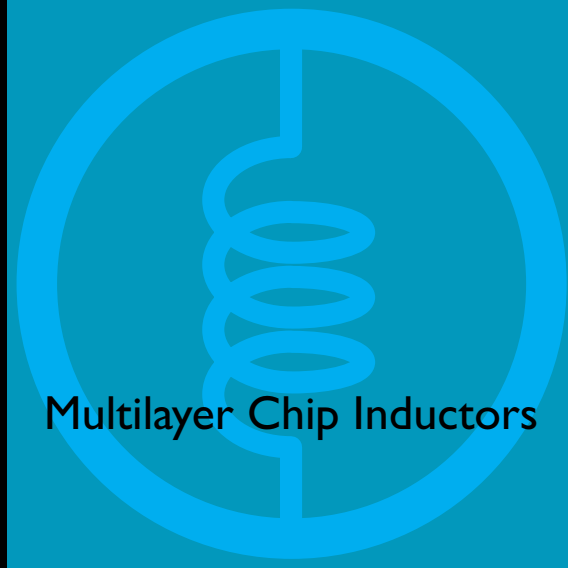


CL Series

Multilayer Chip Inductors



APPLICATIONS

For Main Board, CD-ROM, Hard Disk Driver, Wireless Phone, Pager and other related devices.

OUTLINE

Chilisin multilayer chip inductor is formed without a wound wire and has a closed magnetic circuit formed by simultaneous forming of alternative layers of ferrite paste and conductor paste.

However this multilayer chip inductor results in magnetic shielding the absence of leakage flux makes it most suitable for high density mounting.

FEATURES

These components are standard SMD parts and specially designed for flow and reflow soldering.

Specially designed for surface mounting equipment, available in various size which allows them to wide rang of application and usage.

PACKAGING QUANTITY

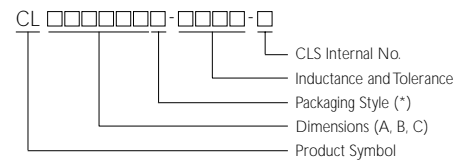
| TYPE | BULK | CHIP/REEL |
|----------|------|-----------|
| CL160808 | √ | 4000 |
| CL160812 | √ | 4000 |
| CL201209 | √ | 4000 |
| CL201212 | √ | 3000 |
| CL321611 | √ | 3000 |

SHAPES AND DIMENSIONS

| TYPE | A | B | C | D |
|----------|------------|-------------|-------------|-----------|
| CL160808 | 1.6 ± 0.15 | 0.80 ± 0.15 | 0.8 ± 0.15 | 0.3 ± 0.2 |
| CL201209 | 2.0 ± 0.20 | 1.25 ± 0.20 | 0.9 ± 0.20 | 0.5 ± 0.3 |
| CL201212 | 2.0 ± 0.20 | 1.25 ± 0.20 | 1.25 ± 0.20 | 0.5 ± 0.3 |
| CL321611 | 3.2 ± 0.20 | 1.60 ± 0.20 | 1.10 ± 0.20 | 0.5 ± 0.3 |

