Part Number System（产品编码）

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
SERIES		CAPCITANCE			TOL.	VOLTAGE			CASE SIZE			TYPE			SLEEVE	COLOR		SHAPE	OTHERS	

Series		Cap(MFD)	Code	Tolerance	Code
LG	LR	0.1	104	±5%	J
ER	PG	0.22	224	±10%	K
BR	VG	0.33	334	±15%	L
VT	VZ	0.47	474	±20%	M
SM	SX	1	105	±30%	N
KS	KF	2.2	225	-40%	W
GM	KM	3.3	335	0	
GS	EF	4.7	475	-20%	A
ZF	GR	10	106	0	
LF	GF	22	226	-20%	C
EL	AL	33	336	10%	
KL	HL	47	476	-20%	X
FL	GL	100	107	40%	
ML	ZL	220	227	-10%	V
PL	RL	330	337	20%	
LM	LK	470	477	0	R
LH	LL	2200	228	20%	
NM	NS	22000	229	0	I
NP	NH	33000	339	50%	
BP	PZ	47000	479		
MZ	FZ	100000	10T		
LZ	PF	150000	15T		
AP	PE	220000	22T		
LS	LP	330000	33T		
FP	PN	1000000	10M		
MN	FN	2200000	22M		
UN		3300000	33M		

Voltage	Code
004	4
6R3	6.3
008	8
010	10
016	16
025	25
035	35
050	50
063	63
080	80
100	100
120	120
160	160
200	200
220	220
250	250
315	315
350	350
400	400
420	420
450	450
500	500
550	550
600	600

Case Size Liameten	Code
3	B
4	C
5	D
6.3	E
8	F
10	G
13	J
16	K
18	L
22	N
25	O
30	P
35	Q
40	R
51	S
63.5	T
76	U
90	X
Len.(mm)	Code
05	5
07	7
09	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
20	20
21	21
25	25
30	30
35	35
40	40
45	45
50	50
55	55
60	60

Feature Code	
Bulk	RRO
PCB Termial	
Ammo Taping	
2.0mm Pitch	T20
2.5mm Pitch	T25
3.5mm Pitch	T35
5.0mm Pitch	T50
Lead Cut & Form	
C-Type	CXX
E-Type	EXX
V-Type	VXX
Q-Type	QXX
P-Type	PXX
W-Type	WXX
K-Type	KXX
H-Type	HXX
Y-Type	YXX

Sleeve Material	Code
PET	E
PVC	V

Background	Code
Black	H
Green	L
Violet	Z
Light purple	
Navy blue	S
Sky blue	T
Coffee	K
Orange red	
Transparent blue	M
Transparent yellow	Y
Printing color	
Black	1
White	2
Silvery	3
Golden	4

Rubber Shape	Code
Plane	F
Convex	T
Snap-in	S
V-chip	V

Special	Code
No special	PO
Other trademark	WO
Ø8 F=2.5mm	XO
Finite height	GO
Special voltage	VX
Special capacitance	CX

KM Series

+105℃， General (普通品)

FEATURES

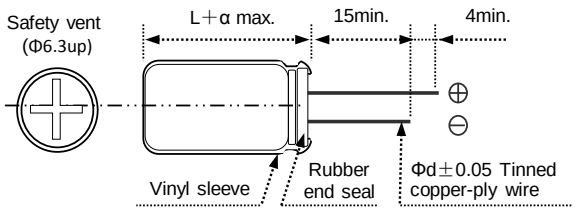
1. Rated working voltage range 6.3 to100V DC/160 to 450V DC at operation temperature rabge-40 to105℃/-25 to +105℃.

2. This series is for communication equipments ,switching power supply ,industrial measuring instruments ,automotive electric products ,etc.

