

Chip Inductors for RF Applications / Medical Applications (Wire wound-open)

FASTRON's wire wound chip inductors are designed for radio frequency (RF) applications that require optimal Q on high frequency circuits. Its gold flash pad metallization provides better solderability for a higher yield in production. Additionally, their encapsulation not only protects the winding but also allows for surface mount assembly. It comes in compact sizes (from 0302 to 1812) and is available in reel packaging. Unlisted inductance values are usually available upon request. Ferrite core versions are also available for selected case sizes for applications which require higher inductances in a smaller case size.

Applications Used in LC resonant circuits such as oscillator and signal generators, impedance matching, RF filters etc.
 Mobile Telecommunication: GSM, CDMA, TCDMA, cordless phones, 2 way radio
 Automotive Subsystems: TPMS, Keyless Entry, Anti-Theft, GPS
 Wireless Communication: W-LAN, WIFI, WIMAX, RFID, Bluetooth
 Non-magnetic versions for medical imaging applications: ASM series

Technical Data

| | |
|---|---|
| L – Value (Rated Inductance) | ≥ 1 MHz measured with HP 4286A RF LCR meter or equivalent at frequency f_L , 25°C ambient < 1 MHz measured with HP 4285A or equivalent at frequency f_L , 25°C ambient |
| Q – Factor (min) | ≥ 1 MHz measured with E4991B Impedance Analyzer or equivalent at frequency f_Q , 25°C ambient < 1 MHz measured with HP 4285A or equivalent at frequency f_Q , 25°C ambient |
| SRF (min) | Measured with HP8753ES Network Analyzer or equivalent at 25°C ambient |
| DCR (max) | Measured at 25°C ambient |
| Rated DC Current: Irms | Max permissible current that causes a 15°C component temperature rise from 25°C ambient for AS (except 0302AS), AQ, ASM, F & AF Max permissible current that causes a 30°C component temperature rise from 25°C ambient for 0302AS Max permissible current that causes a 40°C component temperature rise from 25°C ambient for AQC, FLP & LDM |
| Saturation Current: Isat | Max permissible DC bias at 25°C ambient that causes inductivity drop 30% (typ.) related to the unloaded inductivity for FLP & LDM. |
| Operating Temperature | -40°C to +100°C (Including component self-heating): F & AF -40°C to +125°C (Including component self-heating): FLP & LDM -40°C to +140°C (Including component self-heating): AS (except 0302AS), AQ, ASM & AQC -40°C to +155°C (Including component self-heating): 0302AS |
| Surface Finishing | Epoxy molded flat top for perfect pick and place assembly |
| Pad Metallization | Gold flash as top layer for AS, AQ, F, AF & FLP Silver-Palladium-Platinum for ASM & AQC Tin as top layer for LDM |
| Wire Termination | Spot welding |
| Recommended Soldering Method | <u>Reflow</u> |
| Moisture Sensitivity Levels (MSL) | MSL Level 1, indicating unlimited floor life at ≤ 30°C / 85% relative humidity |
| Solderability | Using lead-free solder (Sn 99.9) at 260°C ± 5°C for 5 ± 0.5 seconds, min 90% solder coverage of metallization Standard: IEC 68-2-20 (Ta) |
| Resistance to Soldering Heat | Resistant to 260°C ± 5°C for 10 ± 1 seconds Standard: IEC 68-2-20 (Tb) |
| Resistance to Solvent | Resistant to isopropyl alcohol for 5 ± 0.5 minutes at 23°C ± 5°C Standard: IEC 68-2-45 |
| Climatic Test | Defined by the following standards: IEC 68-2-1 for Cold test: -55°C for 96 hours IEC 68-2-2 for Dry heat test: +85°C for ferrite core and 125°C for ceramic core for 96 hours IEC 60068-2-78 for Humidity test: 40°C at RH 95% for 4 days |
| Thermal Shock Test | Temperature cycle (ceramic): -40°C to +125°C to -40°C Temperature cycle (ferrite): -40°C to +85°C to -40°C Max/Min temperature duration: 15 minutes Temperature transition duration: 5 minutes Cycles: 25 Standard: MIL-STD-202G |
| Adhesion of Soldered Component (Shear Test) | Components withstand a pushing force of 10N for 10 ± 1 seconds Standard: IEC 60068-2-21, method Ue ₃ |
| Mechanical Shock | Mil-Std 202 Method 213, Condition C 3 axis, 6 times, total 18 shocks 100 G, 6 ms, half-sine |
| Vibration | Mil-Std 202 Method 204 20 mins at 5G 10 Hz to 2000 Hz 12 cycles each of 3 orientations |

