COIL SPECIFICATION

Brand	ZenithTek
Product Series Code	ZCHF - Series
File Version	V1.5
Description	Multilayer Ceramic High Frequency Inductor

CHANGE NOTE

Version	Date	Content	Draw	Check	Approve
V1.0	2013/03/15	Modify: 0402 Series Add R22, R27.	Gary	Shiang	Niles
V1.1	2014/01/02	Modify: 0603 Series Add R47 Operating & Storage Conditions: Storage Temp. : -40°C~+85°C change to +40°C Max.	Gary	Shiang	Niles
V1.2	2014/06/06	Modify: 0402 0603 Series.	Penny	Shiang	Niles
V1.3	2016/01/08	Modify: Reflow Heat Endurance Max Temp.Change From 250°C to 260°C.	Sonic	Ben	Kerwin
V1.4	2017/02/17	Modify: Reliability Test.	Sam	Water	Kerwin
V1.5	2020/03/20	Modify: Dimension.	Alice	Sam	Water

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Features

- Ceramic, Multilayer Construction.
- High Self-Resonant Frequency (SRF) up to 10GHz.
- High Q Value at High Frequency Level.
- Halogen Free, Lead Free, RoHS and REACH Compliance.

Applications

- Fit for RF Circuits/ Modules.

Product Identification

ZCHF	-	0402	S	-	18N	J
1		2	3		4	5

1.Product Code:
ZCHF = ZenithTek Code.

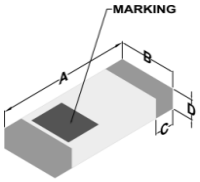
2.Dimension Code:
0402 = 1.00 * 0.50 * 0.50 mm

3.Material Code:
S = Material.

4.Inductance Code:
18N = 18nH.

5.Tolerance Code:
J = 5%.

Dimension (Unit: mm)

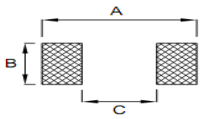


ZCHF-0402S

ZCHF-0603S

Type	A	B	C	D
ZCHF-0402	1.00±0.15	0.50±0.15	0.25±0.10	0.50±0.15
ZCHF-0603	1.60/1.65±0.20	0.80±0.20	0.30±0.20	0.80±0.20

Land Pattern (Unit: mm)

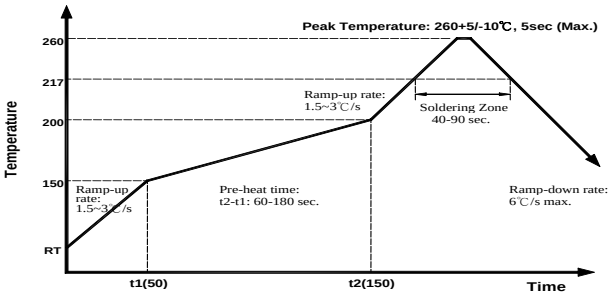


Type	A(Ref.)	B(Ref.)	C(Ref.)
ZCHF-0402	1.25~1.55	0.45~0.55	0.45~0.55
ZCHF-0603	1.80~2.40	0.60~0.80	0.60~0.80

Product Structure

Schematic

Reflow Heat Endurance



Operating & Storage Conditions

Operating Temp. : -55°C~+125°C / 0603: -40°C ~ +85°C
(including self-temp. rise)
Storage Temp. : -55°C~+125°C / 0603: -40°C ~ +85°C
(for PCBA)

Standard & Atmospheric Conditions

Ambient Temp. : 20°C±15°C / Relative Humidity : 65±20%.
If there may be any doubt on the result, measurement shall be made within the following limits :
Ambient Temp. : 25°C±5°C / Relative Humidity : 75±10%.

Test Equipment

HP4284A, HOKIO3532-50 - IDC, L.
HP4191A - Impedance.
TH2512B - RDC.

