

承 认 书

APPROVAL SHEET

客户名称:

Customer _____

产品名称:

轴向色环电容器

PARTNAME

Axial Color Code Capacitor

产品规格:

SPECIFICATION

ACC-XXXXXX

版本号:

VERSION

V12.1

日期:

DATE

制造			客户		
APPROVAL <i>承认书专用章</i>			APPROVAL		
拟制	审核	确认	拟制	审核	确认



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一、特点

Feature

*体积小，容量大，适合自动安装的卷（编）带包装。

Miniature size, large capacitance, tape and reel packaging suitable for auto-placement

*环氧树脂封装，从而具有优良的防潮性能、机械强度及耐热性。

Epoxy resin coating creates excellent performance in humidity resistance, mechanical strength and heat resistance

*工业生产标准尺寸及多种脚型产品。

Standard size, various lead configuration

介质种类 Dielectric Type	I类介质 Class I	II类介质 Class II	
介质材料 Dielectric Material	温度补偿型 Temperature compensating	X7R(B)	Y5V(Y/F)
电气性能 Electrical properties	电气性能最稳定，几乎不随温度、电压和时间的变化而变化。 It is the most stable one in electrical properties and has little change with temperature, voltage and time.	具有较高的介电常数，容量可做到比I类电容器高，具有稳定的温度特性。 X7R material has high dielectric constant, and its capacitance is higher than class I. These capacitors are classified as having a semi-stable T.C..	介电常数最大，但温度特性较差，对温度、电压等条件较敏感。 Y5V material has highest dielectric constant. Its capacitance and dissipation is sensible to temperature and voltage.
应用 Application	适用于低损耗，稳定性要求高的高频电路，如滤波器、振动器和计时电路等。 Used in applications where low-losses and high-stability are required, such as filters, oscillators, and timing circuits so on.	适用于容量范围广，稳定性要求不高的电路中，如隔直、耦合、旁路及鉴频等电路中。 Used over a wide temperature range , such in these kinds of circuits, DC-blocking, coupling, bypassing, frequency discriminating etc.	适用于要求大容量，温度变化不大的电路中 Used over a moderate temperature range in application where high capacitance is required.
容量范围 Available capacitance range	0.5pF~2.7nF	100pF~0.47uF	1nF~1.2uF



二、订货代码

Ordering Code

ACC - 0603 B 104 K 500 P 26
 ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑
 A B C D E F G H

A:

产品类别 Product Type	
ACC	轴向色环电容器 Axial Color Code Capacitor

C:

温度特性 Temperature Characteristics			
CG	0±30ppm/°C	B/X7R	±15%
CH	0±60ppm/°C	F(Y)/ Y5V	+30 % -80 %
RH	-220±60ppm/°C		
UJ	-750±120ppm/°C		
SL	-1000~+140ppm/°C		

E:

容量偏差 Tolerance			
C	±0.25pF	K	±10%
D	±0.5pF	M	±20%
J	±5.0%	Z	+80 % -20 %

G:

包装方式 Packaging Style			
P	盒带包装 Ammo	编带 Tape	
T	卷盒包装 Reel		
F	散包装 Bulk		

B:

本体尺寸代码 Nominal Body Size Code			
06	Φ2.8×4.8	空白	常规 Φ2.2×3.2
03	Φ1.9×3.0		

D:

标称容量 Nominal Capacitance			
前两位为有效数字，后一位表示零的个数。 First two digits are significant, and the third digit is number of zero. 例如For example: $104=100000\text{pF}$; $5R6=5.6\text{pF}$			

F:

额定电压 Rated Voltage			
前两位为有效数字，后一位表示零的个数。 First two digits are significant, and the third digit is number of zero. 例如 For example: $500=50\text{V}$; $101=100\text{V}$			

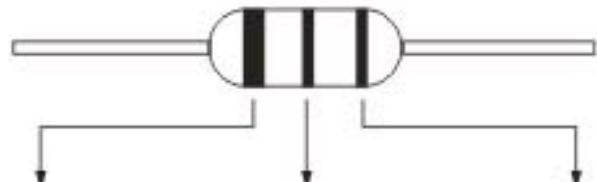
H:

