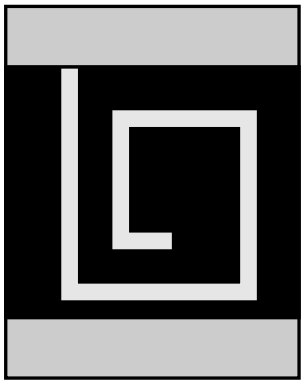
# THE DATASHEET OF

# L08055R6DEWTR\3

# Accu-L®

## SMD High-Q RF Inductor





10 nH Inductor (Top View)

## ACCU-L® TECHNOLOGY

The Accu-L® SMD Inductor is based on thin-film multilayer technology. This technology provides a level of control on the electrical and physical characteristics of the component which gives consistent characteristics within a lot and lot-to-lot.

The original design provides small size, excellent high-frequency performance and rugged construction for reliable automatic assembly.

The Accu-L® inductor is particularly suited for the telecommunications industry where there is a continuing trend towards miniaturization and increasing frequencies. The Accu-L® inductor meets both the performance and tolerance requirements of present cellular frequencies 450MHz and 900MHz and of future frequencies, such as 1700MHz, 1900MHz and 2400MHz.

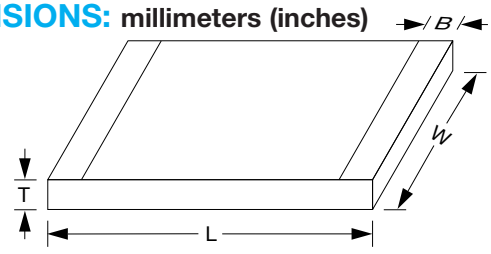
## FEATURES

- High Q
- RF Power Capability
- High SRF
- Low DC Resistance
- Ultra-Tight Tolerance on Inductance
- Standard 0603 and 0805 Chip Size
- Low Profile
- Rugged Construction
- Taped and Reeled

## APPLICATIONS

- Mobile Communications
- Satellite TV Receivers
- GPS
- Vehicle Locations Systems
- Filters
- Matching Networks

## DIMENSIONS: millimeters (inches)




| | 0603 | 0805 |
|---|---|---|
| L | 1.6±0.10 (0.063±0.004) | 2.11±0.10 (0.083±0.004) |
| W | 0.81±0.10 (0.032±0.004) | 1.5±0.10 (0.059±0.004) |
| T | 0.61±0.10 (0.024±0.004) | 0.91±0.13 (0.036±0.005) |
| B | top: 0.0 +0.3/-0.0 (0.0+0.012)<br>bottom: 0.35±0.20 (0.014±0.008) | 0.25±0.15 (0.010±0.006) |

Operating/Storage Temp. Range: -55°C to +125°C

# Accu-L® 0603 and 0805

## SMD High-Q RF Inductor

AVX RF

## HOW TO ORDER

| L | 0805 | 4R7 | D | E | S | TR |
|---|---|---|---|---|---|---|
| **Product** Inductor | **Size** 0603 0805 | **Inductance** Expressed in nH (2 significant digits + number of zeros) **for values <10nH,** letter R denotes decimal point. Example: 22nH = 220 4.7nH = 4R7 | **Tolerance for L ≤ 4.7nH,** B = ±0.1nH C = ±0.2nH D = ±0.5nH **4.7nH<L<10nH,** C = ±0.2nH D = ±0.5nH **L ≥ 10nH,** G = ±2% J = ±5% | **Specification Code** E = Accu-L® 0805 technology G = Accu-L® 0603 technology | **Termination Code** W = Nickel/ solder coated (Sn 63, Pb 37) **S = Nickel/ Lead Free Solder coated (Sn100) | **Packaging Code** TR = Tape and Reel (3,000/reel) |