Technical Data

Chip Inductors for RF Applications / Medical Applications (Wire wound-open)

Ordering Code Example : 0402AS-1N0X-YY → **0402AS-1N0K-01**

0402 AS - 1N0 X - YY
(Case Size) (Core Type) (Inductance Value) (Tolerance) (Packaging Code)

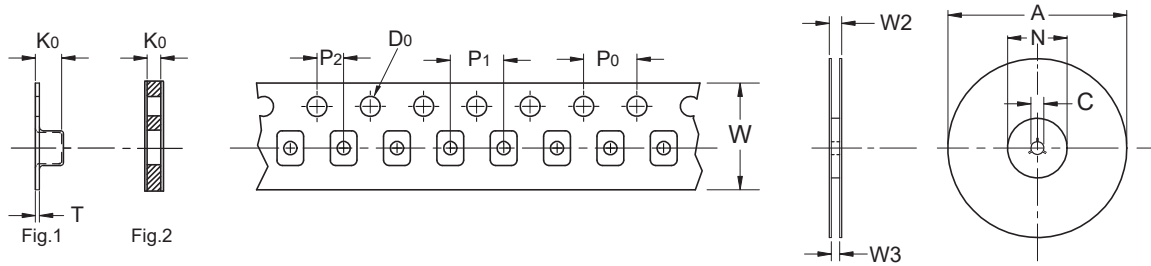
Case Sizes - 0302, 0402, 0603, 0805, 1008, 1206, 1210, 1812

Core Type - AS, AQ, AQC, ASM (Ceramic), F (Ferrite), AF (Ceramic & Ferrite), FLP (Ferrite Low Profile)

Tolerances - F ($\pm 1\%$), G ($\pm 2\%$), A ($\pm 3\%$), J ($\pm 5\%$), K ($\pm 10\%$), L ($\pm 15\%$), M ($\pm 20\%$)

Packaging Code - 01, 04, 08 (Taped / Reel)

