Data Sheet

Customer:	
Product:	Thin Film Chip Inductor- AL-C Series
Sizes.:	**01005**
Issued Date:	**25-Sep-14**
Edition:	**REV.A**

A-PLUS POWER TECHNOLOGY CO., LTD.

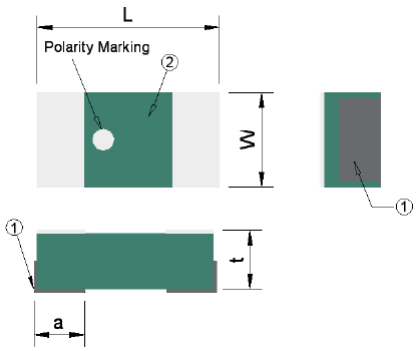
Produced by (QC)	Checked (QC)	Approved by (QC)	Prepared by (Sales)	Accepted by (Customer)
25-Sep-14	25-Sep-14	25-Sep-14	25-Sep-14	
Kris Chen	***Ben Chang***	***Ben Chang***		

Thin Film Chip Inductor

■Scope

－This specification applies to 0.4mmX0.2mm (01005) size, fixed thin film chip inductor rectangular type.

■Construction



①	Electrode (Sn)	②	Epoxy Resin Coating

■Dimensions

Unit: mm

Type	Size (Inch)	L	W	t	a
ALE5-C	01005	0.40±0.05	0.20±0.05	0.20±0.05	0.09±0.05

■Part Numbering

AL	E5	B	T	0N6	C
Product Type	Dimensions	Resistance Tolerance	Packaging Code	Inductance	
	E5: 01005	B: ±0.1nH C: ±0.2nH S: ±0.3nH H: ±3% J: ±5%	T: Taping Reel	0N6: 0.6nH 10N: 10nH	C: Cyntec

Thin Film Chip Inductor

■Standard Electrical Specifications

ALE5-C Chip Inductors

Inductance (nH)	Inductance Tolerance	Quality Factor min.	Test Condition	SRF (GHz) min.	DCR (Ω) max.	IDC (mA) max.
0.2	±0.1, ±0.2 nH	8	500MHz	6.0	0.45	320
0.3	±0.1, ±0.2nH	8	500MHz	6.0	0.45	320
0.4	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	320
0.5	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	320
0.6	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	320
0.7	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	320
0.8	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	320
0.9	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	320
1.0	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	220
1.1	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	220
1.2	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.45	220
1.3	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.75	220
1.4	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.75	220
1.5	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.75	220
1.6	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.75	220
1.7	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.75	220
1.8	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.90	200
1.9	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.90	200
2.0	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.90	200
2.1	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.90	200
2.2	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.90	200
2.3	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.90	200
2.4	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	0.90	200
2.5	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.20	200
2.6	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.20	200
2.7	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.20	200
2.8	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.20	200
2.9	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.20	200
3.0	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.35	200
3.1	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.35	200
3.2	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.35	200
3.3	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.40	180
3.4	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.40	180
3.5	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.40	180
3.6	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.40	180
3.7	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.40	180
3.8	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.40	180
3.9	±0.1, ±0.2, ±0.3nH	8	500MHz	6.0	1.40	180
4.0	±0.3nH, ±3, ±5%	8	500MHz	6.0	1.40	180
4.1	±0.3nH, ±3, ±5%	8	500MHz	6.0	1.40	180
4.2	±0.3nH, ±3, ±5%	8	500MHz	6.0	1.40	180
4.3	±0.3nH, ±3, ±5%	8	500MHz	6.0	1.60	180
4.7	±0.3nH, ±3, ±5%	8	500MHz	6.0	1.60	160
5.1	±0.3nH, ±3, ±5%	8	500MHz	6.0	1.60	160
5.6	±0.3nH, ±3, ±5%	8	500MHz	6.0	1.90	140
6.2	±0.3nH, ±3, ±5%	8	500MHz	5.8	1.90	140
6.8	±0.3nH, ±3, ±5%	8	500MHz	5.8	1.90	140
7.5	±3, ±5%	8	500MHz	4.8	1.90	140
8.2	±3, ±5%	8	500MHz	4.8	2.40	140
9.1	±3, ±5%	8	500MHz	4.3	2.40	140
10	±3, ±5%	8	500MHz	4.3	2.60	140
11	±3, ±5%	8	500MHz	4.3	2.60	140
12	±3, ±5%	7	500MHz	3.8	2.80	140
13	±3, ±5%	7	500MHz	3.8	2.80	140
15	±3, ±5%	7	500MHz	3.3	3.30	140
16	±3, ±5%	7	500MHz	3.0	3.30	140
18	±3, ±5%	7	500MHz	2.8	3.30	140

■ **Storage temperature range: -40~+85℃**
■ **Operating temperature range: -40~+85℃**

