

发行日期: _____

承认书编号: _____

承认书 Approval Sheet

客户名称 Customer : _____
爱伦料号 Aillen P/N : ALCPI series
规格描述 Description : Multilayer Chip Ferrite Large Current Inductors
客户料号 Customer P/N : _____

客户接收
接收日期: _____

接收者	检验者	确认	审核	客户盖章

供应商

编制	确认	审核	公司盖章
常斯琴	/	彭旭	

爱 伦 电 子 科 技 有 限 公 司

Aillen Electronic Technology Limited

香港:香港湾仔庄士敦道 181 号大有大厦 10 楼 1001 室
ADD:1001R.10F Taiyau Building.181 Johnston Road.Wanchai H.K
TEL: 00852-36458129 FAX: 00852-36458092
东莞:广东省东莞市东城区东莞大道 11 号环球经贸中心 A805
ADD:A805 TBA Tower NO. 11 DongGuan Road ,DongGuan,GuangDong
TEL: 0769-23124124 /88050188 FAX: 0769-23124135

<http://www.aillen.com>

E-mail: skychung@aillen.com

产品规格承认书 Product specification recognition

产 品 名 称 PRODUCT NAME: 叠层片式铁氧体大电流电感

Multilayer Chip Ferrite Large Current Inductor

目录 CATALOG

1	适用范围 Scope.....	2
2	品名构成 Product Identification.....	2
3	形状、尺寸和材料 Appearance, Dimensions and Material.....	2-3
4	测试条件 Testing Conditions.....	3
5	标称值 Rating.....	4-5
6	电气特性 Electrical Performance.....	6
7	信赖性试验 Reliable Performance.....	7-8
8	包装 Packaging.....	9-10
9	保管 Storage.....	11

1 适用范围 Scope

本纳入仕様书适用于 ALCPI 系列叠层片式铁氧体大电流电感。

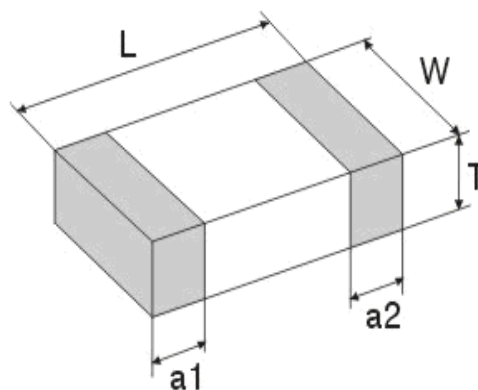
This specification applies to the ALCPI series of multilayer chip ferrite Large Current inductors

2 品名构成 Product Identification

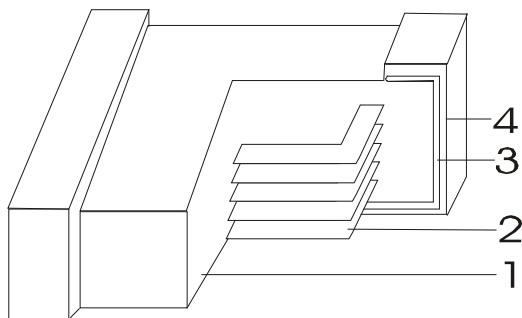
ALCPI 2012 F 4R7 M T
 ① ② ③ ④ ⑤ ⑥

- ① 产品系列 Product Symbol
- ② 产品尺寸 Dimensions (见 3)
- ③ 基本材料代码 Material Code (铁氧体材料,按磁导率从小到大依次为 B;F;H;等)
- ④ 电感量 Inductance Value (47N:0.047μH;R47:0.47μH;4R7:4.7μH;470:47μH;471:470μH)
- ⑤ 允许容差 Inductance Tolerance (M:±20%; N:±30%)
- ⑥ 包装方式 (B: 散装; T: 盘装) Packaging Style (B:: Bulk; T: Tape & Reel)