脚距 Lead Space			
26	编带内距Tape Width: 26mm		
52	编带内距Tape Width: 52mm		



三、色环标记代码

Marking of Color Code



	标称容量 Nominal Capacitance		
	第一色环 1st color zone	第二色环 2nd color zone	第三色环 3rd color zone
	第一数字 1st digit	第二数字 2nd digit	第三数字 3rd digit
黑Black	0	0	$\times 10^0$
棕Brown	1	1	$\times 10^1$
红Red	2	2	$\times 10^2$
橙Orange	3	3	$\times 10^3$
黄Yellow	4	4	$\times 10^4$
绿Green	5	5	$\times 10^5$
蓝Blue	6	6	
紫Purple	7	7	
灰Gray	8	8	
白White	9	9	
金Gold	—	—	$\times 10^{-1}$
银Silver	—	—	$\times 10^{-2}$

*例如：标称容量为104时，色环为棕（1）+黑（0）+黄（4）；

E.G. If nominal capacitance is 104, respectively, brown+black+yellow should be marked;

*第一条色环线应稍粗，宽度约为其它两条的1.5倍。

The width of the first line should be about 1.5 times than others.

通用型引线MLCC可靠性及测试方法
Reliability and Test Method for General Leaded MLCC

项目 Item	技术要求 Technical Specification		测试方法和备注 Test Method and Remarks		
容量 Capacitance (C)	I类 Class I	应符合指定的误差级别 within the specified tolerance.	标称容量 Capacitance	测试频率 Measuring Frequency	测试电压 Measuring Voltage
			C≤1000pF	1MHZ±10%	1.0±0.2V
			C>1000 pF	1KHZ±10%	
	II类 Class II	应符合指定的误差级别 within the specified tolerance.	对于II类电容器, 测试前应先预处理 The capacitance should be pretreated before measured(only for class II).		
			测试频率 Measuring Frequency	额定电压 Nominal voltage	测试电压 Measuring Voltage
			1KHZ±10%	U _R >6.3V	1.0±0.2V
损耗角正切 Dissipation Factor (DF)	I类 Class I	C≥50pF DF≤0.15% C<50pF DF≤1.5[(150/C)+7] X10 ⁻⁴	标称容量 Capacitance	测试频率 Measuring Frequency	测试电压 Measuring Voltage
			≤1000pF	1MHZ±10%	1.0±0.2V
			>1000 pF	1KHZ±10%	
	II类 Class II	B	DF≤3.5%	测试频率 Measuring Frequency	测试电压 Measuring Voltage
		Y(F)	≤7.5% (C≤0.1uF) ≤10.0% (1uF > C > 0.1uF) ≤15% (C≥1uF)	1KHZ±10%	U _R >6.3V
			1KHZ±10%	U _R ≤6.3V	0.5±0.2V
绝缘电阻 Insulation Resistance	I类 Class I	C≤10nF IR≥10000MΩ C>10nF R. C≥100 ΩF	测试电压:额定电压 Measuring Voltage: Rated Voltage		
	II类 Class II	C≤25nF IR≥4000MΩ C>25nF R. C≥100 ΩF	测试时间: 60±5秒 Duration: 60±5s		

