

# Product Guide

|                           | Series          | Structure       | Size Code<br>in inch (in mm)       | Inductance Range (H) |    |     |       |       |       |       |      |     |       | Rated Current (A) |       |    |       |  |  |
|---------------------------|-----------------|-----------------|------------------------------------|----------------------|----|-----|-------|-------|-------|-------|------|-----|-------|-------------------|-------|----|-------|--|--|
|                           |                 |                 |                                    | 0.1n                 | 1n | 10n | 100n  | 1μ    | 10μ   | 100μ  | 1m   | 10m | 10m   | 100m              | 1     | 10 | 100   |  |  |
| Inductors for Power Lines | LQM18FN_00 p141 | Multilayer Type | 0603 (1608)                        |                      |    |     |       | 1μH   |       | 10μH  |      |     |       |                   | 50mA  |    | 150mA |  |  |
|                           | LQM18PN_B0 p52  |                 | 0603 (1608)                        |                      |    |     |       | 1.5μH |       |       |      |     |       |                   | 600mA |    |       |  |  |
|                           | LQM18PN_C0 p53  |                 | 0603 (1608)                        |                      |    |     |       | 470nH |       | 2.2μH |      |     |       |                   | 700mA |    | 850mA |  |  |
|                           | LQM18PN_D0 p55  |                 | 0603 (1608)                        |                      |    |     |       | 2.5μH |       |       |      |     |       |                   | 700mA |    |       |  |  |
|                           | LQM18PN_DH p56  |                 | 0603 (1608)                        |                      |    |     |       | 2.2μH |       |       |      |     |       |                   | 650mA |    |       |  |  |
|                           | LQM18PN_F0 p58  |                 | 0603 (1608)                        |                      |    |     |       | 1μH   |       |       |      |     |       |                   | 600mA |    |       |  |  |
|                           | LQM18PN_FH p59  |                 | 0603 (1608)                        |                      |    |     |       | 470nH |       | 2.2μH |      |     |       |                   | 700mA |    | 1.4A  |  |  |
|                           | LQM18PN_FR p61  |                 | 0603 (1608)                        |                      |    |     |       | 220nH |       | 4.7μH |      |     |       |                   | 620mA |    | 1.25A |  |  |
|                           | LQM18PN_GH p63  |                 | 0603 (1608)                        |                      |    |     |       | 1μH   |       | 3.3μH |      |     |       |                   | 1.05A |    |       |  |  |
|                           | LQM18PW_CH p65  |                 | 0603 (1608)                        |                      |    |     |       | 1μH   |       | 2.5μH |      |     |       |                   | 750mA |    | 950mA |  |  |
|                           | LQM21DN_00 p143 |                 | 0805 (2012)                        |                      |    |     |       | 1μH   |       | 47μH  |      |     |       |                   | 7mA   |    | 60mA  |  |  |
|                           | LQM21FN_00 p145 |                 | 0805 (2012)                        |                      |    |     |       | 1μH   |       | 47μH  |      |     |       |                   | 7mA   |    | 220mA |  |  |
|                           | LQM21FN_70 p147 |                 | 0805 (2012)                        |                      |    |     |       | 4.7μH |       | 10μH  |      |     |       |                   | 100mA |    | 120mA |  |  |
|                           | LQM21FN_80 p149 |                 | 0805 (2012)                        |                      |    |     |       | 4.7μH |       | 10μH  |      |     |       |                   | 100mA |    | 120mA |  |  |
|                           | LQM21PN_C0 p67  |                 | 0805 (2012)                        |                      |    |     |       | 470nH |       | 2.2μH |      |     |       |                   | 600mA |    | 1.1A  |  |  |
|                           | LQM21PN_CA p69  |                 | 0805 (2012)                        |                      |    |     |       | 2.2μH |       |       |      |     |       |                   | 1.05A |    |       |  |  |
|                           | LQM21PN_CH p71  |                 | 0805 (2012)                        |                      |    |     |       | 470nH |       | 2.2μH |      |     |       |                   | 1.05A |    | 1.6A  |  |  |
|                           | LQM21PN_EH p73  |                 | 0805 (2012)                        |                      |    |     |       | 240nH |       | 2.2μH |      |     |       |                   | 1.1A  |    | 2.8A  |  |  |
|                           | LQM21PN_G0 p75  |                 | 0805 (2012)                        |                      |    |     |       | 470nH |       | 3.3μH |      |     |       |                   | 800mA |    | 1.3A  |  |  |
|                           | LQM21PN_GC p77  |                 | 0805 (2012)                        |                      |    |     |       | 1μH   |       | 2.2μH |      |     |       |                   | 800mA |    | 900mA |  |  |
|                           | LQM21PN_GH p79  |                 | 0805 (2012)                        |                      |    |     |       | 470nH |       | 4.7μH |      |     |       |                   | 1A    |    | 2.4A  |  |  |
|                           | LQM21PN_GR p81  |                 | 0805 (2012)                        |                      |    |     |       | 1μH   |       | 4.7μH |      |     |       |                   | 800mA |    | 1.3A  |  |  |
|                           | LQM21PN_GS p83  |                 | 0805 (2012)                        |                      |    |     |       | 2.2μH |       | 4.7μH |      |     |       |                   | 750mA |    | 950mA |  |  |
|                           | LQM2MPN_DH p102 |                 | 0806 (2016)                        |                      |    |     |       | 2.2μH |       |       |      |     |       |                   | 1.27A |    |       |  |  |
|                           | LQM2MPN_EH p104 |                 | 0806 (2016)                        |                      |    |     |       | 240nH |       | 2.2μH |      |     |       |                   | 1.1A  |    | 4.1A  |  |  |
|                           | LQM2MPN_G0 p106 |                 | 0806 (2016)                        |                      |    |     |       | 470nH |       | 4.7μH |      |     |       |                   | 1.1A  |    | 1.6A  |  |  |
|                           | LQM2MPN_GH p108 |                 | 0806 (2016)                        |                      |    |     |       | 160nH |       | 2.2μH |      |     |       |                   | 1.3A  |    | 5A    |  |  |
|                           | LQM2HPN_CH p85  |                 | 1008 (2520)                        |                      |    |     |       | 240nH |       | 2.2μH |      |     |       |                   | 850mA |    | 2.55A |  |  |
|                           | LQM2HPN_E0 p87  |                 | 1008 (2520)                        |                      |    |     |       | 560nH |       |       |      |     |       |                   | 1.5A  |    |       |  |  |
|                           | LQM2HPN_EH p88  |                 | 1008 (2520)                        |                      |    |     |       | 240nH |       | 2.2μH |      |     |       |                   | 1.3A  |    | 4.5A  |  |  |
|                           | LQM2HPN_G0 p90  |                 | 1008 (2520)                        |                      |    |     |       | 470nH |       | 4.7μH |      |     |       |                   | 1.1A  |    | 1.8A  |  |  |
|                           | LQM2HPN_GC p92  |                 | 1008 (2520)                        |                      |    |     |       | 1μH   |       | 4.7μH |      |     |       |                   | 800mA |    | 1.5A  |  |  |
|                           | LQM2HPN_GH p94  |                 | 1008 (2520)                        |                      |    |     |       | 240nH |       | 2.2μH |      |     |       |                   | 1.5A  |    | 5A    |  |  |
|                           | LQM2HPN_GS p96  |                 | 1008 (2520)                        |                      |    |     |       | 2.2μH |       | 4.7μH |      |     |       |                   | 1A    |    | 1.1A  |  |  |
|                           | LQM2HPN_J0 p98  |                 | 1008 (2520)                        |                      |    |     |       | 1μH   |       | 3.3μH |      |     |       |                   | 1A    |    | 1.5A  |  |  |
|                           | LQM2HPN_JH p100 |                 | 1008 (2520)                        |                      |    |     |       | 470nH |       | 2.2μH |      |     |       |                   | 1.5A  |    | 3.2A  |  |  |
|                           | LQM31PN_00 p110 |                 | 1206 (3216)                        |                      |    |     |       | 470nH |       | 4.7μH |      |     |       |                   | 700mA |    | 1.4A  |  |  |
|                           | LQM32PN_G0 p112 |                 | 1210 (3225)                        |                      |    |     |       | 1μH   |       |       |      |     |       |                   | 1.8A  |    |       |  |  |
|                           | LQM32PN_GC p113 |                 | 1210 (3225)                        |                      |    |     |       | 1μH   |       |       |      |     |       |                   | 2.2A  |    |       |  |  |
|                           | LQW15CN_00 p115 |                 | Wire Wound<br>Ferrite Core<br>Type | 0402 (1005)          |    |     |       | 18nH  |       | 200nH |      |     |       |                   | 390mA |    | 1.4A  |  |  |
|                           | LQW15CN_10 p117 |                 |                                    | 0402 (1005)          |    |     |       | 20nH  |       | 3.3μH |      |     |       |                   | 130mA |    | 2.2A  |  |  |
|                           | LQW18CN_00 p119 |                 |                                    | 0603 (1608)          |    |     | 4.9nH |       | 650nH |       |      |     |       |                   | 430mA |    | 2.6A  |  |  |
|                           | LQH2MCN_02 p14  |                 |                                    | 0806 (2016)          |    |     |       |       | 1μH   |       | 82μH |     |       |                   | 90mA  |    | 485mA |  |  |
| LQH2MCN_52 p16            | 0806 (2016)     |                 |                                    |                      |    |     | 1μH   |       | 22μH  |       |      |     | 130mA |                   | 595mA |    |       |  |  |
| LQH2MPN_GR p18            | 0806 (2016)     |                 |                                    |                      |    |     | 330nH |       | 82μH  |       |      |     | 210mA |                   | 2.2A  |    |       |  |  |
| LQH2HPN_GR p10            | 1008 (2520)     |                 |                                    |                      |    |     | 470nH |       | 100μH |       |      |     | 210mA |                   | 2.9A  |    |       |  |  |
| LQH2HPN_JR p12            | 1008 (2520)     |                 |                                    |                      |    |     | 470nH |       | 22μH  |       |      |     | 540mA |                   | 3.5A  |    |       |  |  |
| DEM2812C p388             | 1211 (3028)     |                 |                                    |                      |    |     | 470nH |       | 12μH  |       |      |     | 760mA |                   | 3.1A  |    |       |  |  |
| DEM2815C p389             | 1211 (3028)     |                 |                                    |                      |    |     | 470nH |       | 15μH  |       |      |     | 800mA |                   | 3.9A  |    |       |  |  |
| DEM2818C p390             | 1211 (3028)     |                 |                                    |                      |    |     | 470nH |       | 12μH  |       |      |     | 1A    |                   | 4.7A  |    |       |  |  |
| LQH3NPN_GR p28            | 1212 (3030)     |                 |                                    |                      |    |     | 470nH |       | 250μH |       |      |     | 140mA |                   | 2.82A |    |       |  |  |
| LQH3NPN_JR p30            | 1212 (3030)     |                 |                                    |                      |    |     | 680nH |       | 47μH  |       |      |     | 570mA |                   | 2.86A |    |       |  |  |
| LQH3NPN_ME p32            | 1212 (3030)     |                 |                                    |                      |    |     | 1μH   |       | 100μH |       |      |     | 430mA |                   | 3A    |    |       |  |  |