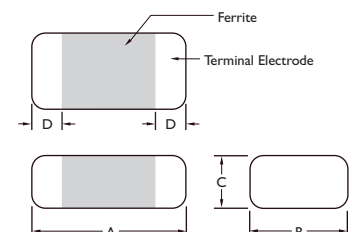


PRODUCT IDENTIFICATION



* B: Bulk ; T: Tape and Reel

Dimensions : mm





ELECTRICAL CHARACTERISTICS CL160808 (0603) SERIES

| PART NO. | INDUCTANCE (μ H) | Q Min. | L, Q TEST FREQUENCY (MHz) | SELF RESONANT FREQUENCY (MHz) Min. | DC RESISTANCE RDC (Ω) Max. | IDC (mA) Max. |
|------------------|--------------------------|-----------|---------------------------------|--|--|------------------|
| CL160808T-47NM-S | 0.047 \pm 20% | 20 | 50 | 260 | 0.30 | 50 |
| CL160808T-68NM-S | 0.068 \pm 20% | 20 | 50 | 250 | 0.30 | 50 |
| CL160808T-82NM-S | 0.082 \pm 20% | 20 | 50 | 245 | 0.30 | 50 |
| CL160808T-R10□-S | 0.10 \pm 20 or 10% | 30 | 25 | 240 | 0.50 | 50 |
| CL160808T-R12□-S | 0.12 \pm 20 or 10% | 30 | 25 | 205 | 0.50 | 50 |
| CL160808T-R15□-S | 0.15 \pm 20 or 10% | 30 | 25 | 180 | 0.60 | 50 |
| CL160808T-R18□-S | 0.18 \pm 20 or 10% | 30 | 25 | 165 | 0.60 | 50 |
| CL160808T-R22□-S | 0.22 \pm 20 or 10% | 30 | 25 | 150 | 0.80 | 50 |
| CL160808T-R27□-S | 0.27 \pm 20 or 10% | 30 | 25 | 136 | 0.80 | 50 |
| CL160808T-R33□-S | 0.33 \pm 20 or 10% | 30 | 25 | 125 | 0.85 | 35 |
| CL160808T-R39□-S | 0.39 \pm 20 or 10% | 30 | 25 | 110 | 1.00 | 35 |
| CL160808T-R47□-S | 0.47 \pm 20 or 10% | 30 | 25 | 105 | 1.35 | 35 |
| CL160808T-R56□-S | 0.56 \pm 20 or 10% | 30 | 25 | 95 | 1.55 | 35 |
| CL160808T-R68□-S | 0.68 \pm 20 or 10% | 30 | 25 | 85 | 1.70 | 35 |
| CL160808T-R82□-S | 0.82 \pm 20 or 10% | 30 | 25 | 75 | 2.10 | 35 |
| CL160808T-1R0□-S | 1.0 \pm 20 or 10% | 35 | 10 | 65 | 0.60 | 25 |
| CL160808T-1R2□-S | 1.2 \pm 20 or 10% | 35 | 10 | 60 | 0.80 | 25 |
| CL160808T-1R5□-S | 1.5 \pm 20 or 10% | 35 | 10 | 55 | 0.80 | 25 |
| CL160808T-1R8□-S | 1.8 \pm 20 or 10% | 35 | 10 | 50 | 0.95 | 25 |
| CL160808T-2R2□-S | 2.2 \pm 20 or 10% | 35 | 10 | 45 | 1.15 | 15 |
| CL160808T-2R7□-S | 2.7 \pm 20 or 10% | 35 | 10 | 40 | 1.35 | 15 |
| CL160808T-3R3□-S | 3.3 \pm 20 or 10% | 35 | 10 | 38 | 1.55 | 15 |
| CL160808T-3R9□-S | 3.9 \pm 20 or 10% | 35 | 10 | 36 | 1.70 | 15 |
| CL160808T-4R7□-S | 4.7 \pm 20 or 10% | 35 | 10 | 33 | 2.10 | 15 |
| CL160808T-5R6□-S | 5.6 \pm 20 or 10% | 35 | 4 | 22 | 1.55 | 5 |
| CL160808T-6R8□-S | 6.8 \pm 20 or 10% | 35 | 4 | 20 | 1.70 | 5 |
| CL160812T-8R2□-S | 8.2 \pm 20 or 10% | 30 | 4 | 18 | 2.10 | 5 |
| CL160812T-100□-S | 10 \pm 20 or 10% | 30 | 2 | 17 | 2.55 | 5 |