项目 Item	技术要求 Technical Specification	测试方法和备注 Test Method and Remarks									
耐电压 Withstandi- ng Voltage	不应有介质被击穿或损 伤 No breakdown or damage.	<p>端子间Between terminals:</p> <p>测试电压 Duration: 5±1秒 Measuring Voltage : Duration: 5±1s</p> <p>I类:300%额定电压 Class I :300% Rated voltage</p> <p>II类:250%额定电压 Class II :250% Rated voltage</p> <p>充/放电电流不应超过50mA The charge/ discharge current is less than 50mA.</p>									
		<p>端子与外装间Between terminals and body:</p> <p>施加电压: 2.5U_R 持续时间: 1~5s Voltage: 2.5 times rated voltage Duration: 1~5s</p> <p>金属制小球法 Small metallic ball method</p> <p>将电容器本体插入盛满直径为1mm的金属小球的容器中，但保留距端头处2mm的本体不插入。试验电压施加在短路回路端子和金属小球之间。 Small metallic balls with 1mm diameters shall be put in a vessel and the test capacitor shall be submerged except 2mm from the top of its component body and the terminals. The test voltage shall be applied between the short-circuited terminals and the metallic balls.</p>									
可焊性 Solder ability	上锡率应大于95% Lead wire shall be at least 95% covered with a new solder coating.	将电容器引线浸入含有25%松香的酒精溶液中，然后浸入温度为: 245±2°C的金属焊锡(Sn-3Ag-0.5Cu) 中不超过3秒，注意：电容器本体底面距离锡面约1.5~2mm， The lead wire of capacitor is dipping into a 25% rosin solution of ethanol and then into molten solder(Sn-3Ag-0.5Cu) of 245±2°C for less than 3s. In both cases the depth of dipping is up to about 1.5~2mm from the terminal body.									
耐焊接热 Resistance to Soldering Heat	<table border="1"> <thead> <tr> <th>项目 Item</th><th>ΔC/C≤</th></tr> </thead> <tbody> <tr> <td>Class I</td><td>± 2.5% or ± 0.25pF Whichever is larger</td></tr> <tr> <td>X7R(B)</td><td>± 10%</td></tr> <tr> <td>Y5V (Y/F)</td><td>± 20%</td></tr> </tbody> </table> 外观无可见损伤 No significant abnormality in appearance.	项目 Item	ΔC/C≤	Class I	± 2.5% or ± 0.25pF Whichever is larger	X7R(B)	± 10%	Y5V (Y/F)	± 20%	<p>锡温: 265 ±3°C 时间: 6(+1,0) s Solder temperature: 265 ±3°C Duration: 6(+1,0) s</p> <p>浸入条件: 将电容器插入厚度为1.6mm, 孔径为1.0mm的PC板。 Immersed conditions: Inserted into the PC board (with t=1.6mm, hole=1.0mm diameter)</p> <p>对于I类介质, 试验后, 应在标准条件下恢复24 ±2小时后才测试。 Recovery: For class I, 4 to 24 hours of recovery under the standard condition after test.</p> <p>对于II类介质, 在试验前应先进行如下预处理: 150(-10,+0) °C, 1小时, 接着在标准条件下恢复48 ±4小时。 Preconditioning (Class II) : 1 hour of preconditioning at 150(-10,+0) °C, followed by 48 ±4 hours of recovery under the standard condition.</p> <p>恢复: 对于II类介质试验后, 应在标准条件下恢复48 ±4小时后才测试。 Recovery (Class II) : 48 ±4 hours of recovery under the standard condition after test.</p>	
项目 Item	ΔC/C≤										
Class I	± 2.5% or ± 0.25pF Whichever is larger										
X7R(B)	± 10%										
Y5V (Y/F)	± 20%										



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项目 Item	技术要求 Technical Specification	测试方法和备注 Test Method and Remarks		
高温负荷 High Temperatu- re Loading Test	外观无可见损伤 No significant abnormality in appearance.	温度 Temperature		
	容量变化Capacitance Change: I类介质Class I: $\leq \pm 3\%$ or $\pm 0.3\text{pF}$ 取较大值Whichever is larger.	COG (N)	X7R(B)	SL/UJ/CH/RH/Y5V(Y/F)
	II类介质Class II: X7R(B): $\leq \pm 12.5\%$ Y5V(Y/F): $\leq \pm 30\%$	$125(-0,+3)^\circ\text{C}$		
	损耗角正切Dissipation Factor: I类介质: 小于原始值的两倍 Class I: Not more than twice of initial value. II类介质Class II: X7R(B): $\leq 5.0\%$ Y5V(Y/F): $\leq 12.5\%$ ($C_R \leq 0.1\mu\text{F}$) $\leq 15.0\%$ ($1\mu\text{F} > C_R > 0.1\mu\text{F}$) $\leq 17.5\%$ ($C_R \geq 1\mu\text{F}$)	电压: 1.5倍额定电压 Applied voltage: 1.5 times rated voltage 充放电流不超过50mA The charge/ discharge current is less than 50mA.		
	绝缘电阻Insulation Resistance: $\geq 500\text{M}\Omega$ or $25\Omega\cdot\text{F}$ 取较小值Whichever is smaller.	时间: 1000小时 Duration: 1000 hours 恢复时间: Recovery Time I类介质: 24 ± 2 小时, Class I Dielectric; 24 ± 2 hours II类介质: 48 ± 4 小时 Class II Dielectric: 48 ± 4 hours		
耐溶剂性 Solvent Resistance	外观无可见损伤或异常,标记清晰。 No defects or abnormalities in appearance and legible marking.	溶剂温度: $23 \pm 5^\circ\text{C}$ Solvent temperature: 将样品浸在溶剂中1分钟, 用脱脂棉在样品有标志部位刷10次, 重复3次。 put the sample into solvent 1 Min, and then take it out and brush sample's notation area 10 times with pedgelet , repeat 3 times.		