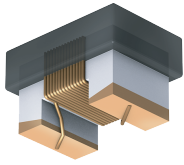
Packaging Specification Schematic



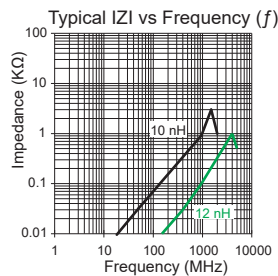
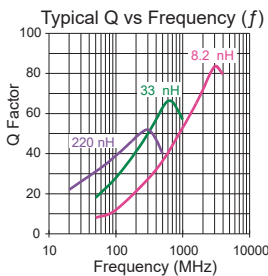
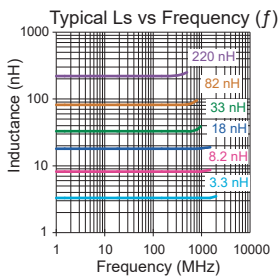
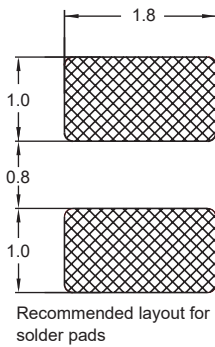
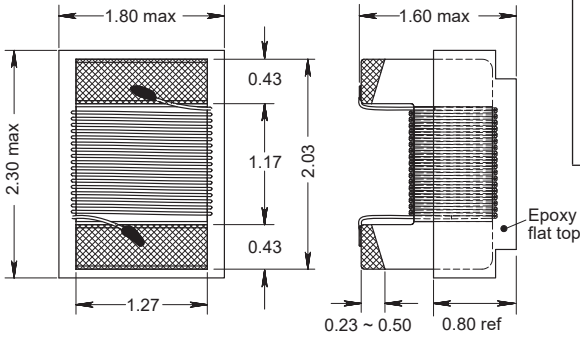
| Type | Packaging Code | A | D0 | N | C | W2 | W3 | W | P1 | P0 | P2 | K0 | T | Fig |
|------|----------------|-----|------|-----|----|------|------|----|----|----|----|------|------|-----|
| 0302 | 01,08 | 180 | 1.55 | 60 | 13 | 11.9 | 9.5 | 8 | 2 | 4 | 2 | 0.50 | - | 2 |
| 0402 | 01,08 | 180 | 1.55 | 60 | 13 | 11.9 | 9.5 | 8 | 2 | 4 | 2 | 0.60 | - | 2 |
| 0603 | 01,08 | 180 | 1.55 | 60 | 13 | 11.4 | 9.0 | 8 | 4 | 4 | 2 | 0.98 | - | 2 |
| 0603 | 04 | 330 | 1.55 | 100 | 13 | 14.4 | 8.4 | 8 | 4 | 4 | 2 | 0.98 | - | 2 |
| 0805 | 01,08 | 180 | 1.55 | 60 | 13 | 11.4 | 9.0 | 8 | 4 | 4 | 2 | 1.63 | 0.25 | 1 |
| 0805 | 04 | 330 | 1.55 | 100 | 13 | 14.4 | 8.4 | 8 | 4 | 4 | 2 | 1.63 | 0.25 | 1 |
| 1008 | 01,08 | 180 | 1.50 | 60 | 13 | 11.4 | 9.5 | 8 | 4 | 4 | 2 | 2.23 | 0.30 | 1 |
| 1008 | 04 | 330 | 1.55 | 100 | 13 | 14.4 | 8.4 | 8 | 4 | 4 | 2 | 1.63 | 0.25 | 1 |
| 1206 | 01,08 | 180 | 1.50 | 60 | 13 | 18.4 | 13.7 | 12 | 4 | 4 | 2 | 1.80 | 0.30 | 1 |
| 1206 | 04 | 330 | 1.50 | 100 | 13 | 18.4 | 12.4 | 12 | 4 | 4 | 2 | 1.80 | 0.30 | 1 |
| 1210 | 01 | 180 | 1.55 | 60 | 13 | 18.4 | 13.7 | 12 | 8 | 4 | 2 | 2.55 | 0.30 | 1 |
| 1210 | 04 | 330 | 1.55 | 100 | 13 | 18.4 | 12.4 | 12 | 8 | 4 | 2 | 2.55 | 0.30 | 1 |
| 1812 | 01 | 180 | 1.50 | 60 | 13 | 18.4 | 13.7 | 12 | 8 | 4 | 2 | 3.70 | 0.35 | 1 |
| 1812 | 04 | 330 | 1.50 | 100 | 13 | 18.4 | 12.4 | 12 | 8 | 4 | 2 | 3.70 | 0.35 | 1 |

0805 AS

Engineer's Kit: EK-0805AS-X



Wire wound - open



Single layer (typ)