ELECTRICAL CHARACTERISTICS CL201209, CL201212 (0805) SERIES

| PART NO. | INDUCTANCE (μ H) | Q Min. | L, Q TEST FREQUENCY (MHz) | SELF RESONANT FREQUENCY (MHz) Min. | DC RESISTANCE RDC (Ω) Max. | IDC (mA) Max. |
|------------------|--------------------------|-----------|---------------------------------|--|--|------------------|
| CL201209T-47NM-S | 0.047 \pm 20% | 25 | 50 | 320 | 0.20 | 300 |
| CL201209T-68NM-S | 0.068 \pm 20% | 25 | 50 | 280 | 0.20 | 300 |
| CL201209T-82NM-S | 0.082 \pm 20% | 25 | 50 | 255 | 0.20 | 300 |
| CL201209T-R10□-S | 0.10 \pm 20 or 10% | 30 | 25 | 235 | 0.30 | 250 |
| CL201209T-R12□-S | 0.12 \pm 20 or 10% | 30 | 25 | 220 | 0.30 | 250 |
| CL201209T-R15□-S | 0.15 \pm 20 or 10% | 30 | 25 | 200 | 0.40 | 250 |
| CL201209T-R18□-S | 0.18 \pm 20 or 10% | 30 | 25 | 185 | 0.40 | 250 |
| CL201209T-R22□-S | 0.22 \pm 20 or 10% | 30 | 25 | 170 | 0.50 | 250 |
| CL201209T-R27□-S | 0.27 \pm 20 or 10% | 30 | 25 | 150 | 0.50 | 250 |
| CL201209T-R33□-S | 0.33 \pm 20 or 10% | 30 | 25 | 145 | 0.55 | 250 |
| CL201209T-R39□-S | 0.39 \pm 20 or 10% | 30 | 25 | 135 | 0.65 | 250 |
| CL201209T-R47□-S | 0.47 \pm 20 or 10% | 30 | 25 | 125 | 0.65 | 250 |
| CL201209T-R56□-S | 0.56 \pm 20 or 10% | 30 | 25 | 115 | 0.75 | 150 |
| CL201209T-R68□-S | 0.68 \pm 20 or 10% | 30 | 25 | 105 | 0.80 | 150 |
| CL201209T-R82□-S | 0.82 \pm 20 or 10% | 30 | 25 | 100 | 1.00 | 150 |
| CL201209T-1R0□-S | 1.0 \pm 20 or 10% | 45 | 10 | 75 | 0.45 | 50 |
| CL201209T-1R2□-S | 1.2 \pm 20 or 10% | 45 | 10 | 65 | 0.50 | 50 |
| CL201209T-1R5□-S | 1.5 \pm 20 or 10% | 45 | 10 | 60 | 0.50 | 50 |
| CL201209T-1R8□-S | 1.8 \pm 20 or 10% | 45 | 10 | 55 | 0.60 | 50 |
| CL201209T-2R2□-S | 2.2 \pm 20 or 10% | 45 | 10 | 50 | 0.65 | 30 |
| CL201212T-2R7□-S | 2.7 \pm 20 or 10% | 45 | 10 | 45 | 0.75 | 30 |
| CL201212T-3R3□-S | 3.3 \pm 20 or 10% | 45 | 10 | 41 | 0.80 | 30 |
| CL201212T-3R9□-S | 3.9 \pm 20 or 10% | 45 | 10 | 38 | 0.90 | 30 |
| CL201212T-4R7□-S | 4.7 \pm 20 or 10% | 45 | 10 | 35 | 1.00 | 30 |
| CL201212T-5R6□-S | 5.6 \pm 20 or 10% | 45 | 4 | 32 | 0.90 | 15 |
| CL201212T-6R8□-S | 6.8 \pm 20 or 10% | 45 | 4 | 29 | 1.00 | 15 |
| CL201212T-8R2□-S | 8.2 \pm 20 or 10% | 45 | 4 | 26 | 1.10 | 15 |
| CL201212T-100□-S | 10 \pm 20 or 10% | 45 | 2 | 24 | 1.15 | 15 |
| CL201212T-120□-S | 12 \pm 20 or 10% | 45 | 2 | 22 | 1.25 | 15 |
| CL201212T-150□-S | 15 \pm 20 or 10% | 30 | 1 | 19 | 0.80 | 5 |
| CL201212T-180□-S | 18 \pm 20 or 10% | 30 | 1 | 18 | 0.90 | 5 |