SPECIFICATIONS

Item	Performance Characteristics								
Operation Temperature Range	-40℃~+105℃					-25~＋105℃			
Rated Working Voltage Range	6.3 to 100V					160 to 450V			
Nominal Capacitance Range	0.1 to 33000μF								
Capacitance Tolerance	±20% (120HZ 20℃)								
Leakage Current	L≤0.01CV or(μA) whichever is greater					L≤0.03CV +40(μA)			
	after 2 minutes application of rated working voltage at +20℃								
tan δ (120Hz,+20℃)	Working Voltage	6.3	10	16	25	35	50	63	100
	tan δ(max.)	0.26	0.22	0.18	0.16	0.14	0.12	0.1	0.08
	Working Voltage	160	200	220	250	350	400	420	450
	tan δ(max.)	0.2	0.2	0.2	0.2	0.24	0.24	0.24	0.24
	For capacitance value >1000μF, add 0.02 per anther 1000μF								
Low Temperature characteristics	Impedance ratio max. at 120 HZ								
	Working Voltage(V)	6.3	10	16	25	35	50	63	100
	Z-25℃/Z+20℃	5	4	3	2	2	2	2	2
	Z-40℃/Z+20℃	10	8	6	4	3	3	3	3
	Working Voltage(V)	160	200	220	250	350	400	420	450
	Z-25℃/Z+20℃	3	3	3	4	4	6	6	15
	For capacitance value ＞1000μF,Add 0.5 per another 1000μF for Z-25℃/Z+20℃ Add 1.0 per another 100μF for Z-40℃/Z+20℃								
High Temperature Loading	Test conditions Duration: ΦD ≤6.3 ≥8; Load life 1000h 2000h Ambient temp. :+105℃ Post test requirements at +20℃ Leakage current :≤Initial specified value Cap. Change :within ±20% of initial specified value tan δ :≤200% of initial specified value								
	Applied voltage :DC voltage with maximum permissible ripple ripple current specified at +105 (Sum of the DC voltage and super-imposed peak AC voltage for maximum permissible ripple current should be equal to reted DC working voltage).								
Shelf Life	Test conditions Duration : 1000 hours Ambient temp : +105℃ Applied voltage : (None) Post test requirements at +20℃ Same limits for high temperature loading.								
Other	JIS C-5101 (IEC 60384)								

CASE SIZE TABLE



ΦD	5	6.3	8	10	13	16	18	22	25
F	2	2.5	3.5	5	5	7.5	7.5	10	10
Φd	0.5			0.6		0.8			
α	(L<20)1.5					(L≥20)2.0			
β	(D<20)0.5					(D≥20)1.0			

RIPPLE CURRENT MULTIPLIER

Frequency coefficient

Rated voltage(V)	Cap(μF)	50 Hz	120 Hz	300 Hz	1K Hz	10K Hz~
6.3-100	~47	0.75	1.00	1.35	1.57	2.00
	68~470	0.80	1.00	1.23	1.34	1.50
	≥560	0.85	1.00	1.10	1.13	1.15
160-450	0.47~220	0.80	1.00	1.25	1.40	1.60
	≥270	0.90	1.00	1.10	1.13	1.15

KM系列样品清单

No.	客户料号	承兴料号	容量 (uF)	容量范围 (%)	工作电压 (Vdc)	浪涌电压 (Vdc)	使用温度 (℃)	使用寿命 (hrs)	DF at 120Hz/ 20℃	LC after 2 minutes	ESR. at 100kHz /20℃	Ripple Current at 120Hz /105℃	尺寸（mm）		外观
									Max	(uA)Max	(Ω)Max	mA	DΦ	L	
1		KM107M025D11RR0VH2FP0	100	±20	25	28.75	-40~+105	1000	0.16	25	/	100	5	11	黑体白字

电 解 电 容 器 检 查 表

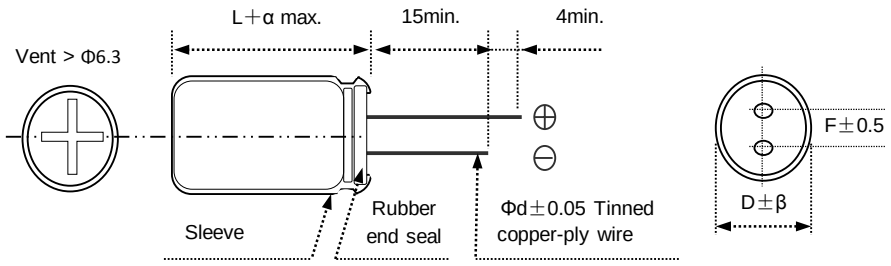
TEST REPORT FOR ELEC CAPACITORS

客户料号：

系 列 Series	KM	规 格 Specification	100uF25V	尺 寸 Size	5*11	数量 QTY.	pcs

1、测试仪器：LCR METER 测试仪、漏电流测试仪

2、产品尺寸图示：



项目	单位（mm）
直径 D	**5**
高度 L	**11**
脚距 F	**2.0**
CP线直径d	**0.5±0.05**
α	**1.5**
β	**0.5**