3 形状、尺寸和材料 Appearance, Dimensions and Material



Type 型号	Dimensions (mm) [inch]			
	L长	W宽	T高	a1, a2
1608 [0603]	1.6±0.15 [0.063±0.006]	0.8±0.15 [0.031±0.006]	0.8±0.15 [0.031±0.006]	0.3±0.2 [0.012±0.008]
2012 [0805]	2.00 (+0.30, -0.10) [0.079 (+0.012, -0.04)]	1.25±0.20 [0.049±0.008]	0.85±0.20 [0.033±0.008]	0.50±0.30 [0.02±0.012]
2520 [1008]	2.50±0.20 [0.098±0.008]	2.0±0.20 [0.079±0.008]	0.9±0.20 [0.035±0.008]	0.50±0.30 [0.02±0.012]
3216 [1206]	3.2±0.20 [0.126±0.008]	1.6±0.20 [0.063±0.008]	0.85±0.20 [0.033±0.008]	0.50±0.30 [0.02±0.012]



	构成 Composition	材料 Material	供应商 Supplier
1	基本材料 Base Material	铁氧体(Ni-Cu-Zn 系列) Ferrite (Ni-Cu-Zn series)	日本/中国 Japan/China
2	内导体 Internal Conductor	银 Ag	日本/中国 Japan/China
3	端电极 Terminal Electrode	银 Ag	日本/中国 Japan/China
4	端电极 Terminal Electrode	镍-锡 Ni-Sn	美国/中国 USA/China

4 测试条件 Testing Conditions

除非另有规定，否则在以下条件下测试 <Unless otherwise specified>

温度 Temperature : Ordinary Temperature (5 to 35°C)

湿度 Humidity : Ordinary Humidity (25 to 85% RH)

当对测量结果有疑问时<In case of doubt>

温度 Temperature : 20±2°C

湿度 Humidity : 60 to 75% RH

大气压强 Atmospheric Pressure : 86 to 106 kPa

5 标称值 Rating

操作温度范围 Operating Temperature Range : -40 to +125°C

ALCPI 1608 Type

Part No. 型号	Inductance 电感量 (μH)	Test Freq. 测试频率 (MHz)	SRF (MHz) 自谐频率 min	RDC (Ω) 直流电阻	IR (mA) 额定电流 max	Thickness 厚度 mm [inch]
ALCPI1608F1R0MT	1.0 \pm 20%	1	75	0.13 \pm 25%	1100	0.8 \pm 0.15 [0.031 \pm 0.006]
ALCPI1608F1R8MT	1.8 \pm 20%	1	50	0.30 \pm 25%	750	
ALCPI1608F2R2MT	2.2 \pm 20%	1	50	0.32 \pm 25%	750	
ALCPI1608F4R7MT	4.7 \pm 20%	1	33	0.56 \pm 25%	600	
ALCPI1608N100MT	10 \pm 20%	1	30	0.56 \pm 25%	600	

ALCPI 2012 Type

Part No. 型号	Inductance 电感量 (μH)	Test Freq. 测试频率 (MHz)	SRF (MHz) 自谐频率 min	RDC (Ω) 直流电阻	IR (mA) 额定电流 max	Thickness 厚度 mm [inch]
ALCPI2012F1R0MT	1.0 \pm 20%	1	75	0.10 \pm 25%	1200	0.85 \pm 0.20 [0.033 \pm 0.008]
ALCPI2012F1R2MT	1.2 \pm 20%	1	75	0.10 \pm 25%	1200	
ALCPI2012F1R5MT	1.5 \pm 20%	1	65	0.12 \pm 25%	1100	
ALCPI2012F1R8MT	1.8 \pm 20%	1	65	0.14 \pm 25%	1000	
ALCPI2012F2R2MT	2.2 \pm 20%	1	50	0.16 \pm 25%	950	
ALCPI2012F2R7MT	2.7 \pm 20%	1	50	0.18 \pm 25%	900	
ALCPI2012F3R3MT	3.3 \pm 20%	1	35	0.21 \pm 25%	850	
ALCPI2012F3R9MT	3.9 \pm 20%	1	30	0.24 \pm 25%	750	
ALCPI2012F4R7MT	4.7 \pm 20%	1	25	0.26 \pm 25%	750	
ALCPI2012N100MT	10 \pm 20%	1	24	0.36 \pm 25%	800	