Not RoHS Compliant

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

*For RoHS compliant products, please select correct termination style.*

**RoHS compliant

***Engineering Kits Available see pages 114-115***

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## ELECTRICAL SPECIFICATIONS TABLE FOR ACCU-L® 0603

| 450 MHz Test Frequency | | | 900 MHz Test Frequency | | 1900 MHz Test Frequency | | 2400 MHz Test Frequency | | SRF min (MHz) | RDC max (Ω) | IDC max (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Inductance L (nH) | Available Inductance Tolerance | Q Typical | L (nH) | Q Typical | L (nH) | Q Typical | L (nH) | Q Typical | | | (1) |
| 1.2 | ±0.1, ±0.2nH | 49 | 1.2 | 70 | 1.2 | 134 | 1.2 | 170 | 10000 | 0.04 | 1000 |
| 1.5 | ±0.1, ±0.2nH | 26 | 1.54 | 39 | 1.52 | 63 | 1.52 | 76 | 10000 | 0.06 | 1000 |
| 1.8 | ±0.1, ±0.2nH | 20 | 1.74 | 30 | 1.73 | 50 | 1.72 | 59 | 10000 | 0.07 | 1000 |
| 2.2 | ±0.1, ±0.2nH | 20 | 2.2 | 30 | 2.24 | 49 | 2.24 | 56 | 10000 | 0.08 | 1000 |
| 2.7 | ±0.1, ±0.2nH | 21 | 2.7 | 30 | 2.75 | 48 | 2.79 | 54 | 9000 | 0.08 | 750 |
| 3.3 | ±0.1, ±0.2, ±0.5nH | 24 | 3.33 | 35 | 3.39 | 56 | 3.47 | 64 | 8400 | 0.08 | 750 |
| 3.9 | ±0.1, ±0.2, ±0.5nH | 25 | 3.9 | 57 | 4.06 | 60 | 4.21 | 69 | 6500 | 0.12 | 500 |
| 4.7 | ±0.1, ±0.2, ±0.5nH | 23 | 4.68 | 32 | 4.92 | 46 | 5.2 | 49 | 5500 | 0.15 | 500 |
| 5.6 | ±0.2, ±0.5nH | 26 | 5.65 | 36 | 5.94 | 54 | 6.23 | 60 | 5000 | 0.25 | 300 |
| 6.8 | ±0.2, ±0.5nH | 23 | 6.9 | 33 | 7.3 | 47 | 8.1 | 39 | 4500 | 0.30 | 300 |
| 8.2 | ±0.2, ±0.5nH | 23 | 8.4 | 31 | 10 | 35 | 12.1 | 31 | 3800 | 0.35 | 300 |
| 10.0 | ±2%, ±5% | 28 | 10 | 39 | 11.8 | 47 | 14.1 | 41 | 3500 | 0.45 | 300 |
| 12.0 | ±2%, ±5% | 28 | 13.2 | 38 | 14.1 | 30 | 17.2 | 20 | 3000 | 0.50 | 300 |
| 15.0 | ±2%, ±5% | 28 | 16.2 | 38 | 25.9 | 30 | 49.8 | 15 | 2500 | 0.60 | 300 |

(1) $I_{DC}$ measured for 15°C rise at 25°C ambient temperature when soldered to FR-4 board.

Inductance and Q measured on Agilent 4291B / 4287 using the 16196A test fixture.

## ELECTRICAL SPECIFICATIONS TABLE FOR ACCU-L® 0805

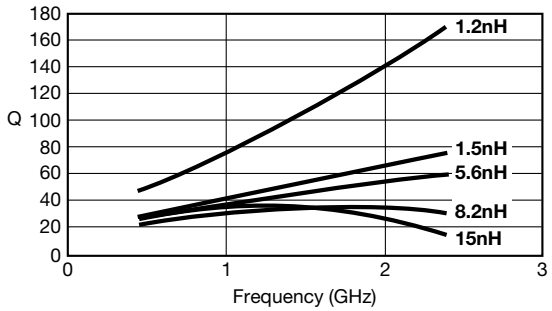
| 450 MHz Test Frequency | | | 900 MHz Test Frequency | | 1700 MHz Test Frequency | | 2400 MHz Test Frequency | | SRF min (MHz) | RDC max (Ω) | IDC max (mA) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inductance L (nH) | Available Inductance Tolerance | Q Typical | L (nH) | Q Typical | L (nH) | Q Typical | L (nH) | Q Typical | | | ΔT = 15°C (1) | ΔT = 70°C (2) |
| 1.2 | ±0.1nH, ±0.2nH, ±0.5nH | 60 | 1.2 | 92 | 1.2 | 122 | 1.2 | 92 | 10000 | 0.05 | 1000 | 2000 |
| 1.5 | ±0.1nH, ±0.2nH, ±0.5nH | 50 | 1.5 | 74 | 1.5 | 102 | 1.5 | 84 | 10000 | 0.05 | 1000 | 2000 |
| 1.8 | ±0.1nH, ±0.2nH, ±0.5nH | 50 | 1.8 | 72 | 1.8 | 88 | 1.9 | 73 | 10000 | 0.06 | 1000 | 2000 |
| 2.2 | ±0.1nH, ±0.2nH, ±0.5nH | 42 | 2.2 | 62 | 2.2 | 82 | 2.3 | 72 | 10000 | 0.07 | 1000 | 2000 |
| 2.7 | ±0.1nH, ±0.2nH, ±0.5nH | 42 | 2.7 | 62 | 2.8 | 80 | 2.9 | 70 | 10000 | 0.08 | 1000 | 2000 |
| 3.3 | ±0.1nH, ±0.2nH, ±0.5nH | 38 | 3.3 | 46 | 3.4 | 48 | 3.5 | 57 | 10000 | 0.11 | 750 | 1500 |
| 3.9 | ±0.1nH, ±0.2nH, ±0.5nH | 27 | 3.9 | 36 | 4.0 | 38 | 4.1 | 42 | 10000 | 0.20 | 750 | 1500 |
| 4.7 | ±0.1nH, ±0.2nH, ±0.5nH | 43 | 4.8 | 62 | 5.3 | 76 | 5.8 | 60 | 5500 | 0.10 | 750 | 1500 |
| 5.6 | ±0.5nH | 50 | 5.7 | 68 | 6.3 | 73 | 7.6 | 62 | 4600 | 0.10 | 750 | 1500 |
| 6.8 | ±0.5nH | 43 | 7.0 | 62 | 7.7 | 71 | 9.4 | 50 | 4500 | 0.11 | 750 | 1500 |
| 8.2 | ±0.5nH | 43 | 8.5 | 56 | 10.0 | 55 | 15.2 | 32 | 3500 | 0.12 | 750 | 1500 |
| 10 | ±2%, ±5% | 46 | 10.6 | 60 | 13.4 | 52 | – | – | 2500 | 0.13 | 750 | 1500 |
| 12 | ±2%, ±5% | 40 | 12.9 | 50 | 17.3 | 40 | – | – | 2400 | 0.20 | 750 | 1500 |
| 15 | ±2%, ±5% | 36 | 16.7 | 46 | 27 | 23 | – | – | 2200 | 0.20 | 750 | 1000 |
| 18 | ±2%, ±5% | 30 | 21.9 | 27 | – | – | – | – | 1700 | 0.35 | 500 | 1000 |
| 22 | ±2%, ±5% | 36 | 27.5 | 33 | – | – | – | – | 1400 | 0.40 | 500 | 1000 |

