

规格承认书

SPECIFICATIONS FOR APPROVAL

客户名称 Customer name :	
产品名称 Product name :	Filtering Capacitor
产品编码 Product code :	
产品规格 Rated :	YZPST-MKP150uF 900V $\pm 10\%$
日期 Date	2022.09.02
版本 Version number :	A1.0

版本更改记录 Version change record

版本号 version number	更改说明 Change description	日期 Date	编写人 Editor
A1.0	初版	2022-9-02	

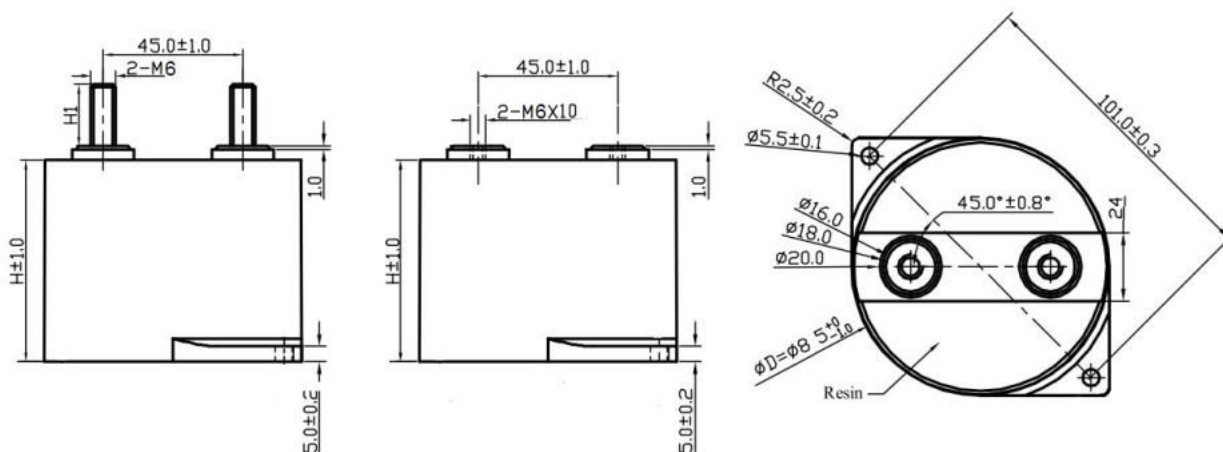
1. 外形图 Outline Drawing

■特点 Features

- 直流母线用，可替代电解电容器 Used in DC-Link circuits, can replace electrolytic capacitor
- 采用聚丙烯薄膜，温度特性好 PP film design,good temperature characteristics
- 容值稳定，变化率小 Stable capacity
- 等效串联电阻小，能承受较大的纹波电流 Low ESR,high ripple current handing capabilities
- 有自愈性 Self-healing property
- 塑壳，阻燃树脂灌封 Plastic case,filed with fire-retardant resin
- 干式设计 Dry type design
- UL94-V0

■应用 Applications

- 风能，太阳能 Wind energy,Solar
- 交通工具，如：电动车和混合动力车 Transportation:HEV or EV
- 焊接设备，电梯，电机驱动 Welders,Elevators,Motor Sriver systems
- 高压变频器 High voltage frequency converter



1.本体高度	H	Length without Terminals	65 (±1)	mm
2.直径	D	Diameter D	Φ 85 (±1)	mm
3.端子间距	P	Distance between Terminals	45 (±1)	mm
4.安装孔间距	P1	Distance between Installation Hole	101 (±1)	mm
5.安装孔尺寸		Installation hole size	Φ 5.5	
6.端子尺寸d		Terminal	M6 *10mm	

