

规格承认书
Specification For Approval

(Customer Name)

客户名称:

(Product Name)

产品名称:

DC-LINK

直流支撑电容器

(Customer part number)

客户料号:

(KNSCHA number)

科尼盛料号:

MPD505K1UFEKN5V8P0

(Specifications)

型号规格:

DC-Link 505K600V P=27.5mm 2PIN

DATE

日期:

2026.7.13

Manufacture
制 造

APPROVAL
核 准

刘建军

PREPARED
制 作

钟林炎

CUSTOMER APPROVED
客户承认栏

APPROVED
核 准

CHECKED
确 认

CHECKED
确 认

广东科尼盛电子科技有限公司
KNSCHA ELECTRONICS CO., LIMITED.

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地址: 广东省东莞市东坑镇汇金展拓科技园 A2-A3 栋

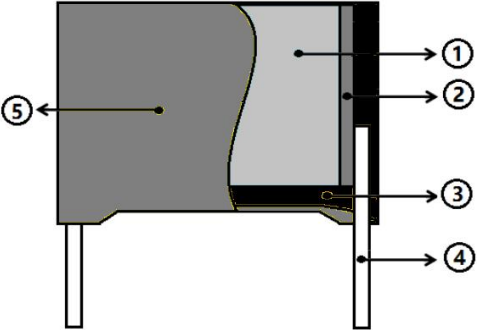
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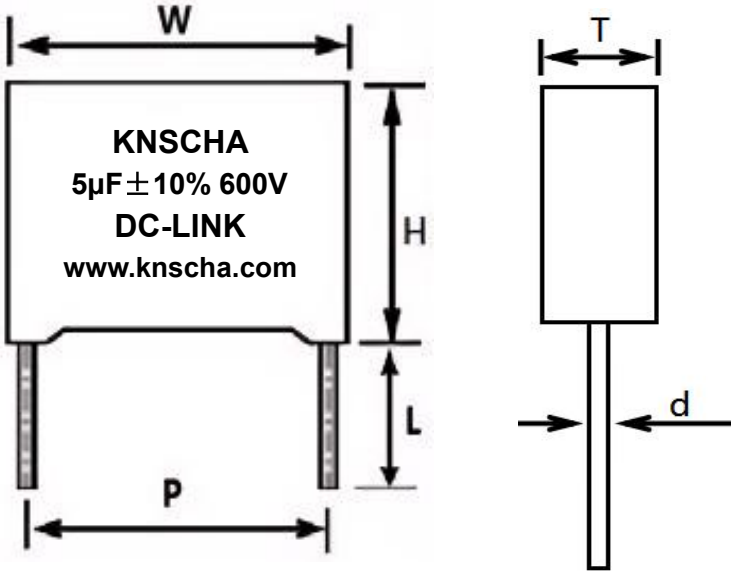
Email 邮箱: sales@knscha.com Website 官网: <http://www.knscha.com>



■ Product Structure Diagram 产品结构图

Construction 构造	Explanation 说明
	①Core 电容芯子 ② Plated layer 喷金层 ③Epoxy resin 环氧树脂 ④CU Wire CU线 ⑤PBT plastic housing PBT 塑料壳

■ Product dimensions, Marking(Logo,safety approvals, etc) 产品尺寸、标识（商标、安全认证等）

Dimensions 尺寸规格						Marking 印字标示	Explain 说明		
						KNSCHA	KNSCHA Logo 科尼盛公司商标		
						5 μ F	Capacitance 容量规格		
						$\pm 10\%$	Capacity tolerance 容量误差值		
						600V	Rated voltage 额定电压		
						DC-Link	Type 产品型号		
						www.knscha.com	Website 公司网址		
No.	Specifications 规格	Capacitance (μ F) 容量	W ± 0.5	H ± 0.5	T ± 0.5	P ± 0.5	d ± 0.05	L ± 0.5	Remarks 备注
1	505K600V	5	32	20	11	27.5	0.8	5.5	
	/								

Size: units mm

尺寸：单位 mm

■ **Characteristic 特点:**

- Good self-healing performance
良好的自愈性能
- Excellent temperature characteristics
优良的温度特性
- Excellent moisture resistance
优异的防潮性能
- Excellent flame retardant properties
优异的阻燃性能
- low dissipation factor and high insulation resistance
较低损耗值和高绝缘电阻