ALCPI 2520 Type

Part No. 型号	Inductance 电感量 (μH)	Test Freq. 测 试频率 (MHz)	SRF (MHz) 自 谐频率 min	RDC (Ω) 直流电阻	IR (mA) 额 定电流 max	Thickness 厚度 mm [inch]
ALCPI2520F4R7MT	$4.7 \pm 20\%$	1	30	$0.19 \pm 25\%$	1000	0.9 \pm 0.20 [0.035 \pm 0.008]
ALCPI2520F5R6MT	$5.6 \pm 20\%$	1	25	$0.20 \pm 25\%$	1000	
ALCPI2520F6R8MT	$6.8 \pm 20\%$	1	25	$0.22 \pm 25\%$	950	

ALCPI 3216 Type

Part No. 型号	Inductance 电感量 (μH)	Test Freq. 测 试频率 (MHz)	SRF (MHz) 自 谐频率 min	RDC (Ω) 直流电阻	IR (mA) 额 定电流 max	Thickness 厚度 mm [inch]
ALCPI3216F2R2MT	$2.2 \pm 20\%$	1	25	$0.15 \pm 25\%$	1000	0.85 \pm 0.20 [0.033 \pm 0.008]
ALCPI3216F2R7MT	$2.7 \pm 20\%$	1	25	$0.16 \pm 25\%$	1000	
ALCPI3216F4R7MT	$4.7 \pm 20\%$	1	25	$0.304 \pm 25\%$	800	
ALCPI3216F6R8MT	$6.8 \pm 20\%$	1	29	$0.28 \pm 25\%$	800	
ALCPI3216N100MT	$10 \pm 20\%$	1	24	$0.40. \pm 25\%$	700	

6 电气特性 Electrical Performance

6.1 电感量;Q 值 Inductance; Q factor

按表 1 所列条件测量时, 电感量应符合条款 5。

Inductance; Q factor shall meet item 5 when measured on the condition of Table 1.

Table 1

测量设备 Measuring Equipment	阻抗分析仪 HP4291 或其他 Impedance analyzer HP4291 or equivalent
测量频率 Measuring Frequency	见条款 5 (see item 5)
测量信号 Measuring signal level	50mV

6.2 直流电阻 DC Resistance

按表 2 所列条件测量时，直流电阻应符合条款 5。

D.C Resistance shall meet item 5 when measured on the condition of Table 2.

Table 2

测量设备 Measuring Equipment	LCR 测量表 HP4263A 或其他 LCR Meter HP4263A or equivalent
-----------------------------	--

6.3 自谐频率 Self Resonant Frequency (S.R.F)

按表 3 所列条件测量时，自谐频率应符合条款 5。

S.R.F. shall meet item 5 when measured on the condition of Table 3.

Table 3

测量设备 Measuring Equipment	阻抗分析仪 HP4291 或其他 Impedance analyzer HP4291 or equivalent
-----------------------------	---

6.4 额定电流 Rated current

I_r 基于产品表面温度上升的标准值：产品表面温度达到+40℃时的电流值；

Rated current based on increasing product temperature: Current when temperature of the product reaches +40℃

Table 4

测量设备 Measuring Equipment	阻抗分析仪 HP4291 或其他 直流电源 HP6632 和适配器 HP16200 或其他 Impedance analyzer HP4291 or equivalent DC power HP6632 and Adapter HP16200 or equivalent
-----------------------------	--

6.5 焊接变化率 Variance after Soldering

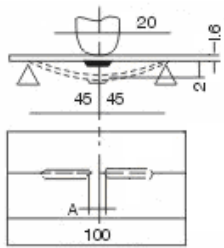
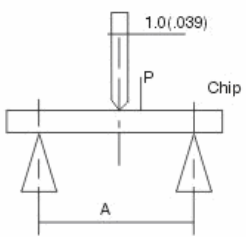
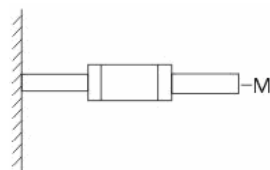
当经过焊接条件（255℃ 浸锡 3.5 秒）后，电感量变化率 0.001 μH~10 μH: ±10%，10 μH~220 μH: 20%。

Inductance change shall be within 0.001 μH~10 μH: ±10%，10 μH~220 μH: 20%: ±10% when the inductor is dipped into solder for 3.5 seconds which is 255℃