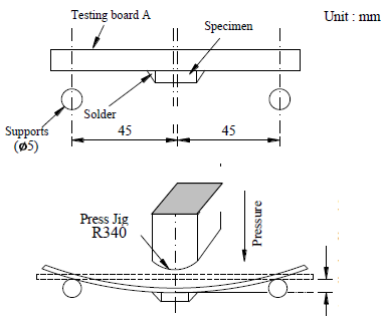
Thin Film Chip Inductor

■Environmental Characteristics

Electrical Performance

Item	Specification	Test Method
Inductance	As spec	Measuring equipment and fixture: HP4287+Agilent 16196D *The residue inductance value needs to be set to 0.11nH when Performing compensation procedure
Q	As spec	
DCR	As spec	Digital multi meter
SRF	As spec	Measurement shall be performed by Network Analyzer N5230A
IDC	As spec	Rated current shall be the current with which the temperature raise Of the inductor becomes 25℃

Mechanical Performance

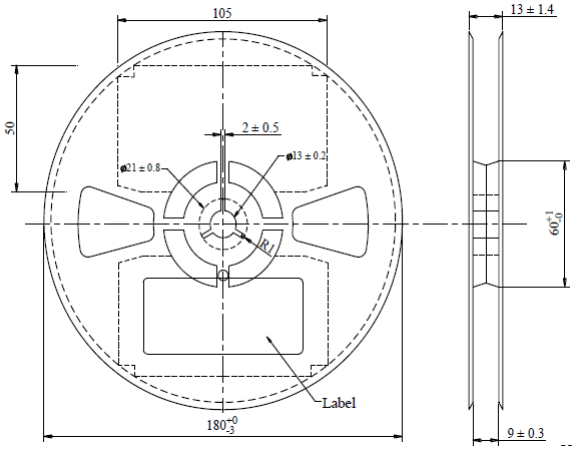
Item	Specification	Test Method
Shear Test	No mechanical damage shall be observed	Test mechanism is as below Force: 1N Duration time: 5 seconds Force direction: parallel to PCB
Bending Test	No mechanical damage shall be observed	Apply pressure in the direction of the arrow at a rate of about 1mm/s. until bent width reaches 1 mm and hold for 30 seconds. 
Resistance to Soldering Heat	No mechanical damage shall be observed, Electrical characteristics shall be within ±10%	Reflow soldering method Pre-heat: 150±10℃ for 60~90 seconds Peak temperature: 260±5℃ for 5 seconds . Immersion time: 5 seconds After exposure 24hrs in the room temperature before measurement
Vibration	No mechanical damage shall be observed	Vibration frequency: 10Hz-2KHz-10Hz for 20min Total amplitude: 1.5mm Time duration: 2hrs for X, Y, Z that is 3 mutual perpendicular Direction with each other
Solderability	A new uniform coating of 95% of the surface being immersed	Solder Temperature: 240±5℃ Immersion Time: 3±1 Seconds.

Environmental Performance

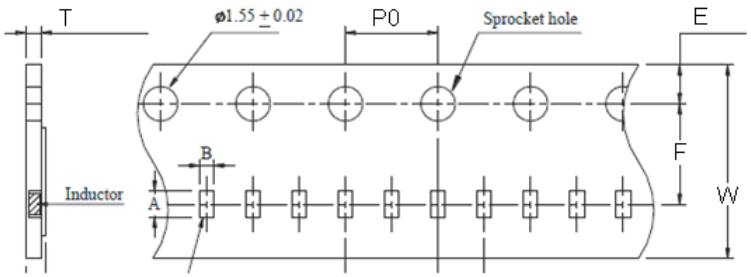
<table>
<tr><th>Item</th><th>Specification</th><th colspan="3">Test Method</th></tr>
<tr><td rowspan="7">Temperature Cycle</td><td rowspan="7">Appearance: No Damage
Inductance change: within±10%</td><td colspan="3">One cycle:</td></tr>
<tr><td>Step</td><td>Temperature (℃)</td><td>Time (min)</td></tr>
<tr><td>1</td><td>-40±2</td><td>30</td></tr>
<tr><td>2</td><td>25±2</td><td>10~15</td></tr>
<tr><td>3</td><td>85±2</td><td>30</td></tr>
<tr><td>4</td><td>25±2</td><td>10~15</td></tr>
<tr><td colspan="3">Total: 10cycles</td></tr>
<tr><td>Humidity</td><td colspan="3">Temperature: 40℃
Relative Humidity: 90 %
Time: 1000hrs</td></tr>
<tr><td>High Temperature</td><td colspan="3">Temperature: 85±2℃
Time: 1000hrs</td></tr>
<tr><td>Low Temperature</td><td colspan="3">Temperature: -40±2℃
Time: 1000hrs</td></tr>
</table>

■Packaging

Reel Specifications Unit: mm



Paper Tape Specifications & Packaging Quantity



Unit: mm

Type	A	B	W	E	F	P0	T	Quantity (EA)
ALE5-C	0.47+0.03/-0.02	0.28±0.03	8.00±0.3	1.75±0.1	3.50±0.05	4.00±0.10	0.31±0.05	20,000

■ Peel force of top cover tape
■ The peel speed shall be about 300mm/min
■ The peel force of top cover tape shall be between 0.1N to 0.6N