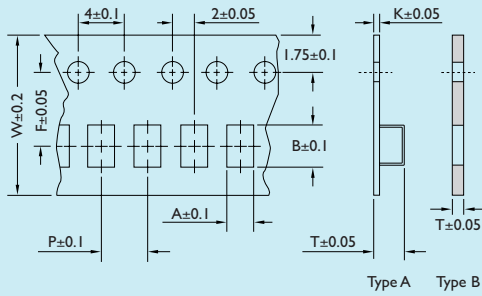


ELECTRICAL CHARACTERISTICS CL321611 SERIES

| PART NO. | INDUCTANCE (μ H) | Q Min. | L, Q TEST FREQUENCY (MHZ) | SELF RESONANT FREQUENCY Min. (MHZ) | DC RESISTANCE RDC Max. (Ω) | IDC Max. (mA) |
|------------------|--------------------------|-----------|---------------------------------|--|---|------------------|
| CL321611T-47NM-S | 0.047 \pm 20% | 25 | 50 | 320 | 0.15 | 300 |
| CL321611T-68NM-S | 0.068 \pm 20% | 25 | 50 | 280 | 0.25 | 300 |
| CL321611T-82NM-S | 0.082 \pm 20% | 25 | 50 | 250 | 0.25 | 300 |
| CL321611T-R10□-S | 0.10 \pm 20 or 10% | 30 | 25 | 235 | 0.25 | 250 |
| CL321611T-R12□-S | 0.12 \pm 20 or 10% | 30 | 25 | 220 | 0.30 | 250 |
| CL321611T-R15□-S | 0.15 \pm 20 or 10% | 30 | 25 | 200 | 0.30 | 250 |
| CL321611T-R18□-S | 0.18 \pm 20 or 10% | 30 | 25 | 185 | 0.40 | 250 |
| CL321611T-R22□-S | 0.22 \pm 20 or 10% | 30 | 25 | 170 | 0.40 | 250 |
| CL321611T-R27□-S | 0.27 \pm 20 or 10% | 30 | 25 | 150 | 0.50 | 250 |
| CL321611T-R33□-S | 0.33 \pm 20 or 10% | 30 | 25 | 145 | 0.60 | 250 |
| CL321611T-R39□-S | 0.39 \pm 20 or 10% | 30 | 25 | 135 | 0.60 | 200 |
| CL321611T-R47□-S | 0.47 \pm 20 or 10% | 30 | 25 | 125 | 0.60 | 200 |
| CL321611T-R56□-S | 0.56 \pm 20 or 10% | 30 | 25 | 115 | 0.70 | 150 |
| CL321611T-R68□-S | 0.68 \pm 20 or 10% | 30 | 25 | 105 | 0.80 | 150 |
| CL321611T-R82□-S | 0.82 \pm 20 or 10% | 30 | 25 | 100 | 0.90 | 150 |
| CL321611T-1R0□-S | 1.0 \pm 20 or 10% | 45 | 10 | 75 | 0.40 | 100 |
| CL321611T-1R2□-S | 1.2 \pm 20 or 10% | 45 | 10 | 65 | 0.50 | 100 |
| CL321611T-1R5□-S | 1.5 \pm 20 or 10% | 45 | 10 | 60 | 0.50 | 80 |
| CL321611T-1R8□-S | 1.8 \pm 20 or 10% | 45 | 10 | 55 | 0.50 | 70 |
| CL321611T-2R2□-S | 2.2 \pm 20 or 10% | 45 | 10 | 50 | 0.60 | 60 |
| CL321611T-2R7□-S | 2.7 \pm 20 or 10% | 45 | 10 | 45 | 0.60 | 60 |
| CL321611T-3R3□-S | 3.3 \pm 20 or 10% | 45 | 10 | 41 | 0.70 | 60 |
| CL321611T-3R9□-S | 3.9 \pm 20 or 10% | 45 | 10 | 38 | 0.80 | 50 |
| CL321611T-4R7□-S | 4.7 \pm 20 or 10% | 45 | 10 | 35 | 0.90 | 50 |
| CL321611T-5R6□-S | 5.6 \pm 20 or 10% | 45 | 4 | 32 | 0.70 | 25 |
| CL321611T-6R8□-S | 6.8 \pm 20 or 10% | 45 | 4 | 29 | 0.80 | 25 |
| CL321611T-8R2□-S | 8.2 \pm 20 or 10% | 45 | 4 | 26 | 0.90 | 25 |
| CL321611T-100□-S | 10 \pm 20 or 10% | 45 | 2 | 24 | 1.00 | 25 |
| CL321611T-120□-S | 12 \pm 20 or 10% | 45 | 2 | 22 | 1.05 | 15 |
| CL321611T-150□-S | 15 \pm 20 or 10% | 35 | 1 | 19 | 0.70 | 5 |
| CL321611T-180□-S | 18 \pm 20 or 10% | 35 | 1 | 18 | 0.75 | 5 |