3、样品特性测试数据如下表： **[测试温度： 29 ℃ 、 湿度： 65 %]**

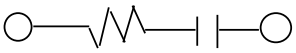
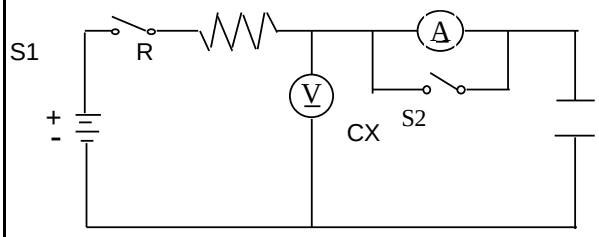
NO.	Cap靜电容量(120Hz) Tolerance： -20~+20 % 80 ~ 120 (uF)	D.F 损失角 120 Hz ≤ 0.16	L.C.漏电流 25 V 2 分钟 ≤ 25 (uA)	E.S.R串联等效阻抗 or Z值 100K Hz ≤ (Ω)
1	91.0	0.066	2.1	
2	92.0	0.065	2.0	
3	90.0	0.067	2.2	
4	93.0	0.065	2.0	
5	90.0	0.066	2.1	
6	91.0	0.067	2.2	
7	92.0	0.065	2.0	
8	95.0	0.066	2.1	
9	94.0	0.067	2.2	
10	95.0	0.066	2.1	
Max.	95.0	0.067	2.2	
Min.	90.0	0.065	2.0	
平均值	92.3	0.066	2.1	
判定 Decision	**PASS**	**PASS**	**PASS**	

1. Scope 适用范围 ：

This specification applies to aluminum electrolytic capacitor , used in electronic equipment .

本说明对于用电子仪器设备进行检测之铝电解电容器 适用.

2. Electrical characteristics 电气特性：

<table>
<tr><th>NO.</th><th>ITEM 项目</th><th>TEST METHOD 测试方法</th><th>SPECIFICATION 规格</th></tr>
<tr><td>2.1</td><td>Rated voltage
额定电压</td><td rowspan="2">1. Measuring frequency : 120 ± 12Hz
测 定 频 率
2. Measuring voltage : ≦0.5Vrms + 0.5 ~ 2.0VDC
测 定 电 压
3. Measurement circuit : 
测 定 电 路</td><td rowspan="2">Voltage range、capacitance range, see specification of this series.
电压、容量范围请看该系列之规格说明.</td></tr>
<tr><td>2.2</td><td>Capacitance
静电容量</td></tr>
<tr><td>2.3</td><td>Dissipation factor
散逸因素
(损失角)</td><td></td><td></td></tr>
<tr><td>2.4</td><td>Leakage current
泄 漏 电 流</td><td>DC leakage current shall be measured after 1~2 minutes application of the DC rated working voltage through the 1000 Ω resistor at 20˚C.
在20 ˚C通过1000Ω的电阻施加直流工作电压1~2分锺后测定直流泄漏电流.
 