■ **Main application 主要用途:**

- Suitable for DC, AC and pulsed circuit applications.
广泛应用于直流、交流和脉冲电路中

■ **Technical specification 技术要求:**

Referenced Standards 引用标准	GB/T 17702 (IEC 61071)	
Climate Categories 气候类别	40/85/56	
Flame Retardant Rating 阻燃等级	B	
Operating Temperature Range 工作温度范围	-40°C ~ +105°C (+85°C to 105°C: decreasing factor 1.5% per°C for Urms) (+85°C~105°C: 额定交流电压每升高1°C, 降额系数1.5%)	
Rated Voltage 额定电压	500VDC、600VDC、800VDC、900VDC、1000VDC、1100VDC、 1200VDC 、1600VDC	
Capacitance Range 电容量范围	1μF~100μF	
Capacitance Tolerance 电容量偏差	J(±5%), K (±10%), M (±20%)	
Withstand voltage 耐电压	Between terminal leads 引线之间	1.5Un(Vdc) (10S)
	Between terminal and case 极壳之间	3000(Vdc) (10S)
Tangent of loss angle(DF) 损耗角正切	≤ 0.11% (1KHz , 20°C)	≤ 1% (10KHz, 20°C)
Insulation resistance 绝缘电阻	≥10000S	20°C, 100V, 60S
Maximum peak current 最大峰值电流	$\hat{I} = C \cdot dv/dt$ (dv/dt=65)	
Equivalent Series Resistance 等效串联电阻	≤22.5mΩ (10KHz, 20°C)	
Maximum Current 最大电流	Irms ≤5.0 A (10KHz, 70°C)	
Failure Rate 失效率	100 Fit	
Max.Altitude 最高使用海拔	2000 m	

■ Characteristic test 特性测试:

No.	Item 项目	Performance requirements 性能要求	Conditions of test IEC61071 试验方法 IEC61071
1	Visual inspection 外观检查	Marking: clear, correct & complete; dimension compliant 标志清晰、正确、完整 外形尺寸符合要求	Visual inspection 目视 Vernier caliper 游标卡尺
	Initial measurement 初始测量	Capacitance 电容量: 1KHz Dissipation Factor 损耗角正切: $C_N \leq 1.0\mu F$: 10kHz $C_N > 1.0\mu F$: 1kHz	
	Robustness of terminations 引出端强度	No visible damage Legible marking 外观无可见损伤	Tension test Ual 端子拉力试验 Pull 拉力: $0.5 < \phi d \leq 0.8\text{mm}$; 10N $0.8 < \phi d \leq 1.2\text{mm}$; 20N bend test Ub 弯曲试验Ub Bend twice in each direction 每个方向弯折两次 Twist: Two consecutive 180° twists 扭转: 连续两次180°扭转
	Resistance to soldering heat 耐焊接热	No visible damage, The marking shall be legible 外观无可见损伤, 标志清晰 Capacitance 电容量: $ \Delta C/C \leq 2.0\%$ Loss tangent (DF): increment ≤ 0.002 损耗角正切DF: 增加 ≤ 0.002	Weld groove method Tb 焊槽法Tb method 1A 方法1A Temperature 温度: $260 \pm 5^\circ\text{C}$ Test times 测试时长: $5 \pm 1\text{S}$
	Final measurement 最后测量	Capacitance: $\Delta C/C \leq \pm 5\%$ of initial measureme 电容量: $\Delta C/C \leq$ 初始测量值的 $\pm 5\%$ Loss tangent: DF increase ≤ 0.002 (1KHz) 损耗角正切: DF增加 ≤ 0.002 (1KHz)	
2	Initial measurement 初始测量	Capacitance 电容量: 1KHz Dissipation Factor 损耗角正切: $C_N \leq 1.0\mu F$: 10kHz $C_N > 1.0\mu F$: 1kHz	
	Vibration 振动	No visible damage to the visually examined 外观无可见损伤	Frequency range: 10Hz~55Hz 频率范围10Hz~55Hz Amplitude 振幅: 0.35mm Number of sweep cycles: 10 扫频循环次数: 10 Test procedure: Conduct testing along three mutually perpendicular axes; each axis runs for 10 frequency cycles at a sweep rate of one octave per minute. Total test duration for three axes: 135 min 试验程序: 取三个互相垂直的方向, 每个方向持续时间为10个频率周波, 每分钟一倍频程, 三个方向总持续时间: 135min