TAPE DIMENSIONS

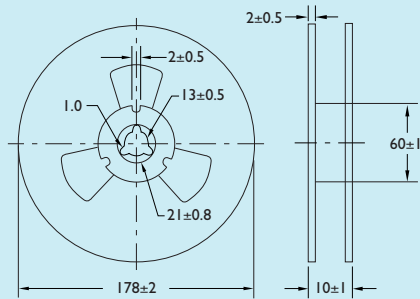
Dimensions : mm



| TYPE | A | B | T | W | P | F | K | TAPE TYPE |
|----------|------|------|------|-----|-----|-----|-----|-----------|
| CL160808 | 1.1 | 1.9 | 0.95 | 8.0 | 4.0 | 3.5 | - | B |
| CL160812 | 0.95 | 1.75 | 1.35 | 8.0 | 4.0 | 3.5 | 0.2 | A |
| CL201209 | 1.54 | 2.32 | 1.15 | 8.0 | 4.0 | 3.5 | 0.2 | A |
| CL201212 | 1.54 | 2.32 | 1.35 | 8.0 | 4.0 | 3.5 | 0.2 | A |
| CL321611 | 1.94 | 3.54 | 1.29 | 8.0 | 4.0 | 3.5 | 0.2 | A |

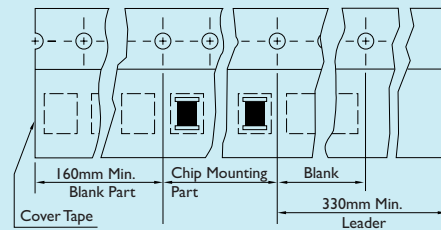
REEL DIMENSIONS

Dimensions : mm



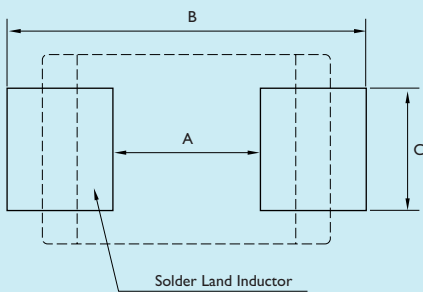
TAPE MATERIAL

Carrier Tape : Polystyrene (for 201209, 201212, 321611 Series), Paper (for 160808)
 Cover Type : Polyethyiene



RECOMMENDED PATTERN

Dimensions : mm



| TYPE | A | B | C |
|----------|-----|-----------|-----|
| CL160808 | 0.8 | 2.4 ~ 3.4 | 0.6 |
| CL160812 | 0.8 | 2.4 ~ 3.4 | 0.6 |
| CL201209 | 1.2 | 3.0 ~ 4.0 | 1.0 |
| CL201212 | 1.2 | 3.0 ~ 4.0 | 1.0 |
| CL321611 | 2.0 | 4.2 ~ 5.2 | 1.2 |