Table 5

测量设备 Measuring Equipment	阻抗分析仪 HP4291 或其他；焊接炉 Impedance analyzer HP4291 or equivalent Solder furnace
-----------------------------	---

7 信赖性试验 Reliable Performance

NO.	Item 项目	Specifications 规范	Test Methods 测试方法															
1	Solder-Ability 可焊性	More than 90% of termination should be covered with new solder. 端电极焊锡覆盖率为 90% 以上	Solder 焊锡: Sn 纯锡 Temperature 焊锡温度: 260°C ± 5 °C Flux 助焊剂: rosin 松香 Duration 浸渍时间: 4 ± 1s															
2	Leaching Resistance 耐焊性	More than 75% of termination Should be covered with new solder. 端电极焊锡覆盖率为 75% 以上	Solder 焊锡: Sn 纯锡 Temperature 焊锡温度: 260°C ± 5 °C Flux 助焊剂: rosin 松香 Duration 浸渍时间: 10 ± 1s															
3	Bending Strength 弯曲试验	No mechanical damage should be noticed 不应见机械损伤	When the board curve to 2mm(0.079 inches) 当板弯曲挠度达 2mm 时: <table border="1"> <thead> <tr> <th>Size↕</th> <th>A(mm)↕</th> </tr> </thead> <tbody> <tr> <td>0603↕</td> <td>0.3↕</td> </tr> <tr> <td>1005↕</td> <td>0.5↕</td> </tr> <tr> <td>1608↕</td> <td>0.7↕</td> </tr> <tr> <td>2012↕</td> <td>1.0↕</td> </tr> </tbody> </table> 	Size↕	A(mm)↕	0603↕	0.3↕	1005↕	0.5↕	1608↕	0.7↕	2012↕	1.0↕					
Size↕	A(mm)↕																	
0603↕	0.3↕																	
1005↕	0.5↕																	
1608↕	0.7↕																	
2012↕	1.0↕																	
4	Body Strength 抗压强度	No mechanical damage should be noticed 不应见机械损伤	Applied specified pull strength in axial direction 在轴向上施加拉力如下: <table border="1"> <thead> <tr> <th>Size↕</th> <th>A/mm↕</th> <th>P/N↕</th> </tr> </thead> <tbody> <tr> <td>0603↕</td> <td>0.3↕</td> <td>4.9↕</td> </tr> <tr> <td>1005↕</td> <td>0.7↕</td> <td>4.9↕</td> </tr> <tr> <td>1608↕</td> <td>1.0↕</td> <td>4.9↕</td> </tr> <tr> <td>2012↕</td> <td>1.4↕</td> <td>9.8↕</td> </tr> </tbody> </table> 	Size↕	A/mm↕	P/N↕	0603↕	0.3↕	4.9↕	1005↕	0.7↕	4.9↕	1608↕	1.0↕	4.9↕	2012↕	1.4↕	9.8↕
Size↕	A/mm↕	P/N↕																
0603↕	0.3↕	4.9↕																
1005↕	0.7↕	4.9↕																
1608↕	1.0↕	4.9↕																
2012↕	1.4↕	9.8↕																
5	Terminal Strength 端头强度	The terminal and body should be no damage 端头和瓷体不应见损伤	Applied specified pull strength in axial 在轴向上施加拉力如下: <table border="1"> <thead> <tr> <th>Size↕</th> <th>Pull Strength↕</th> <th>Time↕ (s)</th> </tr> </thead> <tbody> <tr> <td>0603↕</td> <td>2 N↕</td> <td>5±1↕</td> </tr> <tr> <td>1005↕</td> <td>3 N↕</td> <td>5±1↕</td> </tr> <tr> <td>1608↕</td> <td>5 N↕</td> <td>5±1↕</td> </tr> <tr> <td>2012↕</td> <td>10 N↕</td> <td>5±1↕</td> </tr> </tbody> </table> 	Size↕	Pull Strength↕	Time↕ (s)	0603↕	2 N↕	5±1↕	1005↕	3 N↕	5±1↕	1608↕	5 N↕	5±1↕	2012↕	10 N↕	5±1↕
Size↕	Pull Strength↕	Time↕ (s)																
0603↕	2 N↕	5±1↕																
1005↕	3 N↕	5±1↕																
1608↕	5 N↕	5±1↕																
2012↕	10 N↕	5±1↕																