R : 1000 ± 100Ω
A : DC current meter
直流电流计
V : DC voltage meter
直流电压计
S1 : Swich 开关
S2 : Swich for protect of current meter
直流电流计的保护开关
CX : Testing capacitor
测试电容</td><td>Dissipation factor、leakage current, see specification of this series.
损失角、泄漏电流请看该系列之规格说明.</td></tr>
<tr><td>2.5</td><td>Temperature characteristics
温度特性</td><td><table><tr><th>STEP
步骤</th><th>TEMPERATURE
温 度</th><th>STORAGE TIME
放置时间</th></tr><tr><td>1</td><td>20˚C ± 2 ˚C</td><td>30 minutes</td></tr><tr><td>2</td><td>-40˚C or -25˚C ± 3 ˚C</td><td>2 hours</td></tr><tr><td>3</td><td>20˚C ± 2 ˚C</td><td>15 minutes</td></tr><tr><td>4</td><td>105˚C ± 2˚C</td><td>2 hours</td></tr></table>Step 1. Measure the capacitance and impedance.
测定静电容量及阻抗 (Z r0) .
(｜Z｜, 20˚C , 120Hz ± 10%)
Step 2. Measure the impedance at thermal balance after 2 hours.
达到热平衡2小时后测定阻抗 (Zr) .
(｜Z｜, -40˚C or -25 ˚C, 120Hz ± 10%)
Step 4. Measure the capacitance and leakage current at thermal balance after 2 hours.
达到热平衡2小时后测定静电容量及漏电流 .</td><td>Step 2.
Impedance ratio (Zr / Z r0) less than specified value.
阻抗比：低于规定值 .
Step 4
Capacitance change : within ± 20% of the initial measured value.
静电容量变化：最初测定值的 ± 20%以内.
Leakage current : Less than 10 times of initial specified value .
泄漏电漏: 初期规格值的10倍以下 .</td></tr>
</table>

No.	ITEM 项目	TEST METHOD 测试方法	SPECIFICATION 规格
2.6	Surge test 浪涌(突波)试验	Rated surge voltage shall be applied (swich on) for 30 ± 5 seconds and then shall be applied (swich off) with discharge for 5 ± 0.5 min at room temperature . This cycle shall be repeated for 1000 cycles . Duration of one cycle is 6 ± 0.5 minutes . 在常温下施加(合上开关)额定涌浪电压 30 ± 5 秒, 然后停止施加(断开开关)涌浪电压并且放电 5 ± 0.5 分锺. 这个循环要重复 1000 次 . 以 6 ± 0.5 分锺为一个循环周期 .	①△C/C0在 ± 15%以内. ② DF≤2倍SPEC.或产品目录要求 ③ ILC≤初始规定值
2.7	MAXIMUM APPLICABLE RIPPLE CURRENT 高温最大纹波电流负荷试验	The maximum A.C.current having frequency of 120Hz (or 100K Hz) which can be applied to the capacitor at Max. temperature ±2℃ continuously.Peak voltage not to exceed rated D.C.voltage. 在120Hz(or 100K Hz) 频率条件下, 以电容器最高使用温度下, 施加最大的允许纹波电流.施加的AC及DC偏压不能超过DC电压.	① △C/C0：见SPEC.或产品目录 ② DF≤2倍SPEC.或产品目录要求 ③ ILC≤初始规定值 注:与高温负荷判定标准一致

3. Mechanical characteristics 机械特性：

No.	ITEM 项目	TEST METHOD 测试方法	SPECIFICATION 规格
3.1	Lead strength 端 子 强 度	(A) Tensile strength 拉伸强度： wire lead terminal 导针型： d (mm) ≦0.45 | 0.5 ~ 0.8 | 0.8＜d≦1.25 load (Kg) 0.5 | 1.0 | 2.0 snap-in terminal 尖脚型： d (mm) | snap-in terminal 尖脚端子 load (Kg) | 2.0 The capacitor shall withstand the constant tensile force specified between the body and each lead for 10 seconds without damage either mechanical or electrical. 电容器各端子要承受规定的荷重 10 秒, 不能有电气或机械特性上的损伤. (B) Bending strength 弯曲强度： wire lead terminal 导针型： d (mm) ≦0.45 | 0.5 ~ 0.8 | 0.8＜d≦1.25 load (Kg) 0.25 | 0.5 | 1.0 snap-in terminal 尖脚型： cross section area of terminal 端 子 截 面 积 (mm2) | force 拉伸力 (Kg) 0.5＜S≦1 | 1.0 S＞1 | 2.5 With the capacitor in a vertical position appliy the load specified axially to each lead . The capacitor shall be rotated slowly from the vertical to the horizontal position , back to the vertical position . The 90° in the opposite direction and back the original position . Performance of capacitor shall not have changed and leads shall be unadaged . 给在竖直位置的电容器的每一端子以轴方向施加规定荷重, 慢慢将电容器由竖直位置转至水平位置. 然后向相反方向弯曲 90°, 再回到原来位置. 电容器性能不能有变化及端子不能有损伤.	When the capacitance is measured, there shall be no intermittent contacts,or open- or short- circuiting. 测定静电容量时, 不能有接触不良, 开路或短路。 There shall be no such mechanical damage as terminal damage etc. 不能有如端子受损之类的机械特性上的损伤。