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## ● Part Numbering

### Inductors for Power Lines

(Part Number)

|    |   |    |   |   |     |   |   |   |   |
|----|---|----|---|---|-----|---|---|---|---|
| LQ | M | 21 | P | N | R54 | M | G | 0 | D |
| ①  | ② | ③  | ④ | ⑤ | ⑥   | ⑦ | ⑧ | ⑨ | ⑩ |

#### ① Product ID

| Product ID |                             |
|------------|-----------------------------|
| LQ         | Chip Inductors (Chip Coils) |

#### ② Structure

| Code | Structure                      |
|------|--------------------------------|
| H    | Wire Wound Type (Ferrite Core) |
| W    |                                |
| M    | Multilayer Type (Ferrite Core) |

#### ③ Dimensions (LxW)

| Code | Nominal Dimensions (LxW) | Size Code (in inch) |
|------|--------------------------|---------------------|
| 15   | 1.0x0.5mm                | 0402                |
| 18   | 1.6x0.8mm                | 0603                |
| 21   | 2.0x1.25mm               | 0805                |
| 2M   | 2.0x1.6mm                | 0806                |
| 2H   | 2.5x2.0mm                | 1008                |
| 3N   | 3.0x3.0mm                | 1212                |
| 31   | 3.2x1.6mm                | 1206                |
| 32   | 3.2x2.5mm                | 1210                |
| 43   | 4.5x3.2mm                | 1812                |
| 44   | 4.0x4.0mm                | 1515                |
| 5B   | 5.0x5.0mm                | 2020                |
| 55   | 5.7x5.0mm                | 2220                |
| 66   | 6.3x6.3mm                | 2525                |

#### ④ Applications and Characteristics

| Code | Series  | Applications and Characteristics          |
|------|---------|-------------------------------------------|
| D    | LQM     | for Choke (Low-current DC Power Supplies) |
| F    |         | for Choke (DC Power Supplies)             |
| D    | LQH     | for Choke                                 |
| S    |         | for Choke (Magnetically Shielded Type)    |
| C    | LQH/LQW | for Choke (Coating Type)                  |
| P    | LQM/LQH | for Power Line                            |

#### ⑤ Category

| Code | Category                       |
|------|--------------------------------|
| N    | Standard Type                  |
| B    | Special Feature Classification |
| W    |                                |

#### ⑥ Inductance

Expressed by three-digit alphanumerics. The unit is micro-henry (μH). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures. If there is a decimal point, it is expressed by the capital letter "R." In this case, all figures are significant digits. If inductance is less than 0.1μH, the inductance code is expressed by a combination of two figures and the capital letter "N," and the unit of inductance is nano-henry (nH). The capital letter "N" indicates the unit of "nH," and also expresses a decimal point. In this case, all figures are significant digits. For those products whose inductance values are specified using three designated digits, these values may be indicated using the closest two digits instead.

#### ⑦ Inductance Tolerance

| Code | Inductance Tolerance |
|------|----------------------|
| D    | ±0.5nH               |
| J    | ±5%                  |
| K    | ±10%                 |
| M    | ±20%                 |
| N    | ±30%                 |

#### ⑧ Features (Except for LQH□□P/LQM□□P)

| Code | Features                              | Series         |
|------|---------------------------------------|----------------|
| 0    | Standard Type                         | LQM/LQH*1 /LQW |
| 1    | Low DC Resistance                     | LQW            |
| 2    | Standard Type                         | LQH32C/32D     |
| 3    | Low DC Resistance                     | LQH32C/43CN    |
| 5    | Low Profile Type                      | LQH2MC/32C/32D |
| 7    | Large Current Type                    | LQM21F         |
| 8    | Low DC Resistance /Large Current Type |                |

\*1 Except for LQH32 Series

#### ⑨ Thickness

(LQH□□P/LQM□□P Only • Except for LQH43P/LQH5BPN\_38)

| Code | Nominal Dimensions (T) |
|------|------------------------|
| B    | 0.35mm                 |
| C    | 0.5mm                  |
| D    | 0.6mm                  |
| E    | 0.7mm                  |
| F    | 0.8mm                  |
| O    | 0.85mm                 |
| G    | 0.9mm                  |
| J    | 1.1mm                  |
| M    | 1.4mm                  |
| N    | 1.55mm                 |
| P    | 1.65mm                 |
| T    | 2.0mm                  |

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⑨ Electrode (Except for LQH□□P/LQM□□P)

•Lead (Pb) Free

| Code | Electrode | Series                  |
|------|-----------|-------------------------|
| 0    | Sn        | LQM/LQW                 |
| 2    |           | LQH2MC                  |
| 3    | LF Solder | LQH (Except for LQH2MC) |

⑨ Specification

(LQH□□P/LQM□□P Only • Except for LQH43P/LQH5BPN\_38)

| Code  | Specification                                                                 |
|-------|-------------------------------------------------------------------------------|
| 0/S   | Standard Type                                                                 |
| C     | Good Bias Current Characteristics Type                                        |
| H/A/E | High Spec Type (Low DC Resistance;<br>Good Bias Current Characteristics Type) |
| R     | Low DC Resistance Type                                                        |

⑧⑨ Thickness (LQH43P/LQH5BPN\_38 Only)

| Code | Dimensions (T) |
|------|----------------|
| 26   | 2.6mm          |
| 38   | 4.0mm max.     |

⑩ Packaging

| Code | Packaging                     | Series                                                                     |
|------|-------------------------------|----------------------------------------------------------------------------|
| K    | Embossed Taping (ø330mm Reel) | LQH* <sup>1</sup> /LQM21* <sup>2</sup>                                     |
| F    |                               | LQH3NP_MR                                                                  |
| L    | Embossed Taping (ø180mm Reel) | LQH* <sup>5</sup> /LQM18P/LQM21* <sup>2</sup> /LQM31P/LQM32P/LQM2HP/LQM2MP |
| E    |                               | LQH3NP_MR                                                                  |
| B    | Bulk                          | LQH2MC/LQM/LQW                                                             |
| J    | Paper Taping (ø330mm Reel)    | LQM18/LQM21* <sup>3</sup>                                                  |
| D    | Paper Taping (ø180mm Reel)    | LQM18/LQM21* <sup>4</sup> /LQW                                             |

\*1 Except for LQH2MC/LQH2HP\_G0/LQH3NP/LQH43C

\*2 LQM21D(22 - 47μH)/LQM21F(4.7 - 47μH)

\*3 LQM21D(1.0 - 10μH)/LQM21F(1.0 - 2.2μH)