* 以上所示“标准条件”解释如下:

温度: $5\sim35^\circ\text{C}$, 湿度: $45\sim85\%$, 气压: $86\sim106\text{kPa}$

* Note on standard condition: " standard condition " referred to herein should be defined as follows:

5 to 35°C of temperature, 45 to 75% of relative humidity, and 86 to 106kPa of atmospheric pressure.

若测试结果有争议时, 仲裁试验用标准大气条件为:

温度: $25 \pm 1^\circ\text{C}$, 相对湿度: $48\% \sim 52\%$, 气压: $86 \sim 106\text{kPa}$

* When there are questions concerning measurement results:

In order to provide correlation data, the test should be conducted under a condition of 25 degrees plus/minus 1 centigrade of temperature, 48% through 52% of relative humidity and 86 through 106 kPa of atmospheric pressure.



五、尺寸、工作电压、容量关系表

Size Code, Voltage VS Capacitance

温度特性 Temp. char.	工作电压 Voltage			容量范围 Available Capacitance Range			容量偏差 Capacitance Tolerance
尺寸规格	08型	06型	03型	08型	06型	03型	
CG(N)	25	25	25	0R5~102	0R5~272	0R5~102	C: ±0.25pF D: ±0.5pF J: ±5% K: ±10% M: ±20%
	50	50	50	0R5~102	0R5~222	0R5~102	
	100	100	100	0R5~102	0R5~102	0R5~102	
CH	50	50	50	0R5~102	0R5~102	1R5~102	
RH	50	50	50	1R0~180	1R0~180	1R0~180	
UJ	50	50	50	2R2~300	2R2~300	2R2~300	
SL	50	50	50	1R0~680	1R0~680	1R0~680	
X7R(B)	25	25	25	101~334	101~474	101~104	K: ±10% M: ±20% N: ±30%
	50	50	50	101~224	101~334	101~333	
	100	100	100	101~333	101~124	101~103	
Y5V(Y/F)	25	25	25	103~125	103~125	103~224	M: ±20% N: ±30% Z: -20%~+80%
	50	50	50	103~105	103~474	103~224	
	100	100	100	103~104	103~334	103~683	

其它规格请直接和我们联系。

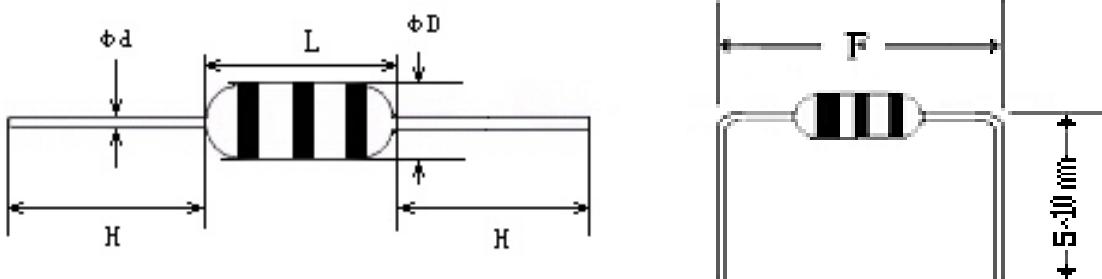
Others are available, contact FH.

