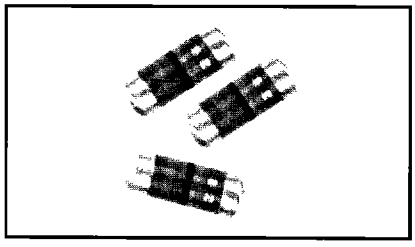
# Model SIM-0204

Vishay Dale

## Mini Melf Inductors

*High Q*



**FEATURES**

- Stable metal film on high quality ceramic.
- High Q values on higher frequencies.
- Compatable with vapor phase and infrared reflow soldering.
- Automatic placement capability.

**APPLICATIONS**

Applicable for TV-sets, cordless telephones, PCMCIA-cards, tuners, modems and video equipment.

**STANDARD ELECTRICAL SPECIFICATIONS**

| MODEL | IND. (nH) | TOL. | Q Min. | Q Typical Frequency (MHz) | | | | | | | | | | SRF MIN. (MHz) | DCR MAX. (mA) | IDC MAX. (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100 MHz | 100 | 200 | 300 | 450 | 500 | 800 | 900 | 1000 | 1700 | 1800 | | | |
| SIM-0204 | 1.0 | ± 0.3nH | 16 | 22 | 38 | 57 | 74 | 80 | 98 | 110 | 122 | 150 | — | 9800 | 9 | 2500 |
| SIM-0204 | 1.2 | ± 0.3nH | 16 | 24 | 38 | 55 | 73 | 80 | 100 | 110 | 120 | 155 | — | 9300 | 12 | 2500 |
| SIM-0204 | 1.5 | ± 0.3nH | 16 | 25 | 40 | 55 | 70 | 75 | 97 | 105 | 110 | 150 | — | 9000 | 15 | 2500 |
| SIM-0204 | 1.8 | ± 0.3nH | 16 | 25 | 38 | 53 | 61 | 70 | 90 | 95 | 100 | 120 | 140 | 8500 | 20 | 2500 |
| SIM-0204 | 2.2 | ± 0.3nH | 16 | 26 | 37 | 43 | 50 | 53 | 65 | 70 | 73 | 95 | 100 | 8000 | 25 | 2000 |
| SIM-0204 | 2.7 | ± 0.3nH | 16 | 21 | 29 | 35 | 40 | 45 | 58 | 61 | 65 | 92 | 98 | 8500 | 30 | 2000 |
| SIM-0204 | 3.3 | ± 0.3nH | 16 | 19 | 25 | 30 | 37 | 40 | 55 | 60 | 63 | 90 | 98 | 7000 | 37 | 2000 |
| SIM-0204 | 3.9 | ± 10% | 16 | 19 | 25 | 31 | 37 | 41 | 55 | 60 | 65 | 92 | 97 | 6800 | 45 | 1500 |
| SIM-0204 | 4.7 | ± 10% | 16 | 20 | 25 | 32 | 38 | 45 | 62 | 66 | 70 | 92 | 97 | 6500 | 60 | 1500 |
| SIM-0204 | 5.6 | ± 10% | 16 | 20 | 23 | 30 | 35 | 43 | 58 | 62 | 67 | 90 | 95 | 6200 | 75 | 1500 |
| SIM-0204 | 6.8 | ± 10% | 16 | 19 | 23 | 30 | 38 | 47 | 58 | 60 | 65 | 87 | 90 | 6000 | 90 | 1500 |
| SIM-0204 | 8.2 | ± 10% | 16 | 19 | 23 | 28 | 34 | 38 | 55 | 58 | 63 | 86 | 90 | 5800 | 120 | 1500 |
| SIM-0204 | 10 | ± 10% | 16 | 18 | 23 | 27 | 33 | 37 | 50 | 55 | 60 | 85 | 87 | 5600 | 150 | 1500 |
| SIM-0204 | 12 | ± 10% | 16 | 18 | 23 | 28 | 35 | 40 | 53 | 57 | 60 | 78 | 82 | 5100 | 180 | 1000 |
| SIM-0204 | 15 | ± 10% | 16 | 18 | 24 | 30 | 36 | 40 | 50 | 53 | 55 | 70 | 72 | 4500 | 200 | 1000 |
| SIM-0204 | 18 | ± 10% | 16 | 18 | 25 | 31 | 40 | 42 | 50 | 52 | 55 | 64 | 65 | 4100 | 250 | 1000 |
| SIM-0204 | 22 | ± 10% | 16 | 18 | 25 | 30 | 35 | 40 | 53 | 58 | 65 | 52 | 50 | 3800 | 300 | 1000 |
| SIM-0204 | 27 | ± 10% | 16 | 20 | 27 | 33 | 37 | 43 | 60 | 67 | 72 | 60 | 58 | 3400 | 350 | 650 |
| SIM-0204 | 33 | ± 10% | 16 | 21 | 30 | 35 | 38 | 43 | 58 | 65 | 75 | 60 | 58 | 3200 | 400 | 650 |
| SIM-0204 | 39 | ± 10% | 16 | 21 | 30 | 35 | 40 | 45 | 60 | 65 | 70 | 50 | 48 | 3000 | 500 | 650 |
| SIM-0204 | 47 | ± 10% | 16 | 22 | 30 | 37 | 47 | 49 | 65 | 68 | 70 | 48 | 45 | 2800 | 600 | 500 |
| SIM-0204 | 56 | ± 10% | 16 | 22 | 30 | 38 | 46 | 50 | 65 | 70 | 67 | 45 | 40 | 2500 | 800 | 500 |
| SIM-0204 | 68 | ± 10% | 16 | 23 | 31 | 38 | 44 | 48 | 58 | 60 | 57 | 32 | — | 2300 | 1000 | 400 |
| SIM-0204 | 82 | ± 10% | 16 | 23 | 31 | 38 | 48 | 50 | 60 | 55 | 45 | — | — | 2100 | 1400 | 400 |
| SIM-0204 | 100 | ± 10% | 16 | 23 | 31 | 38 | 48 | 50 | 59 | 57 | 52 | — | — | 2000 | 1700 | 400 |