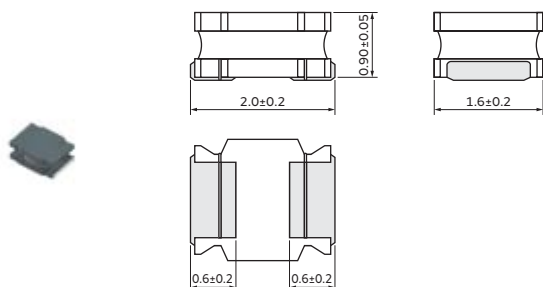
\*4 LQM21D(1.0 - 10μH)/LQM21F(1.0 - 2.2μH)/LQM21P

\*5 Except for LQH3NP\_MR

## Inductors for Power Lines

# LQH2MCN\_02 Series 0806 (2016) inch (mm)

### Appearance/Dimensions



(in mm)

### Packaging

| Code | Packaging              | Minimum Quantity |
|------|------------------------|------------------|
| L    | ø180mm Embossed Taping | 3000             |
| B    | Packing in Bulk        | 100              |

### Rated Value (□: packaging code)

| Part Number    | Inductance | Inductance Test Frequency | Rated Current | DC Resistance | S.R.F.* (min.) |
|----------------|------------|---------------------------|---------------|---------------|----------------|
| LQH2MCN1R0M02□ | 1.0μH ±20% | 1MHz                      | 485mA         | 0.30Ω±30%     | 100MHz         |
| LQH2MCN1R5M02□ | 1.5μH ±20% | 1MHz                      | 445mA         | 0.40Ω±30%     | 95MHz          |
| LQH2MCN2R2M02□ | 2.2μH ±20% | 1MHz                      | 425mA         | 0.48Ω±30%     | 70MHz          |
| LQH2MCN3R3M02□ | 3.3μH ±20% | 1MHz                      | 375mA         | 0.60Ω±30%     | 65MHz          |
| LQH2MCN4R7M02□ | 4.7μH ±20% | 1MHz                      | 300mA         | 0.8Ω±30%      | 60MHz          |
| LQH2MCN5R6M02□ | 5.6μH ±20% | 1MHz                      | 280mA         | 0.9Ω±30%      | 60MHz          |
| LQH2MCN6R8M02□ | 6.8μH ±20% | 1MHz                      | 255mA         | 1.0Ω±30%      | 55MHz          |
| LQH2MCN8R2M02□ | 8.2μH ±20% | 1MHz                      | 235mA         | 1.1Ω±30%      | 50MHz          |
| LQH2MCN100K02□ | 10μH ±10%  | 1MHz                      | 225mA         | 1.2Ω±30%      | 48MHz          |
| LQH2MCN120K02□ | 12μH ±10%  | 1MHz                      | 210mA         | 1.4Ω±30%      | 44MHz          |
| LQH2MCN150K02□ | 15μH ±10%  | 1MHz                      | 200mA         | 1.6Ω±30%      | 40MHz          |
| LQH2MCN180K02□ | 18μH ±10%  | 1MHz                      | 190mA         | 1.8Ω±30%      | 35MHz          |
| LQH2MCN220K02□ | 22μH ±10%  | 1MHz                      | 185mA         | 2.1Ω±30%      | 30MHz          |
| LQH2MCN270K02□ | 27μH ±10%  | 1MHz                      | 180mA         | 2.5Ω±30%      | 30MHz          |
| LQH2MCN330K02□ | 33μH ±10%  | 1MHz                      | 160mA         | 2.8Ω±30%      | 28MHz          |
| LQH2MCN390K02□ | 39μH ±10%  | 1MHz                      | 125mA         | 4.4Ω±30%      | 24MHz          |
| LQH2MCN470K02□ | 47μH ±10%  | 1MHz                      | 120mA         | 5.1Ω±30%      | 18MHz          |
| LQH2MCN560K02□ | 56μH ±10%  | 1MHz                      | 110mA         | 5.7Ω±30%      | 17MHz          |
| LQH2MCN680K02□ | 68μH ±10%  | 1MHz                      | 100mA         | 6.6Ω±30%      | 14MHz          |
| LQH2MCN820K02□ | 82μH ±10%  | 1MHz                      | 90mA          | 7.5Ω±30%      | 14MHz          |

Operating temp. range (Self-temp. rise not included): -40 to 85°C

Class of Magnetic Shield: No Shield

For reflow soldering only

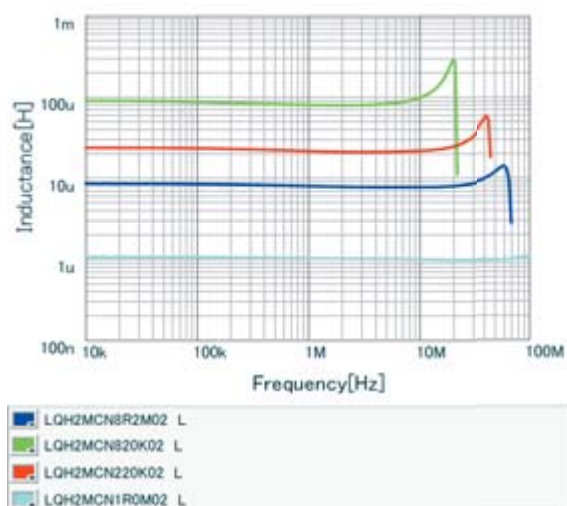
\*S.R.F.: Self-Resonant Frequency

When rated current is applied to the products, inductance will be within ±10% of initial inductance value. When rated current is applied to the products, the temperature rise caused by self-generated heat shall be limited to 40°C max.

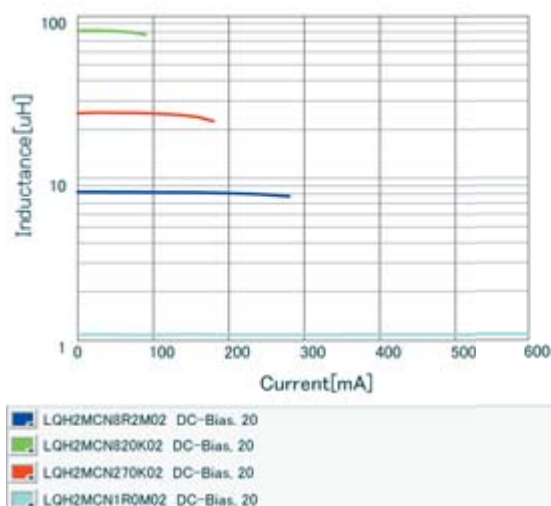
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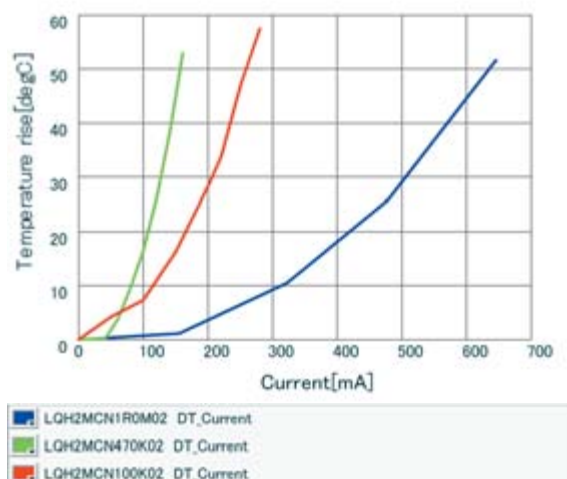
## Inductance-Frequency Characteristics (Typ.)



## Inductance-Current Characteristics (Typ.)



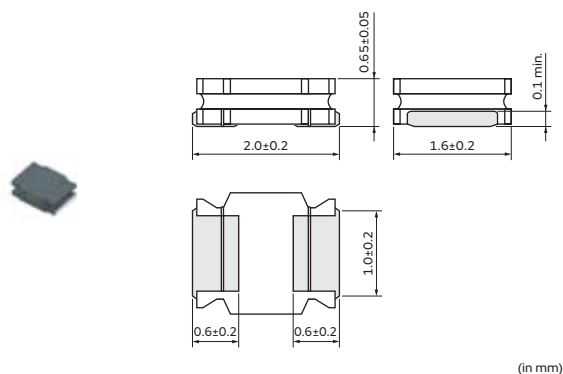
## Temperature Rise Characteristics (Typ.)



