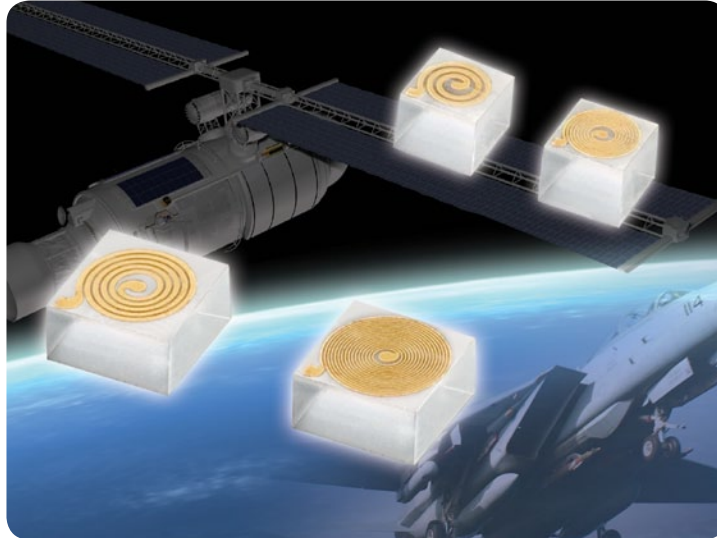Inductors - Wire Bondable, Spiral for RF Circuits

# Vishay Electro-Films Wire Bondable RF Spiral Inductor



## KEY BENEFITS

- Wire bond assembly
- Small size: 0.030 in. x 0.030 in. x 0.020 in. or 0.050 in. x 0.050 in. x 0.020 in.
- Low DCR, high Q
- Low parasitic capacitance, high SRF
- Equivalent circuit model
- S parameter files available for download
- Available with or without silicon nitride passivation
- Sample kits available

## APPLICATIONS

- RF choking for DC biasing
- RF tuning circuits
- Lumped element filters

## RESOURCES

- Datasheet: RFLW 3N - http://www.vishay.com/doc?61057
- Datasheet: RFLW 5N - http://www.vishay.com/doc?61087
- For technical questions contact efi@vishay.com

One of the World's Largest Manufacturers of
**Discrete Semiconductors and Passive Components**

# RF INDUCTOR

## RFLW

# Vishay Electro-Films Wire Bondable
# RF Spiral Inductor - RFLW 3N and RFLW 5N

RFLW 3N

RFLW 5N

RFLW series of thin film spiral inductors on quartz are designed for RF circuits that require wire bondable components. High precision equivalent circuit modeling enables accurate computer simulation of component performance. Measured S parameter files are also available upon request.

In many RF applications, correct component selection is achieved through experimentation. To help designers during the design process, a sample kit of standard values is available.

Additional values and form factors available upon request.

## FEATURES
- High frequency
- Wire bond assembly
- Small size: 0.030" x 0.030" x 0.020" (RFLW 3N); 0.050" x 0.050" x 0.020" (RFLW 5N)
- Low DCR, high Q
- Low parasitic capacitance, high SRF
- Equivalent circuit model enclosed
- S parameter files available for download
- Sample kit available
- AEC-Q200 qualified available

## APPLICATIONS
- RF choking for DC biasing
- RF tuning circuits
- Lumped element filters

## RFLW 3N

### STANDARD ELECTRICAL SPECIFICATIONS

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Inductance Range [1] | 0.003 to 0.03 | μH |
| Tolerance [2] | ± 20 | % |
| Max. Power Handling [3] | 125 | mW |
| Operating Temperature | - 55 to + 125 | °C |
| Storage Temperature | - 55 to + 125 | °C |
| Stability, 1000 h, + 125 °C, 125 mW | 2.0 max. $\Delta R/R$ | % |
| ESD: AEC-Q200-002, component classification 5B (up to 16 kV) | 5.0 max. $\Delta R/R$ | % |

### RF CHARACTERISTICS - TYPICAL VALUES

| PART NUMBER | INDUCTANCE (nH) | | DCR (Ω) | IN-CIRCUIT INDUCTANCE [4] (nH) | IN-CIRCUIT DCR [4] (Ω) | Q (UNITLESS) | | SRF (GHz) |
|---|---|---|---|---|---|---|---|---|
| | 250 MHz | 1000 MHz | | | | 250 MHz | 1000 MHz | |
| RFLW3N3900C | 3.9 | 3.9 | 0.3 | 5 | 0.4 | 14 | 17 | > 6 |
| RFLW3N6700C | 6.7 | 6.7 | 0.6 | 8 | 0.7 | 13 | 16 | > 6 |
| RFLW3N9000C | 9 | 9 | 1.0 | 10 | 1.1 | 12 | 15 | > 6 |
| RFLW3N1100B | 11 | 11 | 1.2 | 12 | 1.3 | 11 | 14 | > 6 |
| RFLW3N2000B | 20 | 20 | 1.6 | 21 | 1.7 | 12 | 12 | > 6 |
| RFLW3N3000B | 30 | 30 | 2.5 | 31 | 2.6 | 13 | 13 | > 6 |

## RFLW 5N

### STANDARD ELECTRICAL SPECIFICATIONS

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Inductance Range [1] | 0.018 to 0.150 | μH |
| Tolerance [2] | ± 20 | % |
| Max. Power Handling [3] | 125 | mW |
| Operating Temperature | - 55 to + 125 | °C |
| Storage Temperature | - 55 to + 125 | °C |
| Stability, 1000 h, + 125 °C, 125 mW | 2.0 % max. $\Delta R/R$ | % |
| ESD: AEC-Q200-002, component classification 5B (up to 16 kV) | 5.0 % max. $\Delta R/R$ | % |

### RF CHARACTERISTICS - TYPICAL VALUES

| PART NUMBER | INDUCTANCE (nH) | | DCR (Ω) | IN-CIRCUIT INDUCTANCE [4] (nH) | Q (UNITLESS) | | SRF (GHz) |
|---|---|---|---|---|---|---|---|
| | 250 MHz | 1000 MHz | | | 250 MHz | 1000 MHz | |
| RFLW5N1800B | 18 | 19 | 1.0 | 19 | 16 | 13 | 6 |
| RFLW5N5200B | 47 | 49 | 3.3 | 48 | 16 | 9 | 3.8 |
| | 52 | 56 | 3.6 | 53 | 17 | 9 | 3.5 |
| RFLW5N8000B | 80 | 87 | 4.5 | 82 | 18 | 7 | 2.4 |
| RFLW5N1000A | 100 | 125 | 5.4 | 102 | 17 | 5 | 1.9 |
| RFLW5N1200A | 120 | 156 | 7.7 | 122 | 18 | 4 | 1.7 |
| RFLW5N1500A | 150 | 220 | 9.3 | 152 | 18 | 3 | 1.5 |

[1] Custom values available upon request. See custom design section below.
[2] Main source of value tolerance is due to variation in wire bonds. See "test fixture" section below.
[3] Maximum rated power of 125 mW at 70 °C, linearly de-rated to zero at 125 °C.
[4] Including the added inductance and resistance of typical bond wires at 250 MHz. See equivalent circuit section below.

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