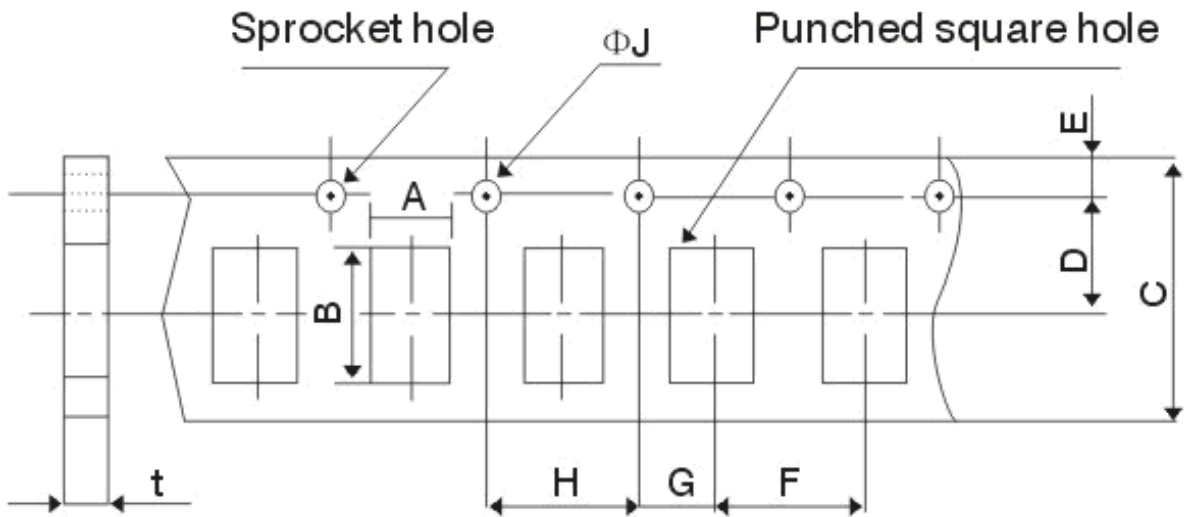
NO.	Item 项目	Specifications 规范	Test Methods 测试方法
-----	---------	-------------------	-------------------

6	Drop 跌落		Drop 10 times on a concrete floor from a height of 1m. 从距混凝土地面 1m 高度自由落下，重复 10 次
7	Vibration 振动		Frequency 频率: 10 to 55Hz Amplitude 振幅: 1.52mm Direction and time 方向及时间: X, Y and Z directions for 2 hours each.
8	Humidity resistance 耐潮湿		a. Test condition 试验条件 Temp. 温度: 60±2℃ Humidity 湿度: 90%~95% Test time 试验时间: 1000 h b. Measurement method 测量条件: The component should be stabilized at normal condition for 24 hours before test. 试验后常温常湿环境中放置 (24±2) 小时后测量
9	High temperature resistance 耐高温	1.No mechanical damage shall be noticed 外观无可见机械损伤 2. Inductance shall be within 电感量变化率: 0.001μH ~ 10μH: ±10% 10μH ~ 220μH: ±20%	a. Test condition 试验条件 Applied rated current 施加额定电流 Temp. 温度: 125±2℃ Test time 试验时间: 1000 h b. Measurement method 测量条件: The component should be stabilized at normal condition for 24 hours before test. 试验后常温常湿环境中放置 (24±2) 小时后测量
10	Low temperature resistance 耐低温		a. Test condition 试验条件 Temp. 温度: -55±2℃ Test time 试验时间: 1000 h b. Measurement method 测量条件: The component should be stabilized at normal condition for 24 hours before test. 试验后常温常湿环境中放置 (24±2) 小时后测量
11	Thermal shock 热冲击		a. Test condition 试验条件 1) Temp. 温度: -55℃, time 时间: 30±3min 2) Temp. 温度: +125℃, time 时间: 30±3min 100 cycles b. Measurement method 测量条件: The component should be stabilized at normal condition for 24 hours before test. 试验后常温常湿环境中放置 (24±2) 小时后测量