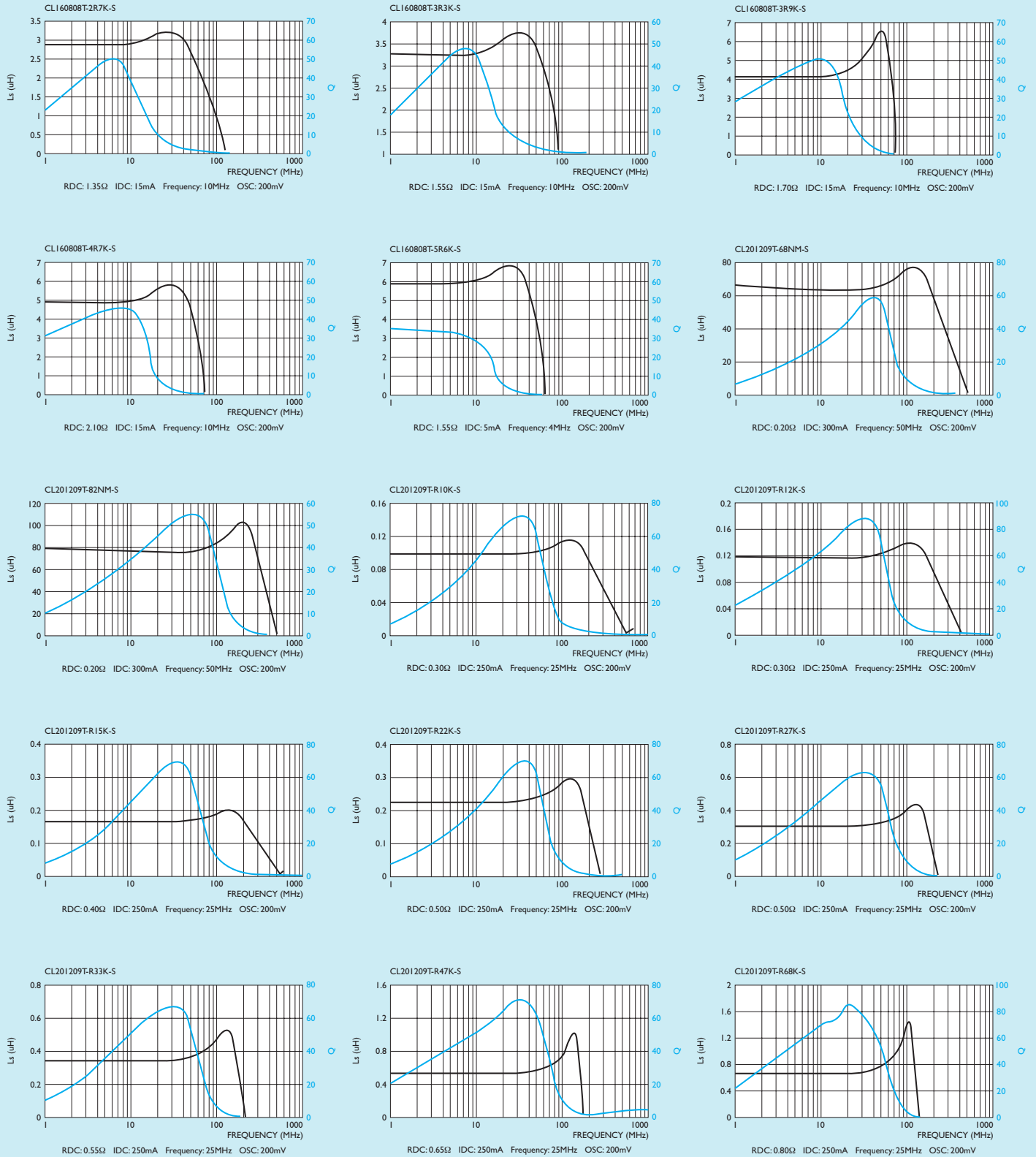
PACKAGING QUANTITY

| TYPE | BULK | CHIP/REEL |
|----------|------|-----------|
| CL160808 | √ | 4000 |
| CL160812 | √ | 4000 |
| CL201209 | √ | 4000 |
| CL201212 | √ | 3000 |
| CL321611 | √ | 3000 |