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Electrical Characteristic

Part Number	Inductance (nH)	Tolerance (%)	Test Frequency (MHz)	Q @100MHz (Min.)	Q Typical @ 100MHz	Q Typical @ 800MHz	SRF (MHz)/(Min.)	DCR(Ω) (Max.)	IDC(mA) (Max.)	Thickness(mm)
ZCHF-0402S-0N6□	0.6	±0.1~±0.3	100	4	6	35	10000	0.10	800	0.5±0.15
ZCHF-0402S-1N0□	1.0	±0.1~±0.3	100	8	11	34	10000	0.10	400	0.5±0.15
ZCHF-0402S-1N1□	1.1	±0.1~±0.3	100	8	11	34	10000	0.10	400	0.5±0.15
ZCHF-0402S-1N2□	1.2	±0.1~±0.3	100	8	11	34	10000	0.10	400	0.5±0.15
ZCHF-0402S-1N3□	1.3	±0.1~±0.3	100	8	11	34	10000	0.10	400	0.5±0.15
ZCHF-0402S-1N5□	1.5	±0.1~±0.3	100	8	11	34	6000	0.10	300	0.5±0.15
ZCHF-0402S-1N6□	1.6	±0.1~±0.3	100	8	11	32	6000	0.10	300	0.5±0.15
ZCHF-0402S-1N8□	1.8	±0.1~±0.3	100	8	11	30	6000	0.10	300	0.5±0.15
ZCHF-0402S-2N0□	2.0	±0.1~±0.3	100	8	10	29	6000	0.20	300	0.5±0.15
ZCHF-0402S-2N2□	2.2	±0.1~±0.3	100	8	10	29	6000	0.20	300	0.5±0.15
ZCHF-0402S-2N4□	2.4	±0.1~±0.3	100	8	10	29	6000	0.20	300	0.5±0.15
ZCHF-0402S-2N7□	2.7	±0.1~±0.3	100	8	10	29	6000	0.20	300	0.5±0.15
ZCHF-0402S-3N0□	3.0	±0.1~±0.3	100	8	10	29	6000	0.20	300	0.5±0.15
ZCHF-0402S-3N3□	3.3	±0.1~±0.3	100	8	10	29	6000	0.20	300	0.5±0.15
ZCHF-0402S-3N6□	3.6	±0.1~±0.3	100	8	10	28	4000	0.20	300	0.5±0.15
ZCHF-0402S-3N9□	3.9	±0.1~±0.3	100	8	10	28	4000	0.20	300	0.5±0.15
ZCHF-0402S-4N3□	4.3	±0.1~±0.3	100	8	10	28	4000	0.20	300	0.5±0.15
ZCHF-0402S-4N7□	4.7	±0.1~±0.3	100	8	10	28	4000	0.20	300	0.5±0.15
ZCHF-0402S-5N1□	5.1	±0.1~±0.3	100	8	10	28	4000	0.30	300	0.5±0.15
ZCHF-0402S-5N6□	5.6	±0.1~±0.3	100	8	10	28	4000	0.30	300	0.5±0.15
ZCHF-0402S-6N2□	6.2	±0.1~±0.3	100	8	10	27	3900	0.30	300	0.5±0.15
ZCHF-0402S-6N8□	6.8	3 / 5 / 10	100	8	10	27	3900	0.30	300	0.5±0.15
ZCHF-0402S-7N5□	7.5	3 / 5 / 10	100	8	10	27	3700	0.40	300	0.5±0.15
ZCHF-0402S-8N2□	8.2	3 / 5 / 10	100	8	10	27	3600	0.40	300	0.5±0.15
ZCHF-0402S-9N1□	9.1	3 / 5 / 10	100	8	10	27	3400	0.40	300	0.5±0.15
ZCHF-0402S-10N□	10	3 / 5 / 10	100	8	10	27	3200	0.40	300	0.5±0.15
ZCHF-0402S-12N□	12	3 / 5 / 10	100	8	10	26	2700	0.50	300	0.5±0.15
ZCHF-0402S-15N□	15	3 / 5 / 10	100	8	10	26	2300	0.50	300	0.5±0.15
ZCHF-0402S-18N□	18	3 / 5 / 10	100	8	10	25	2100	0.60	300	0.5±0.15
ZCHF-0402S-20N□	20	3 / 5 / 10	100	8	10	25	2000	0.60	300	0.5±0.15
ZCHF-0402S-22N□	22	3 / 5 / 10	100	8	10	25	1900	0.60	300	0.5±0.15
ZCHF-0402S-27N□	27	3 / 5 / 10	100	8	10	25	1600	0.70	300	0.5±0.15
ZCHF-0402S-33N□	33	3 / 5 / 10	100	8	10	22	1300	0.80	200	0.5±0.15
ZCHF-0402S-39N□	39	3 / 5 / 10	100	8	10	22	1200	1.00	200	0.5±0.15
ZCHF-0402S-43N□	43	3 / 5 / 10	100	8	10	21	1100	1.10	200	0.5±0.15
ZCHF-0402S-47N□	47	3 / 5 / 10	100	8	10	21	1000	1.10	200	0.5±0.15
ZCHF-0402S-56N□	56	3 / 5 / 10	100	8	10	18	750	1.20	200	0.5±0.15
ZCHF-0402S-68N□	68	3 / 5 / 10	100	8	10	18	750	1.40	180	0.5±0.15
ZCHF-0402S-82N□	82	3 / 5 / 10	100	8	10	13	750	2.40	150	0.5±0.15