(1) $I_{DC}$ measured for 15°C rise at 25°C ambient temperature
(2) $I_{DC}$ measured for 70°C rise at 25°C ambient temperature

L, Q, SRF measured on HP 4291A, Boonton 34A and Wiltron 360 Vector Analyzer, $R_{DC}$ measured on Keithley 580 micro-ohmmeter.

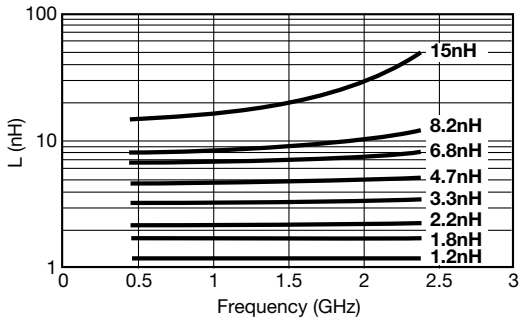
## L0603

**Typical Q vs. Frequency**
**L0603**




Measured on AGILENT 4291B/4287
using the 16196A test fixture

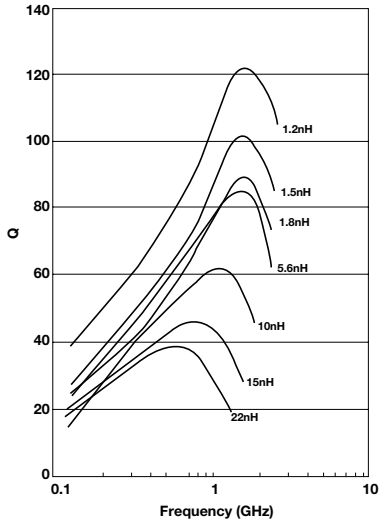
**Typical Inductance vs. Frequency**
**L0603**




Measured on AGILENT 4291B/4287
using the 16196A test fixture

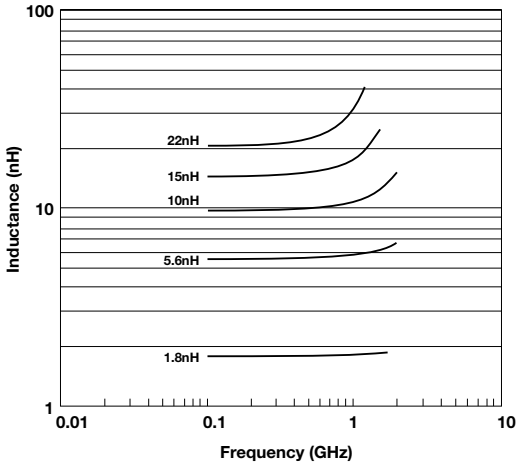
## L0805

**Typical Q vs. Frequency**
**L0805**



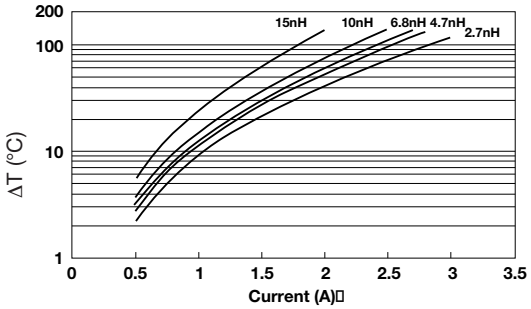

Measured on HP4291A and
Boonton 34A Coaxial Line

**Typical Inductance vs. Frequency**
**L0805**




Measured on HP4291A and
Wiltron 360 Vector Analyzer

**Maximum Temperature Rise**
**at 25°C ambient temperature (on FR-4)**
**L0805**




Temperature rise will typically be no higher than shown by the graph

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