## Inductors for Power Lines

# LQH2MCN\_52 Series 0806 (2016) inch (mm)

### Appearance/Dimensions



### Packaging

| Code | Packaging              | Minimum Quantity |
|------|------------------------|------------------|
| L    | ø180mm Embossed Taping | 3000             |
| B    | Packing in Bulk        | 100              |

### Rated Value (□: packaging code)

| Part Number    | Inductance | Inductance Test Frequency | Rated Current | DC Resistance | S.R.F.* (min.) |
|----------------|------------|---------------------------|---------------|---------------|----------------|
| LQH2MCN1R0M52□ | 1.0μH ±20% | 1MHz                      | 595mA         | 0.25Ω±30%     | 215MHz         |
| LQH2MCN1R5M52□ | 1.5μH ±20% | 1MHz                      | 540mA         | 0.33Ω±30%     | 165MHz         |
| LQH2MCN2R2M52□ | 2.2μH ±20% | 1MHz                      | 500mA         | 0.42Ω±30%     | 125MHz         |
| LQH2MCN3R3M52□ | 3.3μH ±20% | 1MHz                      | 360mA         | 0.74Ω±30%     | 110MHz         |
| LQH2MCN4R7M52□ | 4.7μH ±20% | 1MHz                      | 335mA         | 0.91Ω±30%     | 90MHz          |
| LQH2MCN6R8M52□ | 6.8μH ±20% | 1MHz                      | 285mA         | 1.23Ω±30%     | 65MHz          |
| LQH2MCN100M52□ | 10μH ±20%  | 1MHz                      | 200mA         | 2.27Ω±30%     | 60MHz          |
| LQH2MCN120M52□ | 12μH ±20%  | 1MHz                      | 170mA         | 2.4Ω±30%      | 30MHz          |
| LQH2MCN150M52□ | 15μH ±20%  | 1MHz                      | 150mA         | 3.5Ω±30%      | 30MHz          |
| LQH2MCN180M52□ | 18μH ±20%  | 1MHz                      | 140mA         | 4.0Ω±30%      | 30MHz          |
| LQH2MCN220M52□ | 22μH ±20%  | 1MHz                      | 130mA         | 5.5Ω±30%      | 30MHz          |

Operating temp. range (Self-temp. rise not included): -40 to 85°C

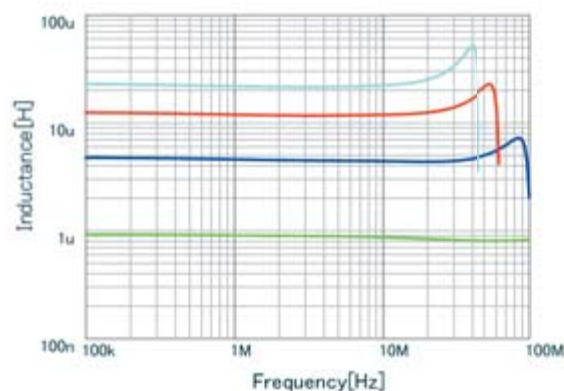
Class of Magnetic Shield: No Shield

For reflow soldering only

\*S.R.F.: Self-Resonant Frequency

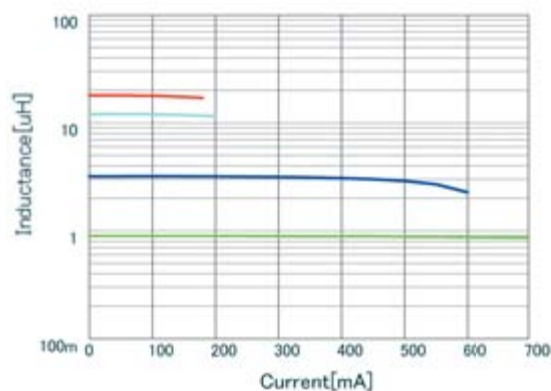
When rated current is applied to the products, inductance will be within ±10% of initial inductance value. When rated current is applied to the products, the temperature rise caused by self-generated heat shall be limited to 40°C max.

### Inductance-Frequency Characteristics (Typ.)



|   |               |   |
|---|---------------|---|
| ■ | LQH2MCN4R7M52 | L |
| ■ | LQH2MCN1R0M52 | L |
| ■ | LQH2MCN120M52 | L |
| ■ | LQH2MCN220M52 | L |

### Inductance-Current Characteristics (Typ.)

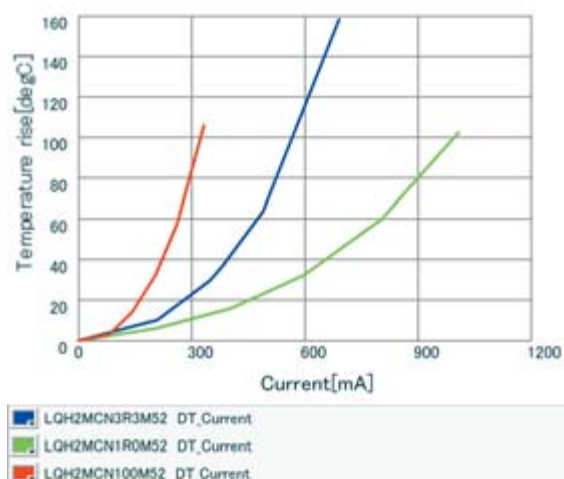


|   |               |             |
|---|---------------|-------------|
| ■ | LQH2MCN3R3M52 | DC-Bias, 20 |
| ■ | LQH2MCN1R0M52 | DC-Bias, 20 |
| ■ | LQH2MCN180M52 | DC-Bias, 20 |
| ■ | LQH2MCN120M52 | DC-Bias, 20 |

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## Temperature Rise Characteristics (Typ.)



## Inductors for Power Lines ⚠️Caution/Notice

### ⚠️Caution

#### Rating

##### 1. About the Rated Current

Do not use products beyond the rated current as this may create excessive heat and deteriorate the insulation resistance.

##### 2. About Excessive Surge Current

Surge current (pulse current or rush current) greater than the specified rated current applied to the product may cause a critical failure, such as an open circuit or burnout caused by excessive temperature rise.  
Please contact us in advance if applying a surge current.

### Notice

#### Storage and Operating Condition

##### <Operating Environment>

Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

##### <Storage Requirements>

##### 1. Storage Period

The LQM series should be used within 6 months; the other products should be used within 12 months.  
Check solderability if this period is exceeded.

##### 2. Storage Conditions

- (1) Store products in a warehouse in compliance with the following conditions:  
Temperature: -10 to +40°C.  
Humidity: 15 to 85% (relative humidity)

Do not subject products to rapid changes in temperature and humidity.

Do not store them in a chemical atmosphere such as one containing sulfurous acid gas or alkaline gas.  
This will prevent electrode oxidation, which causes poor solderability and possible corrosion of inductors.

- (2) Do not store products in bulk packaging to prevent collision among inductors, which causes core chipping and wire breakage.
- (3) Store products on pallets to protect from humidity, dust, etc.
- (4) Avoid heat shock, vibration, direct sunlight, etc.

#### Handling

This item is designed to have sufficient strength, but handle with care to avoid chipping or breaking its ceramic structure.

##### LQW\_C series

- To prevent breaking the wire, avoid touching with sharp materials, such as tweezers or other materials such as the bristles of a cleaning brush, to the wire wound portion.
- To prevent breaking the core, avoid applying excessive mechanical shock to products mounted on the board.
- In some mounting machines, when picking up components, a support pin pushes the components up from the bottom of the base tape. In this case, please remove the support pin. The support pin may damage the components and break the wire.
- In rare cases, the laser recognition cannot recognize this component. Please contact us when you use laser recognition. (There is no problem with the permeation and reflection type.)
- The product temperature rises about 40°C maximum when the permissible current is applied to LQW15C/LQW18C. Please use caution regarding the temperature of the substrate and air around the part.

##### LQH\_C/D/H/M/N/P series

- To prevent breaking the wire, avoid touching with sharp materials, such as tweezers or the bristles of a cleaning brush, to the wire wound portion of this product.
- To prevent breaking the core, avoid applying excessive mechanical shock to products mounted on the board.
- Temperature may rise up to max. 40°C when applying the rated current to Inductors for Power Lines. Use caution regarding the temperature rating of the circuit board and components around the chip Inductors.

##### LQM series

- There is the possibility that magnetism may change the inductance value. Do not use a magnet or tweezers with magnetism when handling chip inductors. (The tip of the tweezers should be molded with resin or pottery.)
- When the excessive current over rated current is applied, it may cause the inductance value to change due to magnetism.

##### <Transportation>

Do not apply excessive vibration or mechanical shock to products.

Continued on the following page. ↗

## Inductors for Power Lines ⚠Caution/Notice

Continued from the preceding page. ↘

### <Resin Coating>

When coating products with resin, the relatively high resin curing stress may change inductance values.

For exterior coating, select resin carefully so that electrical and mechanical performance of the product is not affected. Prior to use, please evaluate reliability with the product mounted in your application set.

(LQW, LQH series)

An open circuit issue may occur by mechanical stress caused by the resin, amount/cured shape of resin, or operating conditions, etc. Some resins containing impurities or chloride may possibly generate chlorine by hydrolysis under some operating conditions, causing corrosion of the inductor wire and leading to an open circuit.

### <Rated Current>

(LQH2HP\_GR/JR, LQH2MPN\_GR, LQH3NP\_GR/JR/ME, LQH44P\_GR, LQH5BPN\_38 Series)

When rated current is applied to the products, Inductance will be within  $\pm 30\%$  of specified inductance value range.