2. 技术参数 Technical Data

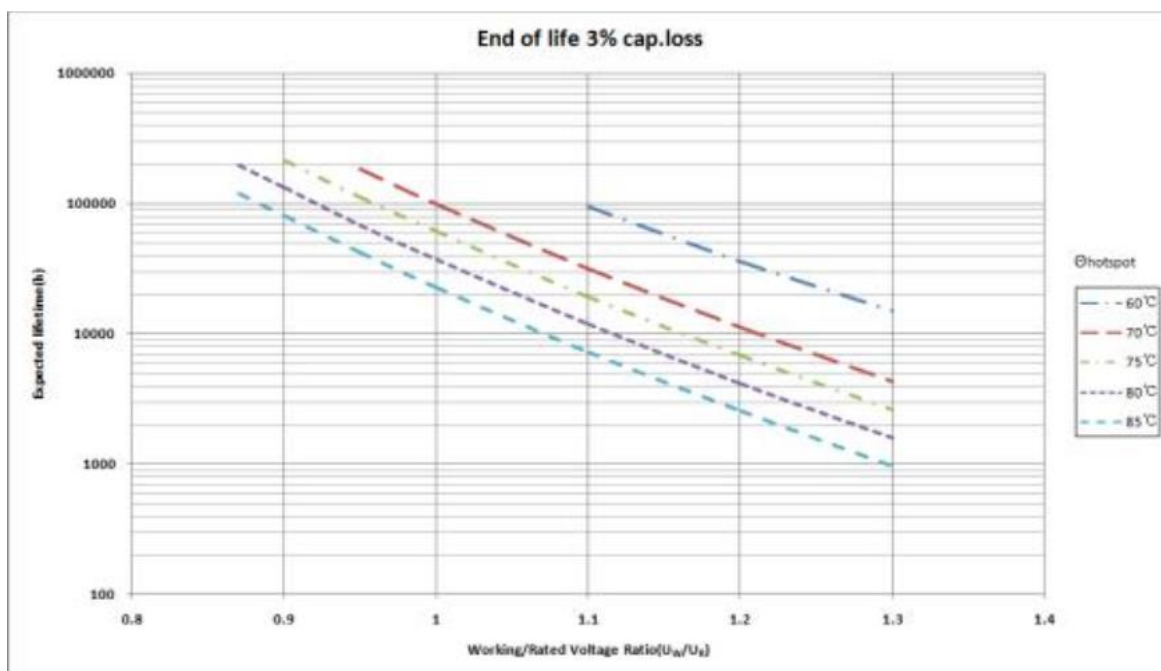
产品代码 Product code	MKP-DC
引用标准 Reference Standard	IEC 61071
额定容量(C _R) Rated Capacitance	150μF@100Hz, 25℃±5℃
容量偏差 Capacitance Tolerance	± 10%
额定电压(U _R) Rated Voltage (U _R)	900V _{DC}
环保要求 Environmental Requirements	Comply with ROHS 2.0
1.主要材质和机械参数Main material and mechanical parameters	
金属化膜 metallized film	聚丙烯+铝、锌 PP+ Al、Zn
芯棒 plastic core	聚碳酸酯 PC
喷金电极 metal sprayed electrode	锌 Zn
端子 terminals	黄铜 Brass
盖板 deck	PBT
塑壳 plastic case	PBT
填充树脂 filling with resin	环氧树脂 Epoxy
绝缘盖 insulation cover	聚丙烯 PP
连接电极 connection electrode	铜 Cu
尺寸 Dimension (D*H)	Φ 85mm×65mm
2.电气参数Electrical parameters	
过电压能力 Over-voltage capability (参照 IEC 61071标准)	
1.1×U _R	30 % of on-load-duration
1.15×U _R	30 min/day
1.2×U _R	5 min/day
1.3×U _R	1 min/day
1.5×U _R	30 ms every time, 100 ms/day
I _{max} at ⊕ A 1KHz	66A(50℃)
最大可重复冲击电流 (i) Maximum repeatable impulse current	2.7KA (t≤10us, 间隔时间≥2s)
等效串联电阻(ESR) Equivalent series resistance	≤ 1.5mΩ@1kHz, 25℃±5℃
热阻(R _{th}) Thermal Resistance	4.5K/W
自感 (L _s)	≤40nH@1MHz, 25℃±5℃

Self-inductance	
介质损耗角正切值 (tg δ) Dielectric loss tangent	2×10^{-4}
损耗角正切值(tg δ) Loss tangent	$\leq 0.002 @ 100\text{Hz}, 25^\circ\text{C} \pm 5^\circ\text{C}$
绝缘电阻(IR) Insulation Resistance	$\geq 10000\text{s} @ 100\text{V}_{\text{DC}}, 25^\circ\text{C} \pm 5^\circ\text{C}$
极间耐压测试(U_{TT}) Test voltage between terminals	$1.5 \times U_{\text{R}}, 10\text{s} (25^\circ\text{C} \pm 5^\circ\text{C})$
极壳耐压测试(U_{TC}) Test voltage between terminal to case	$3000\text{V}_{\text{AC}}, 10\text{s} (25^\circ\text{C} \pm 5^\circ\text{C})$
寿命 Life Expectancy	100000hours ($U_{\text{R}}, \Theta \text{ hotspot} = 70^\circ\text{C}$)
失效率 Failure Rate	$\leq 10 \text{ FIT}$
3. 环境参数 Environmental parameters	
工作温度范围 Operating temperature range	$-40 \sim +85^\circ\text{C}$
最高允许热点温度 Maximum Hotspot Temperature	$+85^\circ\text{C}$
存储温度范围 Storage temperature	$-40 \sim +85^\circ\text{C}$
最高工作湿度 Maximum operating humidity	$70^\circ\text{C}, 95\%\text{RH}$
最高使用海拔 Max. Altitude	1000 m

3. 标签样式 Label style

	No.	项 目 Item
	1	商 标 Brand
	2	产品系列 Product Series
	3	容量和容量偏差 Capacitance and Tolerance
	4	额定电压 Rated Voltage 自愈性 Self Healing
	5	端子与外壳耐压 U_{TC} Voltage between Terminal and Case
	6	温度范围 Temperature Range 引用标准 Reference Standard
	7	安全警示 Safety Warning

4. 预期寿命曲线 Expected lifetime curve



5. 纹波电流海拔降额 The current decreasing factor for using on different altitudes:

Altitude/m	Derating Coefficient
2500	0.95
3000	0.90
3500	0.85
4000	0.80
4500	0.75
5000	0.70

6. 测试项目 Test project

测试项目包括常规测试、型式试验测试。

Test items include routine testing and type testing.