Note : Tolerance : For L≦ 6.2nH, B = ±0.1nH, C = ±0.2nH, S = ±0.3nH, For L> 6.2nH, H = ±3%, J = ±5%, K = ±10%

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Electrical Characteristic

Part Number	Inductance (nH)	Tolerance (%)	Test Frequency (MHz)	Q @100MHz (Min.)	Q Typical @ 100MHz	Q Typical @ 800MHz	SRF (MHz)/(Min.)	DCR(Ω) (Max.)	IDC(mA) (Max.)	Thickness(mm)
ZCHF-0402S-R10☐	100	3 / 5 / 10	100	8	10	12	700	2.60	150	0.5±0.15
ZCHF-0402S-R12☐	120	3 / 5 / 10	100	8	10	-	600	2.80	150	0.5±0.15
ZCHF-0402S-R15☐	150	3 / 5 / 10	100	8	10	-	550	3.20	100	0.5±0.15
ZCHF-0402S-R18☐	180	3 / 5 / 10	100	8	10	-	500	3.70	100	0.5±0.15
ZCHF-0402S-R22☐	220	3 / 5 / 10	100	8	12	-	450	4.00	100	0.5±0.15
ZCHF-0402S-R27☐	270	3 / 5 / 10	100	8	12	-	400	4.50	100	0.5±0.15
ZCHF-0402S-R30☐	300	3 / 5 / 10	100	8	12	-	400	4.50	100	0.5±0.15
ZCHF-0402S-R33☐	330	3 / 5 / 10	50	6	8	-	350	7.00	50	0.5±0.15
ZCHF-0402S-R36☐	360	3 / 5 / 10	50	6	8	-	300	7.50	50	0.5±0.15

Note : Tolerance : For L≦ 6.2nH, B = ±0.1nH, C = ±0.2nH, S = ±0.3nH, For L> 6.2nH, H = ±3%, J = ±5%, K = ±10%