**ELECTRICAL SPECIFICATIONS**

**Operating Temperature Range:** - 55°C to + 125°C.

**TEST EQUIPMENT**

**Inductance & Q:** HP4291A; HP4286 Fixture 16192A.

**RDC:** esi1700.

**SRF:** HP4342A; HP8753B; HP8753D; HP4291A.

**Q vs. Frequency:** HP4291a Test fixture-HP16192A.

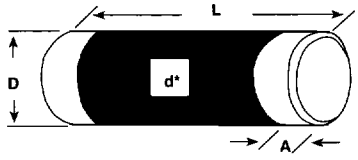
**IDC:** Determined when superimposed DC current is decreased 10% against its initial value.

**ENVIRONMENTAL SPECIFICATIONS**

| TEST | CONDITIONS |
|---|---|
| Temperature coefficient of inductance | ± 100 ppm/K |
| Working temperature range | - 55°C to + 125°C |
| $Q_{min}$ at 45MHz | 11 |
| Core Material | 85% Alumina |
| Dielectric Withstanding Voltage | 500 V AC |
| Insulation Resistance | > 1.000MΩ |
| Weight per 1000 pieces | 20g |
| Flammability (withstands needle flame test) | IEC 695-2-2 |
| Solderability | Max. 260°C for 10 sec. |

## DIMENSIONAL CONFIGURATIONS

[Numbers in brackets indicate millimeters]

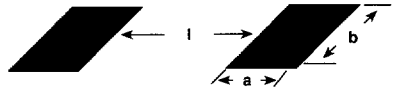



| MODEL | $D_{Max.}$ | d* | L | $A_{Max.}$ | $A_{Min.}$ |
|---|---|---|---|---|---|
| SIM-0204 | .055 [1.4] | D - .006 [D - 0.15] | .142 - .006 [3.6 - 0.15] | .033 [0.85] | .020 [0.5] |

*d measured in the middle of the resistor.

