

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

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

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

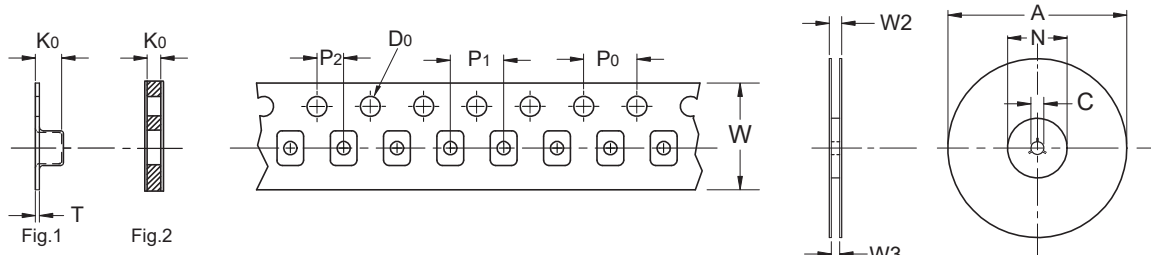
Case Sizes - 0302, 0402, 0603, 0805, 1008, 1206, 1210, 1812

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)

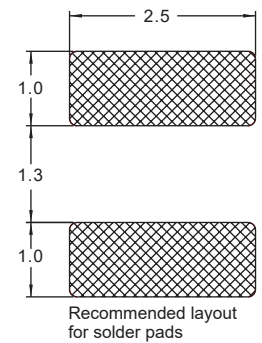
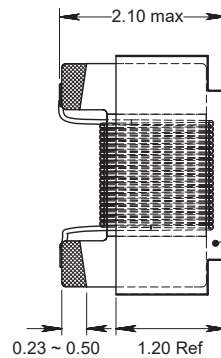
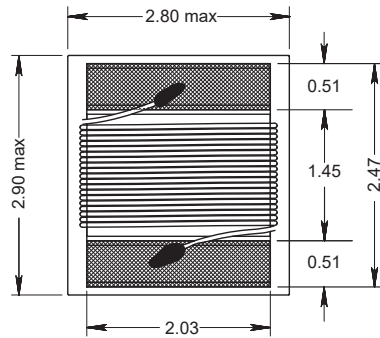
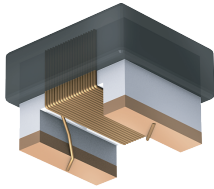
Packaging Specification Schematic



Type	Packaging Code	A	D ₀	N	C	W ₂	W ₃	W	P ₁	P ₀	P ₂	K ₀	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

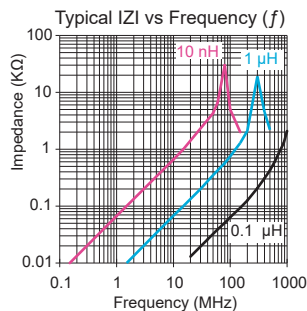
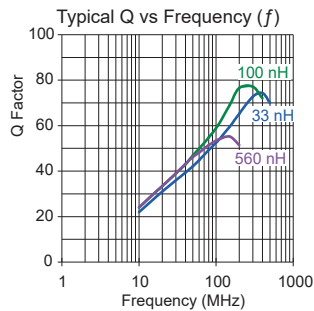
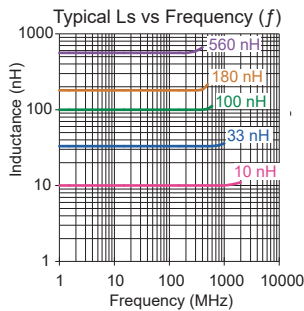
1008 AS

Engineer's Kit: EK-1008AS-X



Chip Inductors for RF Applications

Wire wound - open



Single layer (typ)