| Part No | Inductance | f _L | Tol | Q | f _Q | SRF | DCR | Rated DC |
|-----------------|------------|----------------|-------|-----|----------------|----------|---------|--------------|
| | L (nH) | (MHz) | ± (%) | min | (MHz) | (MHz) | max (Ω) | Current (mA) |
| 0805AS-2N7K-YY | 2.7 | 250 | 10 | 80 | 1500 | 6000 min | 0.08 | 600 |
| 0805AS-3N3K-YY | 3.3 | 250 | 10 | 50 | 1500 | 6000 min | 0.08 | 600 |
| 0805AS-3N6K-YY | 3.6 | 250 | 10 | 25 | 1500 | 6000 min | 0.18 | 600 |
| *0805AS-3N9K-YY | 3.9 | 250 | 10 | 25 | 1000 | 6000 min | 0.20 | 600 |
| 0805AS-5N6K-YY | 5.6 | 250 | 10 | 53 | 1000 | 5500 min | 0.11 | 600 |
| 0805AS-5N8K-YY | 5.8 | 250 | 10 | 50 | 1000 | 5500 min | 0.11 | 600 |
| 0805AS-6N8K-YY | 6.8 | 250 | 10 | 50 | 1000 | 5500 min | 0.11 | 600 |
| 0805AS-8N0K-YY | 8.0 | 250 | 10 | 51 | 1000 | 4700 min | 0.12 | 600 |
| 0805AS-8N2K-YY | 8.2 | 250 | 10 | 50 | 1000 | 4700 min | 0.12 | 600 |
| 0805AS-010J-YY | 10 | 250 | 5 | 43 | 1000 | 4300 min | 0.13 | 600 |
| 0805AS-011J-YY | 11 | 250 | 5 | 65 | 1000 | 4000 min | 0.13 | 600 |
| 0805AS-012J-YY | 12 | 250 | 5 | 50 | 500 | 4000 min | 0.15 | 600 |
| 0805AS-015J-YY | 15 | 250 | 5 | 50 | 500 | 3400 min | 0.17 | 600 |
| 0805AS-018J-YY | 18 | 250 | 5 | 53 | 500 | 3300 min | 0.20 | 500 |
| 0805AS-022J-YY | 22 | 250 | 5 | 57 | 500 | 2600 min | 0.22 | 500 |
| 0805AS-027J-YY | 27 | 250 | 5 | 55 | 500 | 2500 min | 0.25 | 500 |
| 0805AS-033J-YY | 33 | 250 | 5 | 60 | 500 | 2050 min | 0.27 | 500 |
| 0805AS-036J-YY | 36 | 250 | 5 | 60 | 500 | 2050 min | 0.27 | 600 |
| 0805AS-039J-YY | 39 | 250 | 5 | 60 | 500 | 2000 min | 0.29 | 500 |
| 0805AS-047J-YY | 47 | 200 | 5 | 65 | 500 | 1650 min | 0.31 | 500 |
| 0805AS-048J-YY | 48 | 200 | 5 | 65 | 500 | 1580 min | 0.30 | 500 |
| 0805AS-056J-YY | 56 | 200 | 5 | 64 | 500 | 1550 min | 0.34 | 500 |
| 0805AS-068J-YY | 68 | 200 | 5 | 65 | 500 | 1450 min | 0.38 | 400 |
| 0805AS-075J-YY | 75 | 200 | 5 | 55 | 500 | 1300 min | 0.42 | 400 |
| 0805AS-082J-YY | 82 | 150 | 5 | 67 | 500 | 1300 min | 0.42 | 400 |
| 0805AS-R10J-YY | 100 | 150 | 5 | 65 | 500 | 1200 min | 0.46 | 400 |
| 0805AS-R12J-YY | 120 | 150 | 5 | 52 | 250 | 1100 min | 0.51 | 400 |
| 0805AS-R13J-YY | 130 | 100 | 5 | 53 | 250 | 920 min | 0.56 | 400 |
| 0805AS-R15J-YY | 150 | 100 | 5 | 60 | 250 | 920 min | 0.56 | 400 |
| 0805AS-R18J-YY | 180 | 100 | 5 | 50 | 250 | 870 min | 0.64 | 400 |
| 0805AS-R20J-YY | 200 | 100 | 5 | 54 | 250 | 850 min | 0.70 | 400 |
| 0805AS-R22J-YY | 220 | 100 | 5 | 59 | 250 | 850 min | 0.70 | 400 |
| 0805AS-R24J-YY | 240 | 100 | 5 | 52 | 250 | 850 min | 0.80 | 400 |
| 0805AS-R25J-YY | 250 | 100 | 5 | 52 | 250 | 850 min | 0.80 | 400 |
| 0805AS-R27J-YY | 270 | 100 | 5 | 40 | 100 | 820 min | 1.50 | 280 |