(Other LQH\_P Series except for LQH2HP\_G0 Series)

When rated current is applied to the products, Inductance will be within  $\pm 30\%$  of nominal inductance value.

### • Rated Current Based on Temperature Rise

For LQH2MC series and LQH\_P series, rated current is set to keep the temperature rise caused by self heating 40°C or less.

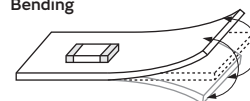
For other Inductors for Power Lines, please refer to individual specifications.

### <Handling of a Substrate>

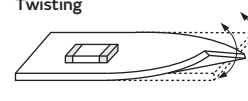
After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate, or tightening a screw to the substrate.

Excessive mechanical stress may cause cracking in the Product.

Bending



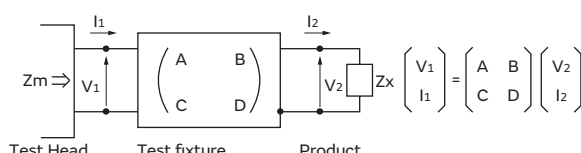
Twisting



## Measuring Method

### Measuring Method of Inductance/Q

1. Residual elements and stray elements of test fixtures can be described by F-parameter as shown in the following:



2. The impedance of chip inductors (chip coils)  $Z_x$  and measured value  $Z_m$  can be described by input/output current/voltage.

$$Z_m = \frac{V_1}{I_1}, \quad Z_x = \frac{V_2}{I_2}$$

3. Thus, the relation between  $Z_x$  and  $Z_m$  is shown in the following:

$$Z_x = \alpha \frac{Z_m - \beta}{1 - Z_m \Gamma}$$

$$\text{where, } \alpha = D / A = 1$$

$$\beta = B / D = Z_{sm} - (1 - Y_{om} Z_{sm}) Z_{ss}$$

$$\Gamma = C / A = Y_{om}$$

( $Z_{sm}$ : measured impedance of short chip  
 $Z_{ss}$ : residual impedance of short chip\*  
 $Y_{om}$ : measured admittance when opening the fixture)

\*Residual impedance of short chip

| Residual Impedance | Series |
|--------------------|--------|
| 0.556nH            | LQW15C |
| 0.771nH            | LQW18C |

4.  $L_x$  and  $Q_x$  should be calculated with the following equation.

$$L_x = \frac{\text{Im}(Z_x)}{2\pi f}, \quad Q_x = \frac{\text{Im}(Z_x)}{\text{Re}(Z_x)}$$

$L_x$ : Inductance of chip Inductors (chip coils)  
 $Q_x$ : Q of chip Inductors (chip coils)  
 $f$ : Measuring frequency

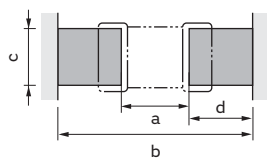
## Inductors for Power Lines Soldering and Mounting

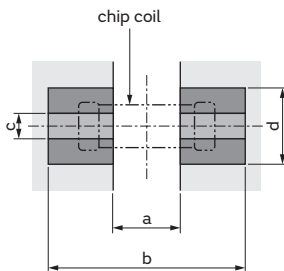
### 1. Standard Land Pattern Dimensions

A high Q value is achieved when the PCB electrode land pattern is designed so that it does not project beyond the

chip Inductor's (chip coil's) electrode.

Land Pattern + Solder Resist    Land Pattern    Solder Resist  
(in mm)

| Series                                                                                                                                                                                                                                                                                                                                                                                                                              | Standard Land Dimensions                                                          |                |        |     |         |      |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------|--------|-----|---------|------|------|
| <b>LQM18F/18P</b><br>(Except for LQM18P_CH/FH/GH)<br><b>LQM21D/21F/21P</b><br>(Except for LQM21P_CA/CH/<br>EH/GH)<br><b>LQM2MP</b><br>(Except for LQM2MP_GH)<br><b>LQM2HP</b><br>(Except for LQM2HP_CH/<br>EH/GH/JH)<br><b>LQM31P</b><br><b>LQM32P</b><br><b>LQH2MC</b><br><b>LQH31C</b><br><b>LQH32P</b><br><b>LQH44P_P0/J0/GR</b><br><b>LQH5BP</b><br><b>LQH55D/66S</b><br><b>LQW15CN_00</b><br><b>LQW15C_10</b><br><b>LQW18C</b> |  | Part Number    |        | a   | b       | c    | d    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQM18F/18P     | Flow   | 0.7 | 2.2-2.6 | 0.7  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   |                | Reflow |     |         |      |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQM21D/21F/21P |        | 1.2 | 3.0-4.0 | 1.0  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQM2MP         |        | 0.8 | 2.4     | 1.8  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQM2HP         |        | 1.6 | 3.0     | 1.5  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQM31P         |        | 2.0 | 4.2-5.2 | 1.2  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQM32P         |        | 1.9 | 3.6     | 2.7  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQH2MC         |        | 0.8 | 2.6     | 1.0  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQH31C         |        | 1.0 | 4.5     | 1.5  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQH32P         |        | 1.3 | 3.8     | 2.0  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQH44P_P0      |        | 1.3 | 4.4     | 3.0  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQH44P_J0/GR   |        | 1.5 | 4.4     | 2.7  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQH5BP         |        | 1.8 | 5.5     | 4.1  | 1.85 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQH55D/66S     |        | 2.0 | 8.0     | 3.5  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQW15CN_00     |        | 0.4 | 1.4     | 0.6  | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQW15C_10      |        | 0.4 | 1.4     | 0.66 | -    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | LQW18C         |        | 0.7 | 2.2     | 1.0  | -    |

| <b>LQM18P_CH/FH/GH</b><br><b>LQM21P_CA/CH/EH/GH</b><br><b>LQM2MP_GH</b><br><b>LQM2HP_CH/EH/GH/JH</b> |  | Part Number            | Rated Current (A) | a   | b       | c   | Land Pad Thickness and Dimension d |      |      |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------|-------------------|-----|---------|-----|------------------------------------|------|------|
|                                                                                                      |                                                                                     |                        |                   |     |         |     | 18μm                               | 35μm | 70μm |
|                                                                                                      |                                                                                     | LQM18P_CH              | 0-0.7             | 0.7 | 1.8-2.0 | 0.7 | 0.7                                | 0.7  | 0.7  |
|                                                                                                      |                                                                                     |                        | 0.7-1.05          |     |         |     | 1.1                                | 0.7  | 0.7  |
|                                                                                                      |                                                                                     | LQM18P_FH              | 0-0.7             | 0.7 | 1.8-2.0 | 0.7 | 0.7                                | 0.7  | 0.7  |
|                                                                                                      |                                                                                     |                        | 0.7-1.7           |     |         |     | 1.4                                | 0.7  | 0.7  |
|                                                                                                      |                                                                                     | LQM18P_GH              | 0-0.7             | 0.7 | 1.8-2.0 | 0.7 | 0.7                                | 0.7  | 0.7  |
|                                                                                                      |                                                                                     |                        | 0.7-1.15          |     |         |     | 1.2                                | 0.7  | 0.7  |
|                                                                                                      |                                                                                     | LQM21P_CA              | -                 | 1.2 | 3.0-4.0 | 1.0 | 1.3                                | 1.0  | 1.0  |
|                                                                                                      |                                                                                     | LQM21P_CH              | 0-1.0             | 1.2 | 3.0-4.0 | 1.0 | 1.0                                | 1.0  | 1.0  |
|                                                                                                      |                                                                                     |                        | 1.0-1.5           |     |         |     | 1.5                                | 1.0  | 1.0  |
|                                                                                                      |                                                                                     |                        | 1.5-              |     |         |     | 2.0                                | 1.5  | 1.0  |
|                                                                                                      |                                                                                     | LQM21P_EH<br>LQM21P_GH | 0-1.0             | 1.2 | 3.0-4.0 | 1.0 | 1.0                                | 1.0  | 1.0  |
|                                                                                                      |                                                                                     |                        | 1.0-1.5           |     |         |     | 1.5                                | 1.0  | 1.0  |
|                                                                                                      |                                                                                     |                        | 1.5-3.1           |     |         |     | 3.0                                | 1.5  | 1.0  |
|                                                                                                      |                                                                                     | LQM2MP_GH              | 0-1.5             | 0.8 | 2.4     | 1.8 | 1.8                                | 1.8  | 1.8  |
|                                                                                                      |                                                                                     |                        | 1.5-2.5           |     |         |     | 2.4                                | 1.8  | 1.8  |
|                                                                                                      |                                                                                     |                        | 2.5-5.0           |     |         |     | 5.0                                | 2.4  | 1.8  |
|                                                                                                      |                                                                                     | LQM2HP_CH              | 0-1.5             | 1.6 | 3.0     | 1.5 | 1.5                                | 1.5  | 1.5  |
|                                                                                                      |                                                                                     |                        | 1.5-3.0           |     |         |     | 3.0                                | 1.5  | 1.5  |
|                                                                                                      |                                                                                     | LQM2HP_EH              | 0-1.5             | 1.6 | 3.0     | 1.5 | 1.5                                | 1.5  | 1.5  |
|                                                                                                      |                                                                                     |                        | 1.5-3.0           |     |         |     | 3.0                                | 1.5  | 1.5  |
|                                                                                                      |                                                                                     |                        | 3.0-5.0           |     |         |     | 5.0                                | 3.0  | 1.5  |
|                                                                                                      |                                                                                     | LQM2HP_GH              | 0-1.5             | 1.6 | 3.0     | 1.5 | 1.5                                | 1.5  | 1.5  |
|                                                                                                      |                                                                                     |                        | 1.5-2.6           |     |         |     | 2.4                                | 1.5  | 1.5  |
|                                                                                                      |                                                                                     |                        | 3.3-4.2           |     |         |     | 4.4                                | 3.6  | 2.4  |
|                                                                                                      |                                                                                     | LQM2HP_JH              | 0-1.6             | 1.6 | 3.0     | 1.5 | 1.5                                | 1.5  | 1.5  |
|                                                                                                      |                                                                                     |                        | 1.6-2.4           |     |         |     | 2.4                                | 1.5  | 1.5  |
| 2.4-3.5                                                                                              | 3.6                                                                                 |                        | 2.4               |     |         |     | 1.5                                |      |      |