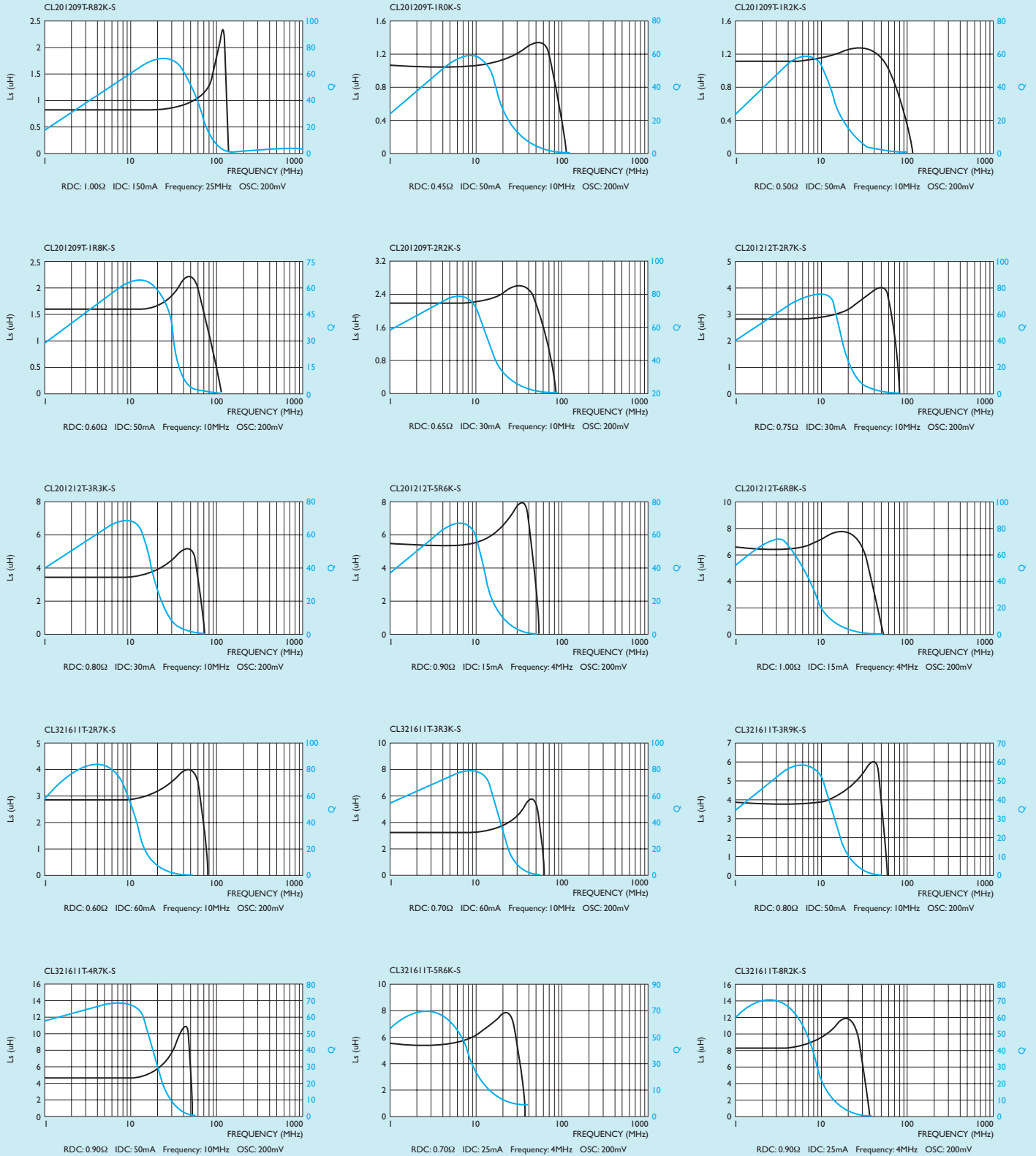
TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance / Material Analyzer



TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance / Material Analyzer





TYPICAL ELECTRICAL CHARACTERISTICS

Test Instruments : HP4291A Impedance / Material Analyzer