Part No	Inductance	f _L	Tol	Q	f _a	SRF	DCR max	Rated DC Current
	L (nH)							
1008AS-4N7J-YY	4.7	50	5	17	500	6000 min	0.15	600
1008AS-8N2J-YY	8.2	50	5	70	1000	5000 min	0.08	600
1008AS-010J-YY	10	50	5	50	500	4100 min	0.08	1000
1008AS-012J-YY	12	50	5	53	500	3300 min	0.09	1000
1008AS-015J-YY	15	50	5	70	500	2500 min	0.10	1000
1008AS-018J-YY	18	50	5	50	350	2500 min	0.11	1000
1008AS-022J-YY	22	50	5	55	350	2400 min	0.12	1000
1008AS-027J-YY	27	50	5	58	350	1600 min	0.13	1000
1008AS-030J-YY	30	50	5	65	350	1600 min	0.14	1000
1008AS-033J-YY	33	50	5	65	350	1600 min	0.14	1000
1008AS-039J-YY	39	50	5	60	350	1500 min	0.15	1000
1008AS-047J-YY	47	50	5	65	350	1500 min	0.16	1000
1008AS-056J-YY	56	50	5	65	350	1300 min	0.18	1000
1008AS-068J-YY	68	50	5	67	350	1300 min	0.20	1000
1008AS-082J-YY	82	50	5	63	350	1000 min	0.22	1000
1008AS-090J-YY	90	50	5	60	350	1000 min	0.56	650
1008AS-R10J-YY	100	25	5	63	350	1000 min	0.56	650
1008AS-R12J-YY	120	25	5	60	350	950 min	0.63	650
1008AS-R15J-YY	150	25	5	50	100	850 min	0.70	620
1008AS-R18J-YY	180	25	5	45	100	750 min	0.77	620
1008AS-R22J-YY	220	25	5	46	100	700 min	0.84	620
1008AS-R24J-YY	240	25	5	46	100	600 min	0.84	600
1008AS-R27J-YY	270	25	5	48	100	600 min	0.91	500
1008AS-R30J-YY	300	25	5	45	100	600 min	0.91	500
1008AS-R33J-YY	330	25	5	51	100	570 min	1.05	470
1008AS-R39J-YY	390	25	5	47	100	500 min	1.12	470
1008AS-R47J-YY	470	25	5	54	100	450 min	1.19	470
1008AS-R51J-YY	510	25	5	51	100	415 min	1.33	400
1008AS-R56J-YY	560	25	5	56	100	415 min	1.33	400
1008AS-R62J-YY	620	25	5	49	100	375 min	1.40	400
1008AS-R68J-YY	680	25	5	46	100	375 min	1.47	400
1008AS-R75J-YY	750	25	5	46	100	360 min	1.54	400
1008AS-R82J-YY	820	25	5	52	100	350 min	1.61	400
1008AS-R91K-YY	910	25	10	37	50	320 typ	1.68	380
1008AS-1R0K-YY	1000	25	10	36	50	290 typ	1.75	370
1008AS-1R1K-YY	1100	25	10	35	50	250 typ	1.85	350
1008AS-1R2K-YY	1200	7.9	10	35	50	250 typ	2.00	310
1008AS-1R4K-YY	1400	7.9	10	33	50	200 typ	2.30	330
1008AS-1R5K-YY	1500	7.9	10	35	50	200 typ	2.30	330
1008AS-1R8K-YY	1800	7.9	10	34	50	160 typ	2.60	300
1008AS-2R2K-YY	2200	7.9	10	28	50	160 typ	2.80	280
1008AS-2R7K-YY	2700	7.9	10	23	25	140 typ	4.80	120
1008AS-3R3K-YY	3300	7.9	10	22	25	110 typ	5.10	120
1008AS-3R9K-YY	3900	7.9	10	27	25	100 typ	5.40	110
1008AS-4R7K-YY	4700	7.9	10	20	25	65 typ	6.00	110
1008AS-5R0K-YY	5000	7.9	10	20	25	60 typ	6.60	110
1008AS-5R6K-YY	5600	7.9	10	22	7.9	55 typ	6.50	110
1008AS-6R8K-YY	6800	7.9	10	22	7.9	48 typ	7.50	110
1008AS-8R2K-YY	8200	7.9	10	24	7.9	44 typ	8.40	110
1008AS-100K-YY	10000	7.9	10	20	7.9	40 typ	8.40	110
1008AS-120K-YY	12000	7.9	10	20	7.9	30 typ	11.5	136

Core Material: Ceramic

SPQ: Taped / Reel 1000 [-08]
2000 [-01]
7500 [-04]

Remarks:

- Unlisted inductance values available upon request.
- 2% and 5% tolerance available upon request.