Attention should be paid to potential magnetic coupling effects when using the Inductor (coil) as a resonator.

Continued on the following page. ➤

## Inductors for Power Lines Soldering and Mounting

Continued from the preceding page. ↘

Land Pattern + Solder Resist    Land Pattern    Solder Resist  
(in mm)

| Series                                        | Standard Land Dimensions |
|-----------------------------------------------|--------------------------|
| <b>LQH2HP</b><br>(Except for LQH2HP_GR)       |                          |
| <b>LQH2HP_GR/JR</b>                           |                          |
| <b>LQH32C/D</b>                               |                          |
| <b>LQH3NP</b><br>(Except for LQH3NP_JR/GR/ME) |                          |
| <b>LQH3NP_JR/GR/ME</b>                        |                          |
| <b>LQH43C</b><br><b>LQH43P</b>                |                          |

Attention should be paid to potential magnetic coupling effects when using the Inductor (coil) as a resonator.

## 2. Standard Soldering Conditions

### (1) Soldering method

Chip Inductors (Chip coils) can be flow or reflow soldered.

Please contact Murata regarding other soldering methods.

For LQH2MC/2MP/2HP/3NP/32D/32P/43PB/44P/5BP/55D/66S, LQM2MP\_DH/EH/GH/2HP\_CH/EH/GH/JH/18P\_CH/DH/FH/GH/21P\_CA/CH/EH/GH/32P, LQW15C/18C series, please use reflow soldering.

Solder: Use Sn-3.0Ag-0.5Cu solder.

Flux: Use rosin-based flux, but not strongly acidic flux (with chlorine content exceeding 0.2wt%).

Do not use water-soluble flux.

The flux used for the LQW15C/18C series should be a rosin-based flux that includes a middle activator equivalent to 0.06wt% to 0.1wt% chlorine.

For additional mounting methods, please contact Murata.

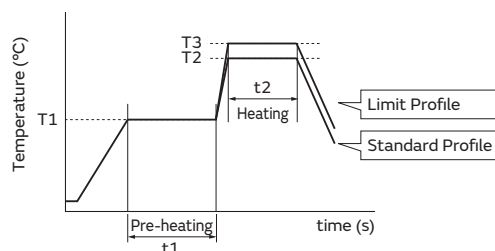
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## Inductors for Power Lines Soldering and Mounting

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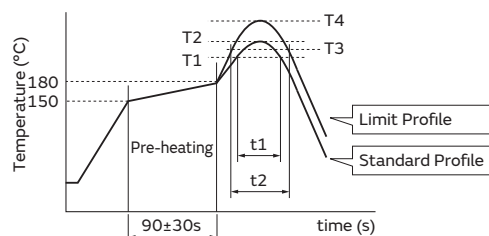
### (2) Soldering profile

#### ●Flow Soldering profile (Sn-3.0Ag-0.5Cu solder)



| Series                                                                                                                                                                      | Pre-heating |            | Standard Profile |            |               | Limit Profile |            |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------|------------------|------------|---------------|---------------|------------|---------------|
|                                                                                                                                                                             | Temp. (T1)  | Time. (t1) | Temp. (T2)       | Time. (t2) | Cycle of flow | Temp. (T3)    | Time. (t2) | Cycle of flow |
| LQM18F/18P<br>(Except for CH/DH/FH/GH)<br>LQM21D/21F/21P<br>(Except for CA/CH/EH/GH)<br>LQM2MP (Except for DH/EH/GH)<br>LQM2HP (Except for CH/EH/GH/JH)<br>LQM31P<br>LQH31C | 150°C       | 60s min.   | 250°C            | 4 to 6s    | 2 times max.  | 265±3°C       | 5s max.    | 2 times max.  |
| LQH32C<br>LQH43C/43PN                                                                                                                                                       | 150°C       | 60s min.   | 250°C            | 4 to 6s    | 2 times max.  | 265±3°C       | 5s max.    | 1 time        |

#### ●Reflow Soldering profile (Sn-3.0Ag-0.5Cu solder)



| Series                                                                                                                                                                       | Standard Profile |            |                       |                 | Limit Profile |            |                       |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------|-----------------------|-----------------|---------------|------------|-----------------------|-----------------|
|                                                                                                                                                                              | Heating          |            | Peak temperature (T2) | Cycle of reflow | Heating       |            | Peak temperature (T4) | Cycle of reflow |
|                                                                                                                                                                              | Temp. (T1)       | Time. (t1) |                       |                 | Temp. (T3)    | Time. (t2) |                       |                 |
| LQM18F/18P<br>LQM21D/21F/21P/2MP/2HP<br>LQM31P/32P<br>LQH2MC, LQH2HP<br>LQH31C<br>LQH32D_23<br>(Except for 391/471/561)<br>LQH32D_53<br>LQH3NP/32P/43P/44P/5BP<br>LQW15C/18C | 220°C            | 30 to 60s  | 245±3°C               | 2 times max.    | 230°C         | 60s max.   | 260°C/10s             | 2 times max.    |
| LQH32C<br>LQH32D_23 (391/471/561 only)<br>LQH43C<br>LQH55D, LQH66S                                                                                                           | 220°C            | 30 to 60s  | 245±3°C               | 2 times max.    | 230°C         | 60s max.   | 260°C/10s             | 1 time          |

Continued on the following page. ↗

## Inductors for Power Lines Soldering and Mounting

Continued from the preceding page. ↘

### (3) Reworking with a Soldering Iron

Preheating at 150°C for 1 minute is required. Do not directly touch the ceramic element with the tip of the soldering iron. The reworking soldering conditions are as follows:

Soldering iron power output: 80W max.

Temperature of soldering iron tip: 350°C

Diameter of soldering iron end: 3.0mm max.

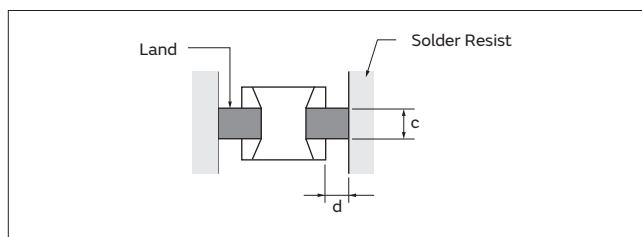
Soldering time: within 3 s

Please keep the fix time with the soldering iron within 2 times.

## 3. Mounting Instructions

### (1) Land Pattern Dimensions

Large lands reduce the Q of the mounted chip. Also, large protruding land areas (bordered by lines having the dimensions "c" and "d" shown) cause floating and electrode leaching.



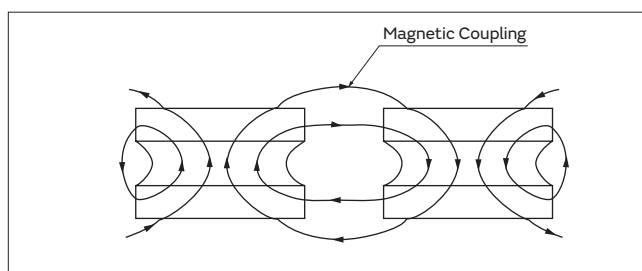
### (2) Land Pattern Designing (LQH series, LQW series)

Please follow the recommended patterns.

Otherwise, their performance, which includes electrical performance or solderability, may be affected, or result in "position shift" in the soldering process.