No.	Item 项目	Performance requirements 性能要求	Conditions of test IEC61071 试验方法 IEC61071
2	Bump 碰撞	No visible damage to the visually examined 外观无可见损伤	1000cycles,acceleration:390m/s ² pulse duration:6 ms 1000次加速度390 m/s ² , 脉冲持续时间: 6ms
	Final measurement 最后测量	Capacitance 电容量: $ \Delta C/C \leq 0.5\%$ Loss tangent (DF): increment ≤ 0.002 损耗角正切DF增加 ≤ 0.002	
3	Initial measurement 初始测量	Capacitance 电容量: 1KHz Dissipation Factor 损耗角正切: $C_N \leq 1.0\mu F$: 10kHz $C_N > 1.0\mu F$: 1kHz	
	self-healing property 自愈性	No visible damage,The marking shall be legible 外观无可见损伤, 标志清晰 Capacitance change $\Delta C/C < \pm 0.5\%$ 容量变化率 $\Delta C/C < \pm 0.5\%$ $\tan \delta$ 损耗角正切: $\tan \delta \leq 1.1 \times \tan \delta_0 + 0.0001$	Applied voltage 施加电压: $1.5U_N$ Duration 持续时间: 10 s If the number of self-healing breakdowns is less than 5 within the above duration: increase the voltage at a rate of 200V/min until 5 self-healing breakdowns occur or the voltage reaches $2.5U_N$. If fewer than 5 self-healing breakdowns are obtained after the voltage rises to $2.5U_N$, maintain the voltage at $2.5U_N$ for 10 s. 如果在以上时间内自愈性击穿次数 <5 次, 则将电压以 200V/min 的速度升高, 直到发生5次自愈, 或电压达到 $2.5U_N$; 如果电压达到 $2.5U_N$ 后, 自愈性击穿次数仍小于5次, 则保持 $2.5U_N$ 的电压10s。
	Final measurement 最后测量	No visible damage,The marking shall be legible 外观无可见损伤, 标志清晰 Capacitance 电容量: $ \Delta C/C \leq 0.5\%$ 损耗角正切: $\tan \delta \leq 1.1 \times \tan \delta_0 + 0.0001$	

