

Data Sheet

Customer:

Product: Multilayer Chip Inductor – CL-S Series

Part No.: CL02CT3N9-S

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VIKING TECH CORPORATION
光頡科技股份有限公司
No.70, Guangfu N. Rd., Hukou
Township, Hsinchu County
303, Taiwan (R.O.C)

TEL:886-3-5972931
FAX:886-3-5972935•886-3-5973494
E-mail:sales@viking.com.tw

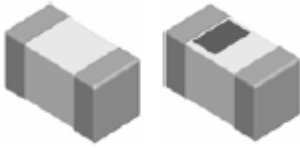
VIKING TECH CORPORATION KAOHSIUNG BRANCH
光頡科技股份有限公司高雄分公司
No.248-3, Sin-Sheng Rd., Cian-Jhen Dist., Kaohsiung,
806, Taiwan

TEL:886-7-8217999
FAX:886-7-8228229
E-mail:sales@viking.com.tw

VIKING ELECTRONICS (WUXI) CO., LTD.
光頡電子(無錫)有限公司
No.22 Xixia Road, Machinery & Industry Park,
National Hi-Tech Industrial Development Zone
of Wuxi, Wuxi, Jiangsu Province, China
Zip Code:214028
TEL:86-510-85203339
FAX:86-510-85203667•86-510-85203977
E-mail:china@viking.com.tw

Produced by (QC)	Checked (QC)	Approved by (QC)	Prepared by (Sales)	Accepted by (Customer)
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<i>Kris Chen</i>	<i>Ben Chang</i>	<i>Ben Chang</i>		

Multilayer Chip Inductor



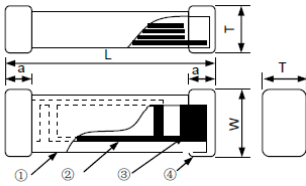
Features

- Monolithic structure for high reliability
- High self-resonant frequency
- Excellent solderability and high heat resistance

Applications

- RF circuit in telecommunication and other equipments

Construction



① Ceramic Material	③ Pull Out Electrode
② Internal Electrode	④ End-termination

Dimensions

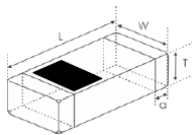


Figure1

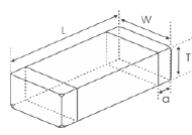


Figure2

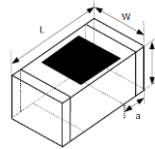


Figure3

Standard

Unit: mm

Type	Size (Inch)	Figure	L	W	T	a
CL02-S (<12nH)	0402	1	1.00±0.15	0.50±0.15	0.50±0.15	0.25±0.10

Part Numbering

CL	02	C	T		3N9	-S
Product Type	Dimensions	Inductance Tolerance	Packaging Code	Appearance	Inductance	
	02: 0402	C: ±0.2nH	T: Taping Reel	: Standard	3N9: 3.9nH	

Standard Electrical Specifications

CL02-S Multilayer Chip Inductors / Standard Type

Inductance (nH)	Tolerance	Quality Factor /min.	L/Q Freq. (MHz)	Q(Typical) Freq.(MHz)			SRF min. (GHz)	RDC (Ω) max.	IDC (mA) max.
				100	800	1000			
3.9	±0.2nH	8	100	10	28	31	4.00	0.20	300

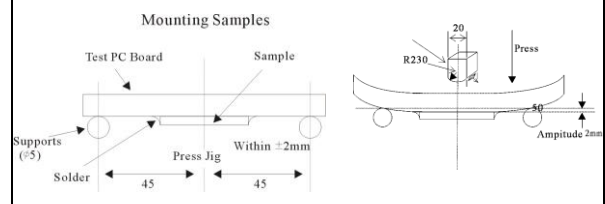
Operating temperature range: -55~+125°C

Environmental Characteristics

Electrical Performance Test

Item	Requirement	Test Condition
Inductance	In Within specified tolerance	Temperature: 20±1°C Relative Humidity: 45 to 85%RH Atmospheric Pressure: 86 to 106kpa Measuring equipment and fixture: 0201: E991A+HP16197A 0402/0603: E991A+HP16192A Test Signal: -20dBm or 50mV Test compensation(for 0201 high Q): Product true value= test value + compensation value. for L<3.6nH, compensation value is 0.25nH; for 3.6nH≤L<6.8nH, compensation value is 0.43nH; for 6.8 nH≤L<9.1nH, compensation value is 0.5nH; for L≥9.1nH, compensation value is 0.85nH;
Q Value	In accordance with electrical specification	Temperature: 20±1°C Relative Humidity: 45 to 85%RH Atmospheric Pressure: 86 to 106kpa
DC Resistance	In accordance with electrical specification	Temperature: 20±1°C Relative Humidity: 45 to 85%RH Atmospheric Pressure: 86 to 106kpa Measuring equipment: HP 4338