### (3) Magnetic Coupling

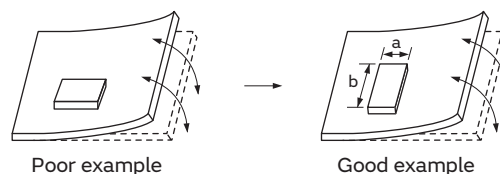
Since some chip inductors (chip coils) are constructed like an open magnetic circuit, narrow spacing between inductors (coils) may cause magnetic coupling. LQM, LQH66S, and LQH\_P series have a magnetically shielded structure. The structure makes their coupling coefficient smaller than that of conventional chip inductors (chip coils).



### (4) PCB Warping

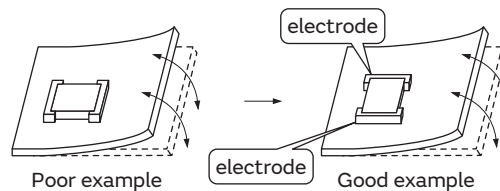
The PCB should be designed so that products are not subjected to mechanical stress caused by warping of the board.

Products should be located in a sideways direction (Length:  $a < b$ ) to mechanical stress.



Except LQH3NP/44P/5BP

The electrode part of the product should be located as in the figure to avoid mechanical stress.



LQH3NP/44P/5BP

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## Inductors for Power Lines Soldering and Mounting

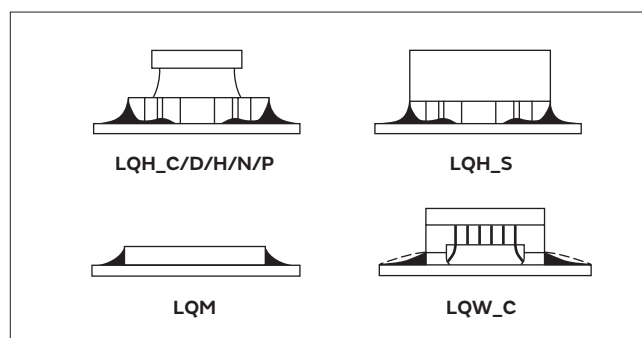
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### (5) Amount of Solder Paste

Excessive solder causes electrode corrosion, while insufficient solder causes low electrode bonding strength. Adjust the amount of solder paste as shown on the right so that the correct amount is applied.

Guideline of solder paste thickness

- LQW15C: 50 to 100μm
- LQM, LQW18C, LQH2MC/2HP, LQH3NP/32P, LQH43PB/LQH44P/5BP: 100 to 150μm
- LQH31C/32C, LQH43C/43PN, LQH55D, LQH66S: 200 to 300μm



## 4. Cleaning

The following conditions should be observed when cleaning chip inductors (chip coils):

- (1) Cleaning Temperature: 60°C max. (40°C max. for alcohol cleaning agents)
- (2) Ultrasonic
  - Output: 20W/l max.
  - Duration: 5 minutes max.
  - Frequency: 28 to 40kHz
  - Care should be taken not to cause resonance of the PCB and mounted products.

### (3) Cleaning agent

The following cleaning agents have been tested on individual components. Evaluation in complete assembly should be done prior to production.

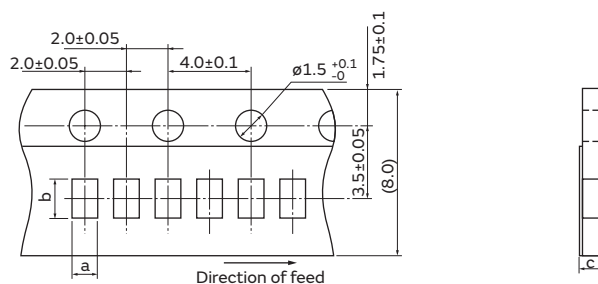
- (a) Alcohol cleaning agents
  - Isopropyl alcohol (IPA)
- (b) Aqueous cleaning agents
  - Pine Alpha ST-100S
  - LQH66S series: Aqueous agents should not be used because they may cause quality deterioration or damage to appearance.

- (4) Ensure that flux residue is completely removed. Component should be thoroughly dried after aqueous agents have been removed with deionized water.

For additional cleaning methods, please contact Murata.

## Inductors for Power Lines Packaging

### Minimum Quantity and 8mm Width Taping Dimensions



#### Paper Tape

| Part Number | Dimensions          |      | Total Thickness of Tape | Packaging Code (Minimum Qty. (pcs.)) |             |         |
|-------------|---------------------|------|-------------------------|--------------------------------------|-------------|---------|
|             | a                   | b    |                         | ø180mm reel                          | ø330mm reel | Bulk    |
| LQW15CN_00  | 0.64: 70nH to 200nH | 1.18 | 0.8 max.                | D (10000)                            | —           | B (500) |
|             | 0.66: 18nH to 48nH  |      |                         |                                      |             |         |
| LQW15C_10   | 0.69                | 1.18 | 0.8 max.                | D (10000)                            | —           | B (500) |

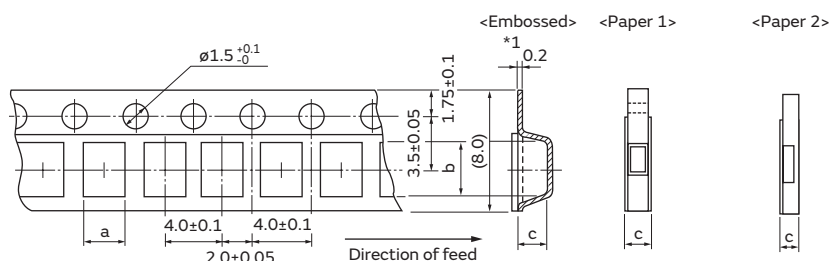
(in mm)

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## Inductors for Power Lines Packaging

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### Minimum Quantity and 8mm Width Taping Dimensions



The dimension of the cavity of embossed tape is measured at the bottom side.

\*1: 0.25 LQM2HP/2MP/31P\_00, LQH2, LQM21P

#### Paper Tape 1

| Part Number               | Dimensions |      | Total Thickness of Tape | Packaging Code (Minimum Qty. (pcs.)) |                    |          |
|---------------------------|------------|------|-------------------------|--------------------------------------|--------------------|----------|
|                           | a          | b    |                         | $\phi 180$ mm reel                   | $\phi 330$ mm reel | Bulk     |
| LQM21D (1 to 10 $\mu$ H)  | 1.45       | 2.25 | 1.1 max.                | D (4000)                             | J (10000)          | B (1000) |
| LQM21F (1 to 2.2 $\mu$ H) | 1.45       | 2.25 | 1.1 max.                | D (4000)                             | J (10000)          | B (1000) |
| LQM21P_C0                 | 1.45       | 2.25 | 0.8 max.                | D (4000)                             | —                  | B (1000) |
| LQM21P_CA                 | 1.45       | 1.45 | 0.9 max.                | D (3000)                             | —                  | B (1000) |
| LQM21P_CH                 | 1.45       | 2.25 | 0.7 max.                | D (3000)                             | —                  | B (1000) |
| LQM21P_EH                 | 1.45       | 2.25 | 1.0 max.                | D (3000)                             | —                  | B (1000) |
| LQM21P_G                  | 1.45       | 2.25 | 1.1 max.                | D (4000)                             | —                  | B (1000) |
| LQM18F                    | 1.05       | 1.85 | 1.1 max.                | D (4000)                             | J (10000)          | B (1000) |
| LQM18P_D0                 | 1.05       | 1.85 | 0.85 max.               | D (4000)                             | —                  | B (1000) |
| LQM18P_CH                 | 1.1        | 1.9  | 0.95 max.               | D (4000)                             | —                  | B (1000) |
| LQM18P_GH                 | 1.1        | 1.9  | 1.25 max.               | D (4000)                             | —                  | B (1000) |
| LQW18C                    | 1.0        | 1.8  | 1.1 max.                | D (4000)                             | —                  | B (500)  |

#### Paper Tape 2

| Part Number | Dimensions |      | Total Thickness of Tape | Packaging Code (Minimum Qty. (pcs.)) |                    |          |
|-------------|------------|------|-------------------------|--------------------------------------|--------------------|----------|
|             | a          | b    |                         | $\phi 180$ mm reel                   | $\phi 330$ mm reel | Bulk     |
| LQM18PN_DH  | 1.05       | 1.85 | 1.05 max.               | D (4000)                             | —                  | B (1000) |

(in mm)

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## Inductors for Power Lines Packaging

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### Minimum Quantity and 8mm Width Taping Dimensions