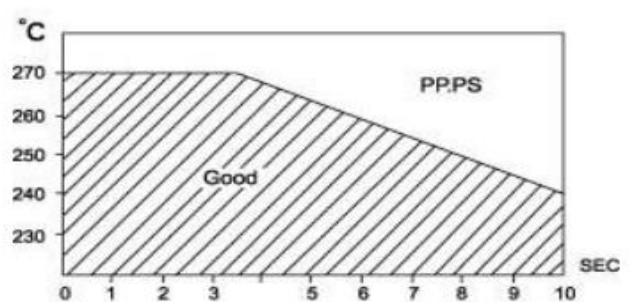
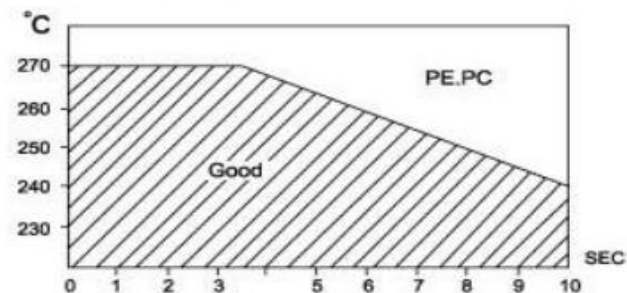
No.	Item 项目	Performance requirements 性能要求	Conditions of test IEC61071 试验方法 IEC61071
4	Initial measuremen 初始测量	Capacitance 电容量: 1KHz Dissipation Factor 损耗角正切: $C_N \leq 1.0\mu F$: 10kHz $C_N > 1.0\mu F$: 1kHz	
	Impulse Discharge Test 冲击放电 实验	No visible damage, The marking shall be legible 外观无可见损伤, 标志清晰 Capacitance change $\Delta C/C < \pm 1\%$ 容量变化率 $\Delta C/C < \pm 1\%$ $\tan\delta$: ≤ 1.2 initial $\tan\delta + 1 \times 10^{-4}$ at 10KHz 损耗角正切: 在10kHz测试频率下, ≤ 1.2 倍初始损耗角正切值 $+ 1 \times 10^{-4}$ 绝缘电阻(IR): $> 50\%$ 的额定值 $IR > 50\% \cdot \text{Rate value}$	Voltage 电压: $1.1U_{NDC}$ Number of discharges: 5 times 放电次数: 5次 Interval: 1 discharge every 2 min (total test duration: 10 min) After minutes of surge discharge test, apply U_{NDC} for 60s at ambient temperature. 时间推移: 每2分钟1次(共10分钟) 浪涌放电实验5分钟后, 加 $1.5U_{NDC}$, 60s (室温)
	Final measurement 最后测量	Capacitance 电容量: $ \Delta C/C \leq 0.5\%$ 损耗角正切: $\tan\delta \leq 1.2 \times \tan\delta_0 + 0.0001$	
5	Initial measuremen 初始测量	Capacitance 电容量: 1KHz Dissipation Factor 损耗角正切: $C_N \leq 1.0\mu F$: 10kHz $C_N > 1.0\mu F$: 1kHz	
	Rapid change of temperature 温度快速 变化	No visible damage to the visually examined 外观无可见损伤	$0_A = -40^\circ C$, $0 = +85^\circ C$ Number of test cycles: 5 循环次数: 5 Duration 持续时间: $t = 30 \text{ min}$
	Final measurement 最后测量	Capacitance 电容量: $ \Delta C/C \leq 2.0\%$ Loss tangent (DF): increment ≤ 0.002 损耗角正切DF: 增加 ≤ 0.002	
6	Initial measuremen 初始测量	Capacitance 电容量: 1KHz Dissipation Factor 损耗角正切: $C_N \leq 1.0\mu F$: 10kHz $C_N > 1.0\mu F$: 1kHz	
	Steady-State Damp Heat 稳态湿热	No visible damage to the visually examined 外观无可见损伤 Capacitance change $\Delta C/C < \pm 2\%$ 容量变化率 $\Delta C/C < \pm 2\%$ Increase of $\tan\delta \leq 0.015$ 10KHz 损耗角正切增加: ≤ 0.015 10KHz $IR > 50\% \cdot \text{Rate value}$ 绝缘电阻(IR): $> 50\%$ 的额定值	Temperature 温度: $40 \pm 2^\circ C$ Humidity 湿度: $93 \pm 2\% \text{ RH}$ Duration: 56 days, in line with the climatic category of the capacitor Recovery shall be for 1 h to 2 h under standard atmospheric conditions for testing. 试验时长: 56天, 符合电容器气 候类别要求在标准大气条件下, 恢复时间应为1至2小时。
	Final measurement 最后测量	Interelectrode Withstand Voltage: No permanent breakdown or flashover shall occur. 极间耐压: 应无永久性击穿、闪络发生;	$1.5U_N$, 60s
		Case-to-terminal Withstand Voltage: No permanent breakdown or flashover shall occur. 极壳间耐压: 应无永久性击穿、闪络发生;	Apply the larger value between $2U_N$ AC and $1000 V_{a.c.}/2000 V_{a.c.}$, hold for 60 s. $2U_N$ 交流+ $1000V_{a.c.}$ 或 $2000V_{a.c.}$ 取大者, 60s
		Capacitance 电容量: $ \Delta C/C \leq 2.0\%$ Loss tangent (DF): increment ≤ 0.002 损耗角正切DF: 增加 ≤ 0.002	