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ZCHF-0603S-1N0☐	1.0	±0.1~±0.3	100	8	13	70	10000	0.05	500	0.8±0.15
ZCHF-0603S-1N2☐	1.2	±0.1~±0.3	100	8	13	60	10000	0.05	500	0.8±0.15
ZCHF-0603S-1N5☐	1.5	±0.1~±0.3	100	8	13	47	6000	0.10	500	0.8±0.15
ZCHF-0603S-1N8☐	1.8	±0.1~±0.3	100	8	13	45	6000	0.10	500	0.8±0.15
ZCHF-0603S-2N2☐	2.2	±0.1~±0.3	100	8	13	45	6000	0.10	500	0.8±0.15
ZCHF-0603S-2N7☐	2.7	±0.1~±0.3	100	10	13	44	6000	0.12	500	0.8±0.15
ZCHF-0603S-3N3☐	3.3	±0.1~±0.3	100	10	13	43	6000	0.15	500	0.8±0.15
ZCHF-0603S-3N9☐	3.9	±0.1~±0.3	100	10	13	43	6000	0.16	500	0.8±0.15
ZCHF-0603S-4N7☐	4.7	±0.1~±0.3	100	10	13	43	6000	0.20	500	0.8±0.15
ZCHF-0603S-5N6☐	5.6	±0.1~±0.3	100	10	14	42	5000	0.25	500	0.8±0.15
ZCHF-0603S-6N8☐	6.8	3 / 5 / 10	100	10	14	43	5000	0.30	500	0.8±0.15
ZCHF-0603S-8N2☐	8.2	3 / 5 / 10	100	10	14	43	4500	0.35	500	0.8±0.15
ZCHF-0603S-10N☐	10	3 / 5 / 10	100	12	15	45	3500	0.40	300	0.8±0.15
ZCHF-0603S-12N☐	12	3 / 5 / 10	100	12	18	48	3000	0.45	300	0.8±0.15
ZCHF-0603S-15N☐	15	3 / 5 / 10	100	12	18	48	2300	0.50	300	0.8±0.15
ZCHF-0603S-18N☐	18	3 / 5 / 10	100	12	16	48	2200	0.55	300	0.8±0.15
ZCHF-0603S-22N☐	22	3 / 5 / 10	100	12	16	45	2000	0.60	300	0.8±0.15
ZCHF-0603S-27N☐	27	3 / 5 / 10	100	12	16	45	1700	0.65	300	0.8±0.15
ZCHF-0603S-33N☐	33	3 / 5 / 10	100	12	16	45	1500	0.70	300	0.8±0.15
ZCHF-0603S-39N☐	39	3 / 5 / 10	100	12	17	40	1400	0.70	300	0.8±0.15
ZCHF-0603S-47N☐	47	3 / 5 / 10	100	12	17	35	1200	0.70	300	0.8±0.15
ZCHF-0603S-56N☐	56	3 / 5 / 10	100	12	17	35	1100	0.75	300	0.8±0.15
ZCHF-0603S-68N☐	68	3 / 5 / 10	100	12	17	30	900	0.85	300	0.8±0.15
ZCHF-0603S-82N☐	82	3 / 5 / 10	100	8	15	22	800	1.00	300	0.8±0.15
ZCHF-0603S-R10☐	100	3 / 5 / 10	100	8	15	16	700	1.20	300	0.8±0.15
ZCHF-0603S-R12☐*	120	3 / 5 / 10	50	8	15	-	600	1.40	200	0.8±0.15
ZCHF-0603S-R15☐*	150	3 / 5 / 10	50	8	15	-	500	1.60	200	0.8±0.15
ZCHF-0603S-R18☐*	180	3 / 5 / 10	50	8	15	-	400	1.90	200	0.8±0.15
ZCHF-0603S-R22☐*	220	3 / 5 / 10	50	8	15	-	350	2.40	200	0.8±0.15
ZCHF-0603S-R27☐*	270	3 / 5 / 10	50	8	16	-	350	2.60	150	0.8±0.15
ZCHF-0603S-R33☐*	330	3 / 5 / 10	50	8	16	-	350	2.80	150	0.8±0.15
ZCHF-0603S-R39☐*	390	3 / 5 / 10	50	8	16	-	300	3.20	150	0.8±0.15
ZCHF-0603S-R43☐*	430	3 / 5 / 10	50	8	16	-	280	3.40	150	0.8±0.15
ZCHF-0603S-R47☐*	470	3 / 5 / 10	50	8	15	-	250	3.60	150	0.8±0.15
ZCHF-0603S-R56☐*	560	3 / 5 / 10	50	8	15	-	250	4.00	100	0.8±0.15
ZCHF-0603S-R68☐*	680	3 / 5 / 10	50	8	15	-	200	4.50	100	0.8±0.15

Note1 : Tolerance : For L≦ 6.2nH, B = ±0.1nH, C = ±0.2nH, S = ±0.3nH, For L> 6.2nH, H = ±3%, J = ±5%, K = ±10%
Note2 : " * " The length: 1.65±0.15mm, for others: 1.60±0.15mm.