## SUGGESTED SOLDER PAD LAYOUT

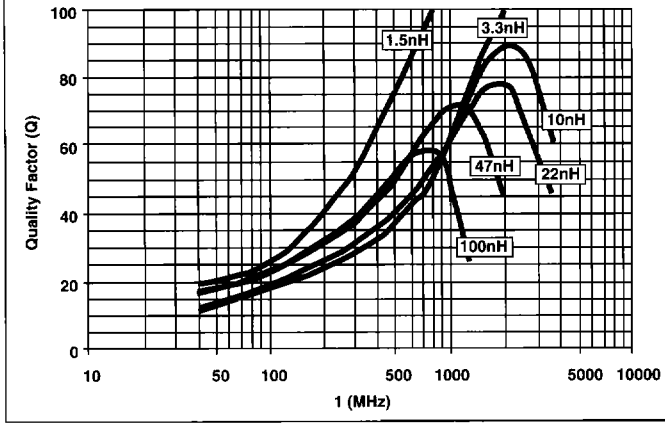
[Numbers in brackets indicate millimeters]



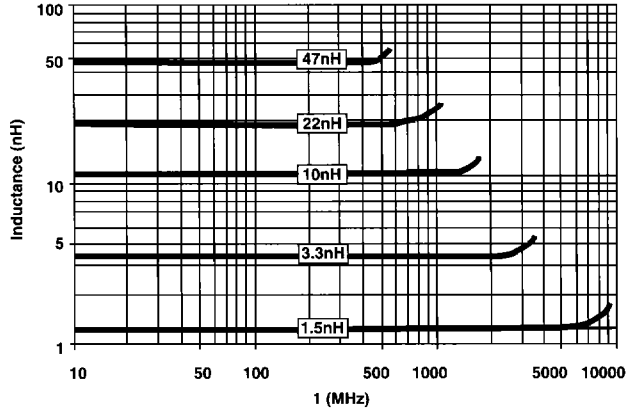

| Reflow | | | Wave | | |
|---|---|---|---|---|---|
| a | b | l | a | b | l |
| .040 [1.0] | .063 [1.6] | .087 [2.2] | .047 [1.2] | .063 [1.6] | .087 [2.2] |

## PERFORMANCE GRAPHS

### Q vs Frequency




### Inductance vs Frequency




## ENVIRONMENTAL PERFORMANCE

| TEST | CONDITIONS | TEST RESULTS (ΔL /ΔQ) |
|---|---|---|
| **Static Humidity** | Inductor subjected to 95 ± 5% R.H. at 50°C ± 2% for 100 hours | ± 3% / ± 5% |
| **High temperature storage** | Inductor subjected to + 125°C for 48 ± 2 hours | ± 5% / ± 10% |
| **Thermal shock** | 10 cycles of - 40°C/30 minutes and + 125°C/30 minutes | ± 5% / ± 10% |
| **Low temperature storage** | Inductor shall be subjected to - 40°C ± 2°C for 48 ± 2 hours | ± 5% / ± 10% |
| **High temperature load life** | Biased to full rated current at + 125°C for 1000 hours | ± 5% / ± 10% |

**NOTE:** Unless otherwise specified, measurements shall be performed within two hours after leaving test samples for more than one hour at the normal temperature and humidity.

## PACKAGING [Numbers in brackets indicate millimeters]

| | REEL | | | | BULK | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Bulk Feeding Magazine | | Loose in Plastic Container | |
| | | | | | Pieces/Magazine | | Pieces/Container | |
| MODEL | Tape width | Diameter | Pieces/Reel | Code | Pieces | Code | Pieces | Code |
| SIM-0204 | 8mm | 7.09 [180] | 3000 | B3 | 3000 | M3 | 5000 | L5 |
| | Blistertape | 13.0 [330] | 10000 | B0 | | | | |

## HOW TO ORDER

| SIM-0204 | EC | 3.3 | ±10% | B0 |
|---|---|---|---|---|
| MODEL | VERSION | INDUCTANCE VALUE (nH) | TOLERANCE | PACKAGING |
| | EC = Epoxy Coated | | | B0 = Blistertape 10,000 pcs |