No.	ITEM 项目	TEST METHOD 测试方法	SPECIFICATION 规格
3.2	Vibration resistance 耐 振 性	The frequancy of the vibration shall vary uniformly within the range 10 to 55 Hz with the amplitude of 1.5 mm , completing the cycle in the internal of one minute . The capacitor shall be securely mounted by its leads with hold the body of capacitor . The capacitor shall be vibrated in three mutually perpendicular directions for a period of 2 hours in each direction . 振动频率要均匀，范围为 10 Hz, 到 55 Hz，振幅为 1.5 mm，在 1 分锺内完成该循环 . 电容器将由端子牢固地固定 . 电容器会被向三个互相垂直的方向每个方向振动 2 小时 .	Capacitance : no unsteady . 静电容量 ： 稳定 . Appearance : no abnormal . 外 观 : 无异常 . ① Capacitance change : within ± 5% of initial measured value . 容量变化 : 最初测得值的± 5% 之内 . ② DF≤同SPEC.要求 ③ ILC≤初始规定值
3.3	Solderability 焊 锡 性	The leads are dipped in the solder bath of Sn at 245± 5 ℃ for 3 ± 0.5 seconds . The dipping depth should be set at 1.5 ~ 2.0 mm . 端子浸没在 245 ± 5 ℃ 的锡焊液中3 ± 0.5 秒 . 浸没深度设定为 1.5 ~ 2.0 mm .	The solder alloy shall cover the 95% or more of the dipped lead's area . 锡液要覆盖导针浸入表面积的 95% 以上 .

4. Reliability 信赖度 .

No.	ITEM 项目	TEST METHOD 测试方法	SPECIFICATION 规格
4.1	Soldering heat resistance 焊锡耐热性	The leads immerse in the solder bath of Sn at 260 ± 5 ℃ for 10 ± 1 seconds until a distance of 1.5 ~ 2mm from the case . 导针在 260 ± 5 ℃ 的锡 焊液中浸没至离本体 1.5 ~ 2 mm 的地方 10 ± 1 秒锺 .	No damage or leakage of electrolyte . 无损伤或电解液漏出 . Capacitance change : within ± 10% of the initial measured value . 容量变化 : 最初测定值的 ± 5%以内 . Tan δ : less than specified value . 损失角 : 低于规定值 . Leakage current : less than specified value . 泄漏电流 : 低于规定值 .
4.2	Damp heat (steady state) 稳态湿热	Subject the capacitors to 85 ± 2 ℃ and 85% to 95% relative humidity for 500+24/0 hours . 电容器在 85 ± 2 ℃ 及相对湿度 85% 到 95% 的条件下经历 500（-0~+24） 小时 .	Capacitance change : within ± 10% of the initial measured value . 容量变化 : 最初测定值的 ± 15%以内 . Tan δ : less than 120% of the initial specified value . 损失角 : 低于1.2倍规定值 . Leakage current : less than specified value . 泄漏电流 : 低于规定值 .

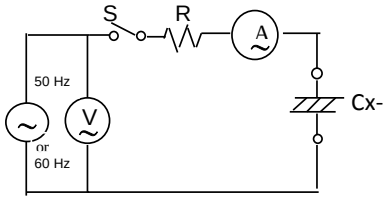
<table>
<tr><th>NO.</th><th>ITEM 项目</th><th>TEST METHOD 测试方法</th><th>SPECIFICATION 规格</th></tr>
<tr><td>4.3</td><td>Load life
高温负荷</td><td>After X hours continuous application of DC rated working voltage at Max. temperature ± 5 ℃.

Measurements shall be performed after 2 hours exposed at room temperature .
在最高使用温度 ± 5 ℃ 环境当中连续施加直流定格电压 X 小时。
(X: see specification of this series. 见该系列规格说明 .)</td><td rowspan="2">Standard of judgement is according to requirement of this series .