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Reliability Test

No.	Item	Specification	Test Method
1	Temperature Shock.	Appearance: No damage. Inductance: within ±10% of initial.	Temperature: -55±2℃~+125±2℃ / 0603: -40±2°C ~ +85±2°C Kept for 30 minutes. Transition time : 5 minutes. 100 Cycles.
2	Humidity Resistance.	Appearance: No damage. Inductance: within ±10% of initial.	Temperature: 40±2℃. Relative Humidity: 90%. Duration: 1000 +4/-0 hours.
3	High Temperature Resistance.	Appearance: No damage. Inductance: within ±10% of initial.	Temperature: 125±2℃. / 0603: 85±2°C Duration: 1000 +4/-0 hours.
4	Low Temperature Resistance.	Appearance: No damage. Inductance: within ±10% of initial.	Temperature: -55±2℃. / 0603: -40±2°C Duration: 1000 +4/-0 hours.
5	Vibration test.	Appearance: No damage. Inductance: within ±10% of initial.	Oscillation Frequency: 10Hz to 55Hz to 10Hz in 60 seconds as a period. Total amplitude: 1.5mm. Testing Time: a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).
6	Solderability Heat test.	Appearance: No damage. Inductance: within ±10% of initial.	Solder temperature: 260±3℃. Duration: 5 sec. Allowed reflow time: 2 times.
7	Solderability test.	90% or more of electrode area shall be coated by new solder.	Preheating: 160℃,60sec. Solder temperature: 240±2℃. Duration : 3 sec.
8	Flexure Strength.	No visible mechanical damage.	Flexure: 2mm. Pressurizing Speed: 0.5mm/sec. Keep time: 30±1sec.
9	Terminal Strength.	No visible mechanical damage.	Force: 2N for 0402 series Force: 5N for 0603 series Force: 10N for 0805 series above Keep time: 5 sec，X,Y directs.
10	Dropping.	No visible mechanical damage. Inductance: within ±10% of initial.	Drop component 10 times on a concrete floor from a height of 100cm.

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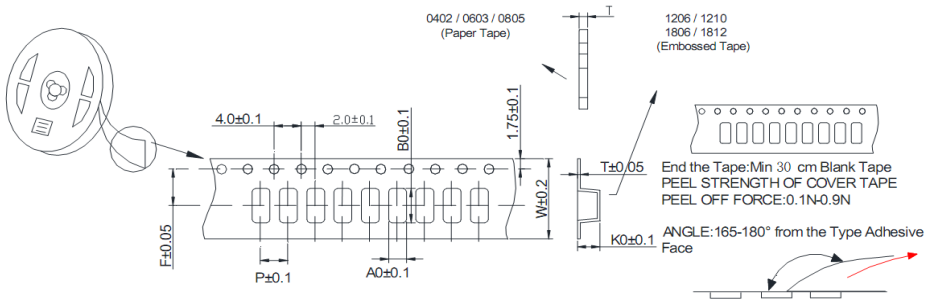
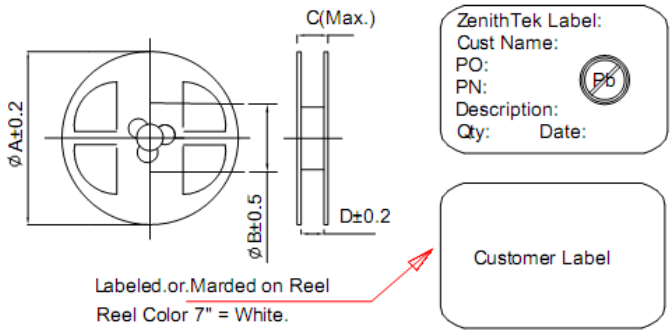
Package

Taping Dimension (mm)



Size(mm)	W	P	A0	B0	K0	T	F
ZCHF-0402	8.00	2.00	0.65	1.15	-	0.80	3.50
ZCHF-0603	8.00	4.00	1.00	1.80	-	1.10	3.50

Reel Dimension (mm)



Size(mm)	A	B	C	D	Reel/Size	Qty./Size
ZCHF-0402	178	58	14.4	8.4	7"	10000 Pcs
ZCHF-0603	178	58	14.4	8.4	7"	4000 Pcs

Box Dimension (mm)