8 包装 Packaging

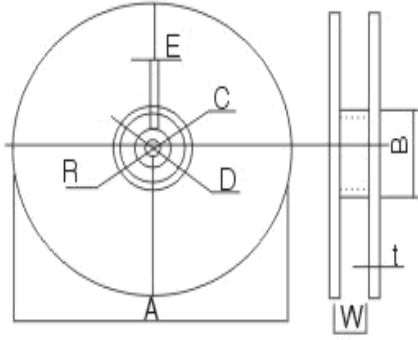
(1) 编带尺寸 Dimensions of Tape:

纸带/塑带 Paper / Embossed carrier tape:



Type	3216	2012	2520	1608
T*	0.85±0.2	0.85±0.2	0.9±0.2	0.8±0.15
TAPE	Paper carrier tape	Paper carrier tape	Embossed carrier tape	Paper carrier tape
A	1.8±0.1	1.5±0.1	2.3±0.10	1.05±0.10
B	3.48±0.1	2.35±0.1	2.80±0.10	1.85±0.10
C	8.0±0.3	8.0±0.3	8.0±0.30	8.0±0.3
D	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05
E	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
F	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
G	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05
H	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
ΦJ	1.5±0.1	1.5±0.1	1.5±0.1	1.5±0.1
t(max)	0.95±0.05	0.95±0.05	1.1±0.05	0.95±0.05

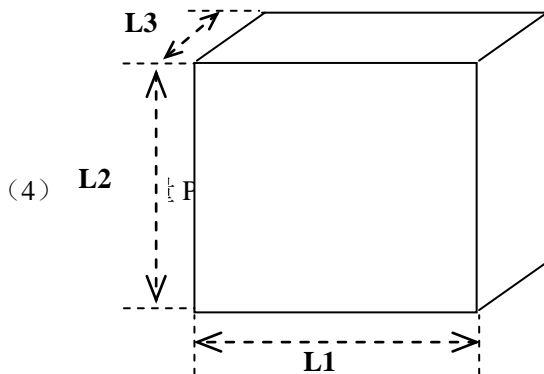
(2) 带轮尺寸 Dimensions of Reel



A	178±2
B	60±2
C	13.0±0.5
D	21.0±0.8
E	2.0±0.5
W	10.0±1.0
t	1.1±0.3
R	1.0±0.25

Reel material: PS (Polystyrene)

(3) 包装箱尺寸 Box and case dimensions



Type	L1	L2	L3
Box	185±3	192±3	63±3
Case	400±3	360±3	220±3

一盒五盘，一箱十盒

5

reels in a box, 10 boxes in a case.

型号 Type	产品厚度 Thickness(mm)	数量 Quantities(Pcs/Reel)	包装载带 (material)
1608	0.80±0.15	4000	纸质载带 Paper
2012	0.85±0.20	4000	纸质载带 Paper
2520	0.90±0.20	3000	塑料载带 Plastic
3216	0.855±0.20	4000	纸质载带 Paper

9 保管 Storage

(1) 保管期限 Storage period

距爱伦出厂检验时间六个月内，产品可以使用；若时间超出六个月，应检查焊接性能后方可使用。

Products which inspected in Aillen over 6 months ago should be examined and used, Solder ability should be checked if this period is exceeded.

(2) 保管条件 Storage conditions

① 存放货物的库房应满足以下条件

Products should be storage in the warehouse on the following conditions

温度 Temperature: $\leq 40^{\circ}\text{C}$

湿度 Humidity : $\leq 70\%$ relative humidity

不允许温、湿度有极剧变化。

No rapid change on temperature and humidity

② 禁止将产品保管在腐蚀性物质中，例如硫磺、氯气或者酸，否则将引起端头氧化，导致降低焊接性。

Don't keep products in corrosive gases such as sulfur, chlorine gas or acid, or it may cause oxidization of electrode, resulting in poor solder ability.

③ 为了避免受潮气、灰尘等物质的影响，产品应保管于货架上。

Products should be storage on the palette for the prevention of the influence from humidity, dust and so on.

④ 产品保管在库房中时，应避免热冲击，振动以及直接光照等等。

Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.

⑤ 产品应密封包装

Products should be storage under the airtight packaged condition.