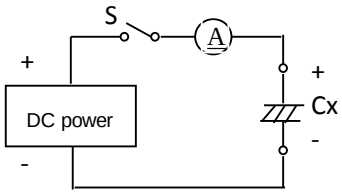
判定标准依该系列要求 .</td></tr>
<tr><td>4.4</td><td>Shelf life
高温无负荷</td><td>After storage for Y hours at temperature ± 5 ℃(See specification of this series) without voltage application , the measurements shall meet the following limits .
Measurements shall be performed after exposed for 1 to 2 hrs
at room temperature after application of DC rated voltage
to the capacitor for Z minutes .
在 目录书规定的温度环境当中不施加直流定格电压放置 Y 小时后 ,
按以下条件测试 .
测试在室温露置 1 到 2 小时 , 施加直流定格电压 Z 分锺后进行。
(Y . Z : see specification of this series. 见该系列规格说明 .)</td></tr>
<tr><td>4.5</td><td>Storage at low temperature
低 温 贮 存</td><td>The capacitor shall be stored at the lowest(± 3 ℃) temperature for 1000+24/0 hours , during which time no voltage shall be applied .
And then the capacitor shall be subjected to standard atmosph-eric conditions for 16 hours or more , after which measurements shall be made .

电容器在最低允许温度(± 3 ℃) 环境当中贮存1000+24/0 小时 , 其间不施加电压 .
之后 , 在标准大气压中露置 16 小时以上 , 然后进行测试 .</td><td>Capacitance change :
within ± 10% of the initial value .
容量变化 : 最初值的 ± 10% 以内 .

Tan δ :
less than specified value .
损失角 : 低于规定值 .

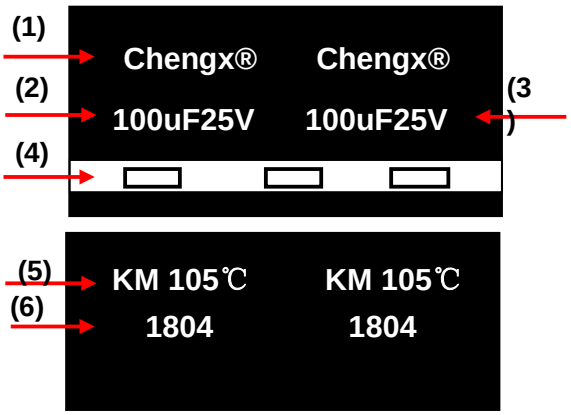
Leakage current :
less than specified value .
泄漏电流 : 低于规定值 .
Appearance : no abnormal .
外 观 : 无异常 .</td></tr>
<tr><td>4.6</td><td>Pressure relief
防 爆 试 验</td><td>AC test 交流试验：（此条件只适用于≥Ø8产品）
Applied voltage : AC voltage not exceeding 0.7 times of the rated direct voltage or 250 V AC whichever is the lower .
施 加 电 压 : 不超过定格电压 0.7 倍的交流电压或低于交流电压 250 V 的任意电压 .
Frequency 频率 : 50 Hz or 60 Hz .
Series resitor : refer to the table below .
串 联 阻 抗 : 参照下表 .
<table>
<tr><th>Capacitance (C)
容 量</th><th>Series resistor
串 联 阻 抗</th></tr>
<tr><td>C ≦ 1μF</td><td>1000 Ω</td></tr>
<tr><td>1μF ＜ C ≦ 10μF</td><td>100 Ω</td></tr>
<tr><td>10μF ＜ C ≦ 100μF</td><td>10 Ω</td></tr>
<tr><td>100μF ＜ C ≦ 1000μF</td><td>1 Ω</td></tr>
<tr><td>1000μF ＜ C ≦ 10000μF</td><td>0.1 Ω</td></tr>
<tr><td>10000μF ＜ C</td><td>*</td></tr>
</table>
* Resistance is equivalent to a half impedance by test frequency .
相当于试验频率的一半阻抗值 .</td><td>AC test circuit 交流试验回路
 

