0.5 |
| Mark | W1 | W2 | R | | |
| Dimension | $8.4 +2.00$ | 14.4 Max. | 1.0 | | |

Tape Dimensions



(unit: mm)

| | | | | | |
|-----------|-----------------|-----------------|--------------------------|-----------------|-----------------|
| Mark | A | B | D | E | F |
| Dimension | 0.44 ± 0.05 | 0.74 ± 0.05 | $\Phi 1.50 +0.10$ 0 | 1.75 ± 0.10 | 3.50 ± 0.05 |
| Mark | G | H | K | P | W |
| Dimension | 2.00 ± 0.05 | 4.00 ± 0.10 | 0.60 MAX | 2.00 ± 0.05 | 8.00 ± 0.30 |



Product identification

| | | | | | | |
|------------|-------------|----------|------------|----------|----------|------------|
| <u>MHQ</u> | <u>0603</u> | <u>W</u> | <u>15N</u> | <u>J</u> | <u>#</u> | <u>***</u> |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |

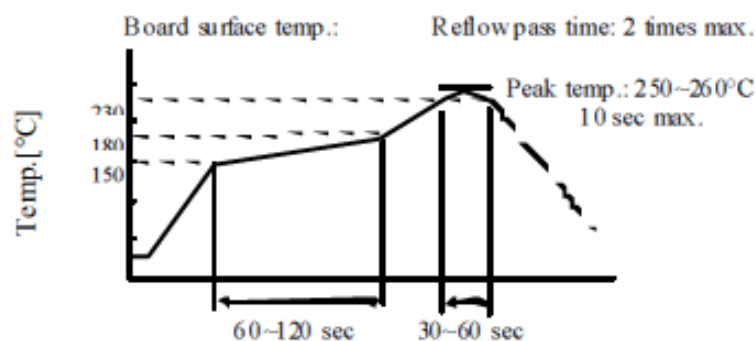
- (1) Product symbol
- (2) Dimensions (0.6×0.3mm)
- (3) Series name
- (4) Inductance (15N: 15nH)
- (5) Inductance Tolerance (B: ±0.1nH, C: ±0.2nH, S: ±0.3nH, G: ±2%, H: ±3%, J: ±5%)
- (6) Packing style (T: taping)
- (7) Control number

Recommended land pattern



Recommended Reflow Profile

Recommended reflow soldering conditions.



Reworking condition

By using spot heater, in a temperature 350 °C max, more than a distance 3mm from the product within 5 seconds.

This product contains no lead and also support lead-free soldering.

This product corresponds to ROHS.

It contains neither Cd, Pb, Hg, Cr6+, PBB nor PBDE.

MSL

MSL is in accordance with Level-1

X-ON Electronics

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[MLZ1608M150WTD25](#) [MLZ1608M3R3WTD25](#) [MLZ1608M3R3WT000](#) [MLZ1608M150WT000](#) [MLZ1608A1R5WT000](#)

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