No.	Item 项目	Performance requirements 性能要求	Conditions of test IEC61071 试验方法 IEC61071
7	Initial measuremen 初始测量	Capacitance 电容量: 1KHz Dissipation Factor 损耗角正切: $C_N \leq 1.0\mu F$: 10kHz $C_N > 1.0\mu F$: 1kHz	
	Thermal Stability 热稳定性	The temperature rise increment ΔT shall be less than 1°C during the final 6 hours. 在最后6个小时期间, 温升的增加量 $\Delta T < 1^\circ C$	Ambient temperature: Ambient temperature 环境温度: 常温 Test current 试验电流: 1.1I _{rms} Test frequency 测试频率: 10kHz Duration 持续时间: 48h Measure the capacitor temperature every 1.5h in the final 6h of testing. 在最后6h内每隔1.5h测试一下电容器的温度
	Final measurement 最后测量	Capacitance 电容量: $ \Delta C/C \leq 2.0\%$ Loss tangent (DF): increment ≤ 0.002 损耗角正切DF: 增加 ≤ 0.002	
8	Initial measuremen 初始测量	Capacitance 电容量: 1KHz Dissipation Factor 损耗角正切: $C_N \leq 1.0\mu F$: 10kHz $C_N > 1.0\mu F$: 1kHz	
	Endurance 持久性	No visible damage, The marking shall be legible 外观无可见损伤, 标志清晰 Capacitance change $\Delta C/C < \pm 3\%$ 容量变化率 $\Delta C/C < \pm 3\%$ Increase of Tan $\delta \leq 0.015$ 10KHz 损耗角正切增加: ≤ 0.015 10KHz IR>50% *Rate value 绝缘电阻(IR): >50%的额定值	Test Sequence 测试顺序: (1) 1.3 U _{NDC} , 85 °C, 500 h (2) 1000 charge-discharge cycles; 1000次充放电 dV/dt value: refer to technical specification table dv/dt值: 见技术参数表 (3) 1.3 U _{NDC} , 85 °C, 500h
	Final measurement 最后测量	Capacitance 电容量: $ \Delta C/C \leq 3.0\%$ Loss tangent (DF): increment ≤ 0.003 损耗角正切DF: 增加 ≤ 0.003	

Capacitor characteristic diagram 电容器特性图:

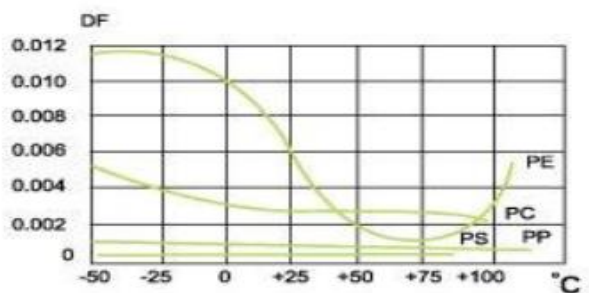
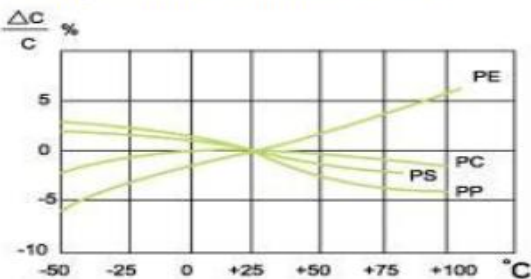
1. 焊接温度与时间对比