~ : AC power 交流电源
S : Swich 开关
V : AC voltage meter
交 流 电 压 计
A : AC current meter
交 流 电 流 计
R : protection resistor 保护电阻
Cx : testing capacitor 供试电容器</td></tr>
</table>

No.	ITEM 项目	TEST METHOD 测试方法	SPECIFICATION 规格
4.6	Pressure relief 防 爆 试 验	DC test ： Send the following electricitios while applying the inverse voltage . where case size （D）: D ≦ 22.4 mm : 1 A d.c. max D ＞ 22.4 mm : 10 A d.c. max Note : 1. This requirement applies to capacitors with a diameter of 8 mm or more . 2. When the pressure relief divice does not open even 30 minutes after commencement of test , the test may be ended .	DC test circuit  S : Swich Ⓐ : DC current meter Cx : testing capacitor The pressure relief divice shall open in such a way as to avoid any dange of fire or explosion of capacitor elements (terminal and metal foil etc) or cover .

5. 外观Marking ：

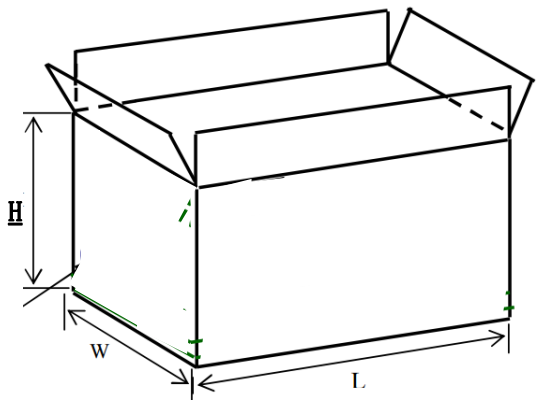
产品外套管印刷内容如下

序号	项目内容说明	图示
（1）	商标	
（2）	标称静电容量	
（3）	额定工作电压	
（4）	负极线标示	
（5）	系列、温度	
（6）	周期、材质	

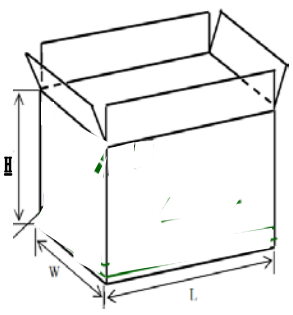
6.包装数量标准：

产品外形尺寸 D×L（mm）	小袋数量 (只/袋)	散装/切脚 (袋/内箱)	散装/切脚内箱 (KPCS)	散装/切脚大箱 (KPCS) (KPCS)	备 注
φ3*5	2000+3	25	50	100	
φ4*5-7、φ5*5	1000+2	50	50	100	
φ6.3*5、φ5*7	1000+2	30	30	60	
φ6.3*7、φ5*11/12	1000+2	25	25	50	
φ6.3*11、φ8*5	1000+1	20	20	40	
φ6.3*12	1000+1	16	16	32	
φ8*7	1000+1	18	18	36	
φ8*9	500+1	30	15	30	
φ8*11/12	500+1	25/25	12.5/12.5	25/25	
φ8*14	500+1	20	10	20	
φ8*16-20	500+1	16	8	16	
φ10*13	500+1	15	7.5	15	
φ10*15	400	15	6	12	
φ10*17-20	200	25	5	10	
φ10*25	200	20	4	8	
φ10*30	100	30	3	6	
φ13*17-21	200	15	3	6	
φ13*25	200	12	2.4	4.8	
φ13*30	100	20	2	4	
φ16*18-22	100	20	2	4	
φ16*25	100	15	1.5	3	
φ16*30	100	12	1.2	2.4	
φ16*35	50	20	1	2	
φ18*27	100	10	1	2	
φ18*30	50	15	0.75	1.5	
φ18*36	50	15	0.75	1.5	
φ18*40	50	10	0.5	1.5	
φ18*50	25	15	0.375	0.75	
φ22*30	50	10	0.5	1	
φ22*35	50	10	0.5	1	
φ22*40	50	10	0.5	1	
φ25*25	50	10	0.5	1	
φ25*30	50	10	0.5	1	

备注：包装外箱L480mm*W320mm*H320mm
内箱L300mm*W230mm*H300mm



外箱



内箱