| 0805AS-R29J-YY | 290 | 100 | 5 | 40 | 100 | 795 min | 1.80 | 260 |
| 0805AS-R30J-YY | 300 | 100 | 5 | 40 | 100 | 795 min | 1.80 | 260 |
| 0805AS-R31J-YY | 310 | 100 | 5 | 40 | 100 | 795 min | 1.80 | 260 |
| 0805AS-R32J-YY | 320 | 100 | 5 | 40 | 100 | 790 min | 1.80 | 260 |
| 0805AS-R33J-YY | 330 | 100 | 5 | 40 | 100 | 790 min | 1.80 | 260 |
| 0805AS-R34J-YY | 340 | 100 | 5 | 40 | 100 | 790 min | 1.80 | 260 |
| 0805AS-R35J-YY | 350 | 100 | 5 | 40 | 100 | 750 min | 2.00 | 200 |
| 0805AS-R39J-YY | 390 | 100 | 5 | 42 | 100 | 750 min | 2.00 | 200 |
| 0805AS-R45J-YY | 450 | 100 | 5 | 40 | 100 | 720 min | 2.50 | 200 |
| 0805AS-R47J-YY | 470 | 100 | 5 | 40 | 100 | 720 min | 2.50 | 170 |
| 0805AS-R51J-YY | 510 | 100 | 5 | 40 | 100 | 650 min | 3.50 | 170 |
| 0805AS-R56J-YY | 560 | 100 | 5 | 40 | 100 | 650 min | 3.50 | 170 |
| 0805AS-R62J-YY | 620 | 100 | 5 | 40 | 100 | 450 min | 3.50 | 170 |
| 0805AS-R68J-YY | 680 | 50 | 5 | 37 | 75 | 400 min | 3.50 | 170 |
| 0805AS-R75K-YY | 750 | 25 | 10 | 23 | 50 | 215 typ | 2.35 | 180 |
| 0805AS-R80K-YY | 800 | 25 | 10 | 23 | 50 | 215 typ | 2.35 | 180 |
| 0805AS-R82K-YY | 820 | 25 | 10 | 23 | 50 | 215 typ | 2.35 | 180 |
| 0805AS-R91K-YY | 910 | 25 | 10 | 23 | 50 | 215 typ | 2.35 | 180 |
| 0805AS-1R0K-YY | 1000 | 25 | 10 | 23 | 50 | 215 typ | 2.35 | 180 |
| 0805AS-1R2K-YY | 1200 | 7.9 | 10 | 15 | 50 | 150 typ | 2.80 | 200 |
| 0805AS-1R5K-YY | 1500 | 7.9 | 10 | 15 | 50 | 150 typ | 3.00 | 200 |
| 0805AS-1R8K-YY | 1800 | 7.9 | 10 | 15 | 50 | 80 typ | 3.00 | 210 |
| 0805AS-2R0K-YY | 2000 | 7.9 | 10 | 15 | 7.9 | 80 typ | 3.50 | 170 |
| 0805AS-2R2K-YY | 2200 | 7.9 | 10 | 15 | 7.9 | 80 typ | 3.80 | 150 |
| 0805AS-2R4K-YY | 2400 | 7.9 | 10 | 15 | 7.9 | 80 typ | 3.80 | 120 |
| 0805AS-2R7K-YY | 2700 | 7.9 | 10 | 15 | 7.9 | 80 typ | 4.80 | 120 |
| 0805AS-3R0K-YY | 3000 | 7.9 | 10 | 15 | 7.9 | 80 typ | 5.00 | 120 |
| 0805AS-3R3K-YY | 3300 | 7.9 | 10 | 15 | 7.9 | 80 typ | 5.10 | 120 |
| 0805AS-3R6K-YY | 3600 | 7.9 | 10 | 15 | 7.9 | 80 typ | 5.50 | 100 |
| 0805AS-3R9K-YY | 3900 | 7.9 | 10 | 15 | 7.9 | 80 typ | 7.10 | 100 |
| 0805AS-4R3K-YY | 4300 | 7.9 | 10 | 15 | 7.9 | 80 typ | 7.20 | 100 |
| 0805AS-4R7K-YY | 4700 | 7.9 | 10 | 15 | 7.9 | 50 typ | 8.00 | 100 |
| 0805AS-5R6K-YY | 5600 | 7.9 | 10 | 15 | 7.9 | 50 typ | 9.50 | 90 |
| *0805AS-6R8K-YY | 6800 | 7.9 | 10 | 15 | 7.9 | 55 typ | 13.3 | 80 |
| *0805AS-8R2K-YY | 8200 | 7.9 | 10 | 15 | 7.9 | 36 typ | 14.0 | 60 |
| *0805AS-100K-YY | 10000 | 7.9 | 10 | 15 | 7.9 | 35 typ | 16.0 | 60 |

Core Material: Ceramic

SPQ: Taped / Reel 1000 [-08]
2500 [-01]
7500 [-04]

Remarks:

- Unlisted inductance values available upon request.
- 2% and 5% tolerance available upon request.
- All are AEC-Q200 Standard approved EXCEPT *.