Soldering Temperature VS Time



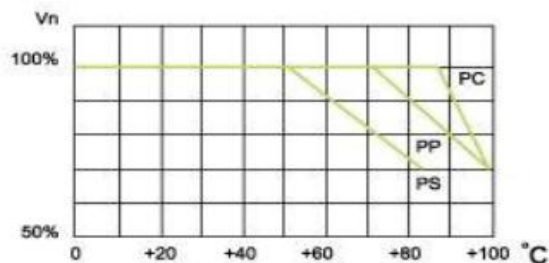
2. 温度性能

Temperature Characteristic



容量变化率与温度的关系

Capacitance vs. Temperature

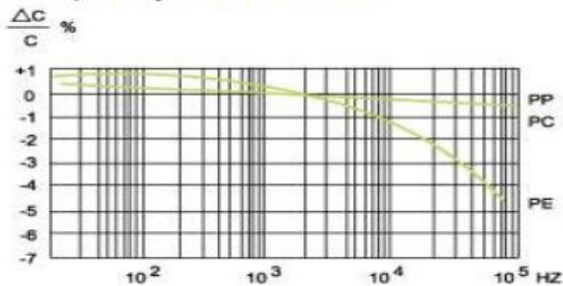


使用电压与温度的关系

Operation voltage vs. Temperature

3. 频率性能

Frequency Characteristics

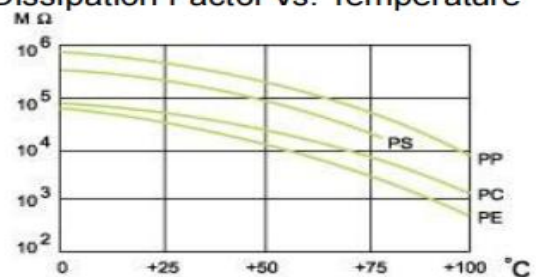


容量变化率与频率的关系

Capacitance vs. Frequency

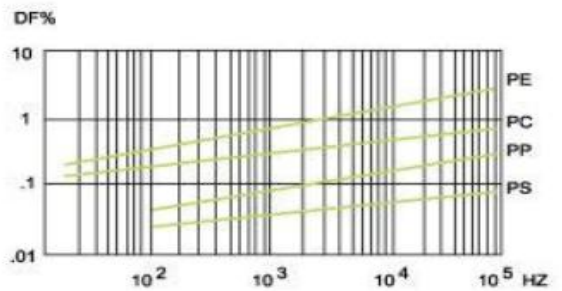
损耗角正切与温度的关系

Dissipation Factor vs. Temperature



绝缘电阻与温度的关系

(CR value) IR vs. Temperature



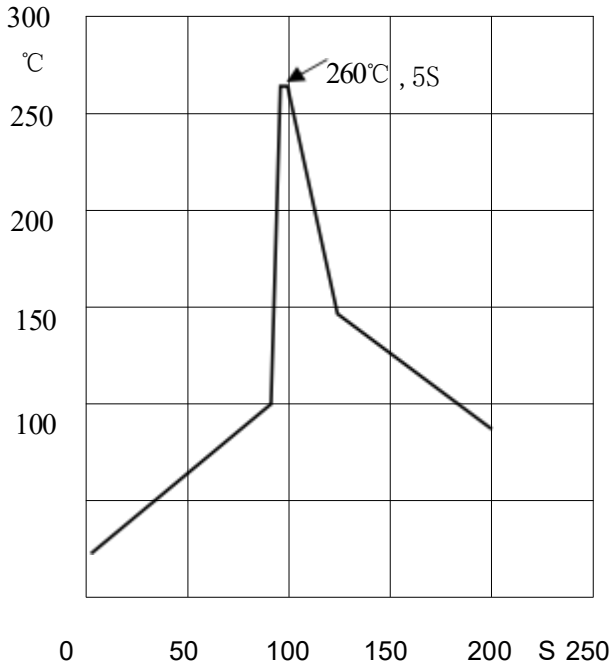
损耗角正切与频率的关系

Dissipation Factor vs. Frequency

聚丙烯薄膜 (Polypropylene Film)

聚酯薄膜 (Polyester Film)

1. Welding conditions 焊接条件:



	Temperature 温度	Time 时间	Remarks 备注
Preheat 预热	110°C	60S	
	100°C	60S	OPP≤7.5
Weld 焊接	270°C	5S	
	260°C	5S	OPP≤7.5

The temperature of the metallized polypropylene film capacitor does not exceed 120°C for 60 seconds.
金属化聚丙烯膜电容器产品本体温度不超过 120°C/60S。

The temperature of the metallized polyester film capacitor body should not exceed 140°C for 60 seconds.
金属化聚酯膜电容器产品本体温度不超过 140°C/60S。

2. Soldering method 烙铁焊接方法:

Soldering iron tip temperature (max) 烙铁尖温度(max)	350°C
Soldering iron times 焊接时间	2-3S

Note: If a second weld is required, wait until the capacitor cools to room temperature.

注意: 如果需第二次焊接, 必须等到电容器恢复到常温

3. Notes 注意:

(1) Scope Of Use 使用范围:

- Do not exceed the specified maximum temperature limit during use. 使用时不要超过上限类别温度
- Avoid overusing this product. 避免过载使用

(2) Product Storage Conditions 产品存储条件:

- Temperature range: -40°C to 35°C; annual average humidity shall not exceed 70%.

温度范围: -40°C到 35°C; 湿度年平均值≤70%。

- Storage period: Calculated from the date marked on the product package or the product itself.

储存时间: 从产品包装或产品本体上的日期算起

- Bulk products (plastic bag packaging): Maximum storage life of 2 years. Products in Taping packaging: Maximum storage life of 1 year. 散装产品 (塑料袋包装): 不超过 2 年; 编带产品: 不超过 1 年

(3) If used the capacitor that overdue the storage time, it should be test the characteristics of the capacitor or contact with our technical engineer. 若使用超储存期电容器, 需检测各项性能参数, 或联系我方技术工程师。