六、外形尺寸 External Dimensions

1、单品Bulk Product

单位Unit: mm

尺寸规格	L	Φ D	Φ d	H	F		
08型	≤3.2	≤2.2	0.40±0.05	≥11	5.08 ± 0.6	7.50 ± 0.6	10.0 ± 0.6
06型	≤4.8	≤2.8	0.40±0.05	≥11	—	7.50 ± 0.6	10.0 ± 0.6
03型	≤3.0	≤1.9	0.40±0.05	≥11	5.08 ± 0.6	7.50 ± 0.6	10.0 ± 0.6





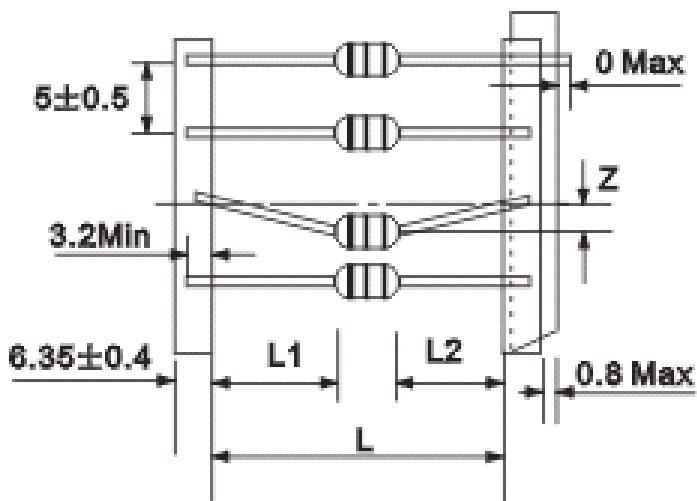
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2、编带

Tape

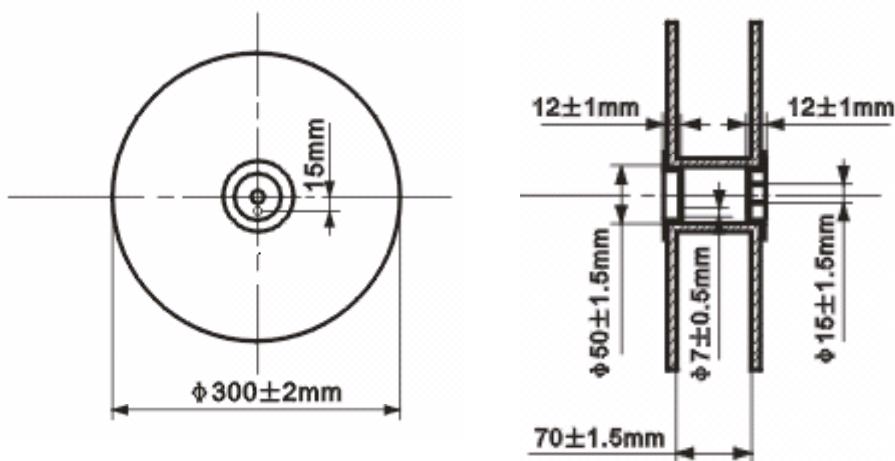
单位 Unit: mm

编带方式 Tape Style	L	Z	L1-L2
编带内距: 26 Tape Width:	26±1.5	0.8	
编带内距: 52 Tape Width:	52 ^{+2.0} _{-1.0}	1.2	1.0



3、包装 Packaging

1) 卷带包装 Tape and Reel Packaging

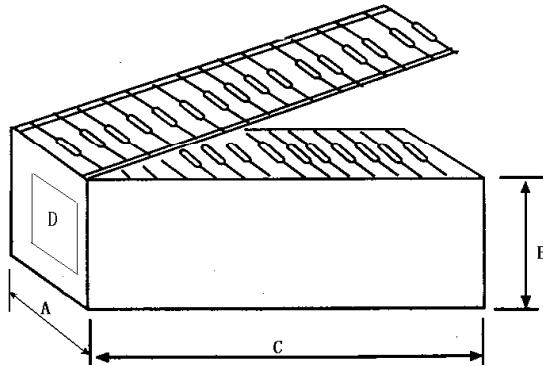




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2) 盒带包装

Ammo Packaging



单位 Unit: mm

尺寸规格 Dimension 尺寸规格	编带类型 Tape Style	尺寸 Dimensions			
		A(±5)	B(±5)	C(±5)	D
08型/ 03型	P52	76	72	262	贴标签 Label
	P26	55	72	262	
06型	P52	81	80	265	贴标签 Label
	P26	60	72	265	

3) 包装数量

Packaging Quantity

单位 Unit: PCS

卷带 Tape and Reel	盒带 Ammo	散装 Bulk
5000	5000	1000

可根据客户特殊要求进行包装

Packaging according to customer's requirement.