Mechanical Characteristics Test

Item	Requirement	Test Condition
Bending Strength	No mechanical damage shall be observed	Flexure: 2mm Pressurizing speed: 0.5mm/sec Keep time: 30sec 
Solderability	No visible mechanical damage Wetting shall exceed 75% coverage for 0201 series; exceed 95% coverage for others	Solder temperature: 240±2°C Time: 3 seconds Solder: Sn/3.0Ag/0.5Cu Flux: 25% resin and 75% ethanol in weight
Resistance to Soldering Heat	No visible mechanical damage Wetting shall exceed 75% coverage for 0201 series; exceed 95% coverage for others Inductance change: within±10% Q change: within±20%	Solder temperature: 260±3°C Time: 5 seconds Solder: Sn/3.0Ag/0.5Cu Flux: 25% resin and 75% ethanol in weight The chip shall be stabilized at normal condition for 1~2 hours before measuring
Dropping	No visible mechanical damage Inductance change: within±10% Q change: within±20%	Drop chip inductor 10 times on a concrete floor from a height of 100cm

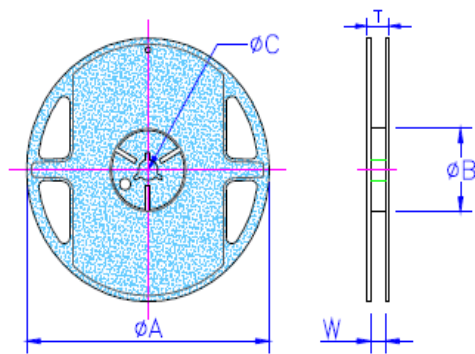
Climatic Test

Item	Requirements	Test Condition
Thermal Shock		0201/0402 series: -55°C for 30±3 min→125°C for 30±3 min 0603 series: -40°C for 30±3 min→85°C for 30±3 min Transforming interval: max. 20 seconds Test cycle: 100 cycles The chip shall be stabilized at normal condition for 1~2 hours Before measuring
Resistance to Low Temperature		Temperature: 0201/0402 series: -55±2°C ; 0603 series: -40±2°C Time: 1000±24 hours The chip shall be stabilized at normal condition for 1~2 hours Before measuring
Resistance to High Temperature	No visible damage	Temperature: 0201/0402 series: 125±2°C ; 0603 series: 85±2°C Time: 1000±24 hours The chip shall be stabilized at normal condition for 1~2 hours Before measuring
Damp Heat (Steady States)	Inductance variation within 10% Q variation within 20%	Temperature: 60±2°C Humidity: 90~95% RH. Time: 1000±24 hours The chip shall be stabilized at normal condition for 1~2 hours Before measuring
Loading Under Damp Heat		Temperature: 60±2°C Humidity: 90~95% RH. Time: 1000±24 hours Applied current: Rated current The chip shall be stabilized at normal condition for 1~2 hours Before measuring
Loading at High Temperature (Life Test)		Temperature: 0201/0402 series: 125±2°C ; 0603 series: 85±2°C Time: 1000±24 hours Applied current: Rated current The chip shall be stabilized at normal condition for 1~2 hours Before measuring

■ Storage Temperature: 15~28°C; Humidity < 80%RH

■ Packaging Specifications

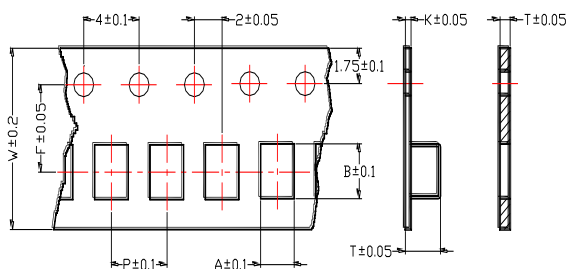
Reel Dimension



Unit: mm

Type	A	B	C	W	T	Quantity (EA)
CL02-S	178±1	60.0±0.5	13.0±0.20	9.00±0.5	12.0±0.15	10,000

Tape Specifications



Unit: mm

Type	A	B	T	W	P	F	K	Tape
CL02-S	0.65	1.15	0.80	8	2	3.5	-	B

Type A Type B