#### Embossed Tape

| Part Number              | Dimensions |      | Depth of Cavity | Packaging Code (Minimum Qty. (pcs.)) |             |          |
|--------------------------|------------|------|-----------------|--------------------------------------|-------------|----------|
|                          | a          | b    | c               | ø180mm reel                          | ø330mm reel | Bulk     |
| LQM18P_B0                | 1.0        | 1.8  | 0.50            | L (4000)                             | —           | B (1000) |
| LQM18P_C0                | 1.0        | 1.8  | 0.60            | L (4000)                             | —           | B (1000) |
| LQM18P_F0                | 1.0        | 1.8  | 1.0             | L (4000)                             | —           | B (1000) |
| LQM21D (22 to 47μH)      | 1.45       | 2.25 | 1.3             | L (3000)                             | K (10000)   | B (1000) |
| LQM21F (4.7 to 47μH)     | 1.45       | 2.25 | 1.3             | L (3000)                             | K (10000)   | B (1000) |
| LQM21P_GH                | 1.45       | 2.25 | 1.05            | L (3000)                             | —           | B (1000) |
| LQM2HP_CH                | 2.3        | 2.8  | 0.6             | L (3000)                             | —           | B (1000) |
| LQM2HP_J0/JC             | 2.25       | 2.75 | 1.3             | L (3000)                             | —           | B (1000) |
| LQM2HP_JH                | 2.25       | 2.75 | 1.3             | L (3000)                             | —           | —        |
| LQM2HP_G                 | 2.3        | 2.8  | 1.1             | L (3000)                             | —           | B (1000) |
| LQM2HP_GH                | 2.3        | 2.8  | 1.1             | L (3000)                             | —           | —        |
| LQM2HP_E0/EH             | 2.3        | 2.8  | 0.9             | L (3000)                             | —           | B (1000) |
| LQM2MP_DH/EH             | 1.9        | 2.4  | 0.9             | L (3000)                             | —           | B (1000) |
| LQM2MP_G0                | 1.85       | 2.25 | 1.1             | L (3000)                             | —           | B (1000) |
| LQM2MP_GH                | 1.9        | 2.4  | 1.1             | L (3000)                             | —           | —        |
| LQM31P_00                | 1.9        | 3.5  | 1.05            | L (3000)                             | —           | B (1000) |
| LQM31P_C0                | 1.9        | 3.5  | 0.75            | L (4000)                             | —           | B (1000) |
| LQM32P_G0/GC             | 2.9        | 3.6  | 1.15            | L (3000)                             | —           | B (1000) |
| LQH31C                   | 1.9        | 3.6  | 2.0             | L (2000)                             | K (7500)    | —        |
| LQH32C_33/_23, LQH32D_23 | 2.9        | 3.6  | 2.1             | L (2000)                             | K (7500)    | —        |
| LQH32C_53, LQH32D_53     | 2.9        | 3.6  | 1.7             | L (2000)                             | K (7500)    | —        |
| LQH32P                   | 2.9        | 3.6  | 1.7             | L (2000)                             | K (7500)    | —        |
| LQH2MC_02                | 1.9        | 2.3  | 1.05            | L (3000)                             | —           | B (100)  |
| LQH2MC_52                | 1.9        | 2.3  | 0.8             | L (3000)                             | —           | B (100)  |

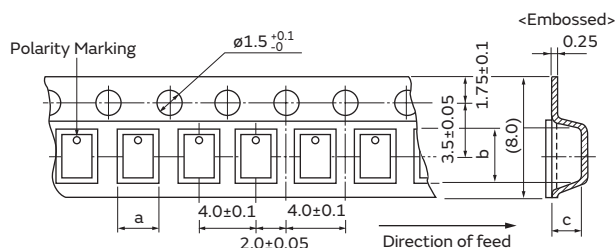
(in mm)

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## Inductors for Power Lines Packaging

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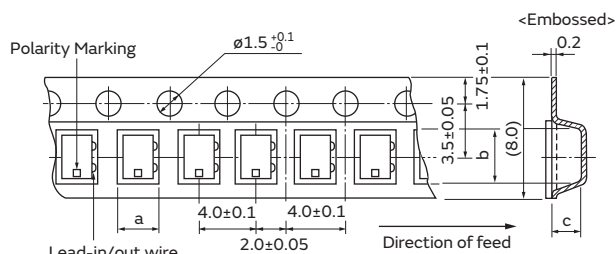
### Minimum Quantity and 8mm Width Taping Dimensions



The dimension of the cavity is measured at the bottom side.

#### Embossed Tape

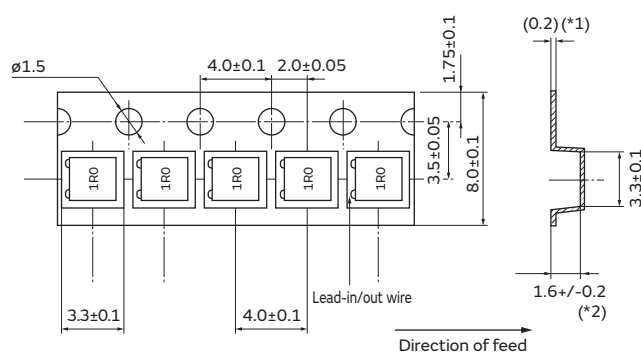
| Part Number | Dimensions |     | Depth of Cavity | Packaging Code (Minimum Qty. (pcs.)) |                    |      |
|-------------|------------|-----|-----------------|--------------------------------------|--------------------|------|
|             | a          | b   |                 | $\phi 180$ mm reel                   | $\phi 330$ mm reel | Bulk |
| LQH2HP_GR   | 2.3        | 2.8 | 1.1             | L (3000)                             | —                  | —    |
| LQH2HP_JR   | 2.3        | 2.8 | 1.3             | L (2000)                             | —                  | —    |



The dimension of the cavity is measured at the bottom side.

#### Embossed Tape

| Part Number | Dimensions |     | Depth of Cavity | Packaging Code (Minimum Qty. (pcs.)) |                    |      |
|-------------|------------|-----|-----------------|--------------------------------------|--------------------|------|
|             | a          | b   |                 | $\phi 180$ mm reel                   | $\phi 330$ mm reel | Bulk |
| LQH3NP_MR   | 3.3        | 3.3 | 1.6             | E (2000)                             | F (8000)           | —    |



The dimension of the cavity is measured at the bottom side.

\*1 0.3 LQH3NP\_GR  
\*2 1.1  $\pm 0.1$  LQH3NP\_GR

#### Embossed Tape

| Part Number | Dimensions |     | Depth of Cavity | Packaging Code (Minimum Qty. (pcs.)) |                    |      |
|-------------|------------|-----|-----------------|--------------------------------------|--------------------|------|
|             | a          | b   |                 | $\phi 180$ mm reel                   | $\phi 330$ mm reel | Bulk |
| LQH3NP_GR   | 3.3        | 3.3 | 1.1             | L (3000)                             | —                  | —    |
| LQH3NP_JR   | 3.3        | 3.3 | 1.6             | L (2000)                             | —                  | —    |
| LQH3NP_ME   | 3.3        | 3.3 | 1.6             | L (2000)                             | —                  | —    |

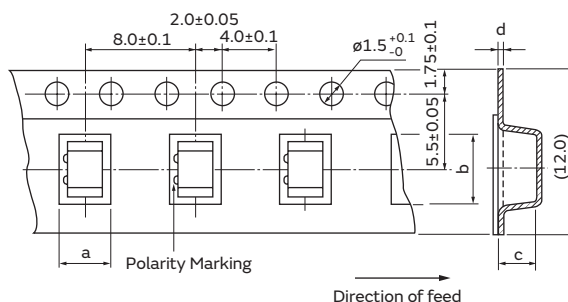
(in mm)

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## Inductors for Power Lines Packaging

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### Minimum Quantity and 12mm Width Embossed Taping Dimensions



The dimension of the cavity of embossed tape is measured at the bottom side.

#### Embossed Tape

| Part Number  | Dimensions (*c: Depth of Cavity) |     |     |     | Packaging Code (Minimum Qty. (pcs.)) |             |      |
|--------------|----------------------------------|-----|-----|-----|--------------------------------------|-------------|------|
|              | a                                | b   | c   | d   | ø180mm reel                          | ø330mm reel | Bulk |
| LQH43C       | 3.6                              | 4.9 | 2.7 | 0.3 | L (500)                              | —           | —    |
| LQH43P       | 3.6                              | 4.9 | 2.7 | 0.3 | L (500)                              | K (2500)    | —    |
| LQH44P_J0/GR | 4.3                              | 4.3 | 1.4 | 0.3 | L (1000)                             | K (3500)    | —    |
| LQH44P_P0    | 4.3                              | 4.3 | 1.9 | 0.3 | L (1000)                             | K (3500)    | —    |
| LQH5BP_38    | 5.3                              | 5.3 | 4.2 | 0.4 | L (400)                              | K (1500)    | —    |
| LQH5BP_T0    | 5.3                              | 5.3 | 2.4 | 0.3 | L (500)                              | K (3000)    | —    |
| LQH55D       | 5.4                              | 6.1 | 5.0 | 0.4 | L (350)                              | K (1500)    | —    |
| LQH66S       | 6.7                              | 6.7 | 5.6 | 0.4 | L (350)                              | K (1500)    | —    |

(in mm)