型式试验测试 type testing

序号 Serial number	项目 project	性能 performance	测试条件 Test Conditions
1	外观检查 Visual inspection	符合产品金属规范要求 Meets product specifications	参照标准(Reference standard): IEC61071-5.14.2 目视 Visual
2	尺寸检查 Dimensional inspection	符合产品技术规范尺寸规格值 Conforms to product specifications	量具测量 Gage measurement
3	极间耐电压 voltage between terminals	无永久性击穿或闪络 No permanent breakdown or flashover	参照标准(Reference standard): IEC61071-5.5.2 自动击穿装置, 1.5U _R , 10s Automatic breakdown device, 1.5U _R , 10s
4	极壳耐电压 voltage between terminals to case	无击穿或闪络 No breakdown or flashover	参照标准(Reference standard): IEC61071-5.6.1 自动击穿装置, 3000V _{AC} , 10s Automatic breakdown device, 3000V _{AC} , 10s
5	电容量 Capacitance	J(±5%)、K(±10%)	参照标准(Reference standard): IEC61071-5.3.2 测量仪, 100HZ
6	损耗角正切值 Loss tangent	≤0.0015 (25℃±5℃, 100Hz)	参照标准(Reference standard): IEC61071-5.4 测量仪, 100HZ
7	绝缘电阻 Insulation resistance	RC≥10000s	100V _{DC} , 测试时间 60s, 测试温度 25℃±5℃
8	振动 vibration	外观无可见损伤; 静电容量测试时无接触不良, 断线及短路, 端子无机械损伤 Appearance no visible damage; Capacitance: During the test, measured value to be stabilized Appearance: No remarkable abnormality 静电容量变化: ΔC/C≤±0.5% Capacitance change: ΔC/C≤±0.5%	参照标准(Reference standard): IEC61071-5.14.3 试验条件 Test conditions: 频率范围 Frequency range: 10—55Hz 质量: M≤3Kg 振幅: ±0.35mm Total Amplitude: 0.35mm X.Y.Z 方向各 2 小时, 共 6h。 Direction and duration of vibration: 3 orthogonal directions mutually each for 2 hours Total 6 hours.

9	冲击放电测试 Impulse discharge test	无永久性击穿或闪络; $ \Delta C/C_0 \leq 1\%$; $\Delta \tan \delta \leq 1.2 \times \tan \delta_0 + 1.0 \times 10^{-4}$ No permanent breakdown or flashover; $ \Delta C/C_0 \leq 1\%$; $\Delta \tan \delta \leq 1.2 \times \tan \delta_0 + 1.0 \times 10^{-4}$	参照标准(Reference standard): IEC61071-5.9 十分钟内五次充放电 试验电压: $1.1 U_R$ 试验电流: 1.1 倍最大冲击电流 试验完五分钟内进行极间电压测试 Five minutes of charging and discharging within ten minutes Test voltage: $1.1 U_R$ Test current: 1.1 times the maximum impact current The inter-pole voltage test was performed within five minutes after the test
10	自愈性试验 Self healing test	无永久性击穿或闪络; $ \Delta C/C_0 \leq 1\%$; $\Delta \tan \delta \leq 1.2 \times \tan \delta_0 + 1.0 \times 10^{-4}$ No permanent breakdown or flashover; $ \Delta C/C_0 \leq 1\%$; $\Delta \tan \delta \leq 1.2 \times \tan \delta_0 + 1.0 \times 10^{-4}$	参照标准(Reference standard): IEC61071-5.11 试验条件 Test conditions: 试验电压 Test voltage: $1.5 U_R$ 如果自愈击穿次数少于 5 次, 则缓慢升高电压, 直至发生 5 次自愈击穿. If the number of self healing breaks is less than 5 times, the voltage will slowly increase until 5 self healing breakdown occurs. 当电压达到 $2.5 U_R$, 自愈击穿仍未达到 5 次, 则试验结束 When the voltage is up to $2.5 U_R$, the self-healing breakdown is still not up to 5 times, then the test is over.
11	温度快速变化 Rapid change of temperature	外观无可见损伤; 静电容量测试时无接触不良, 断线及短路, 端子无机械损伤 Appearance no visible damage; Capacitance: During the test, measured value to be stabilized Appearance: No remarkable abnormality 静电容量变化: $\Delta C/C \leq \pm 0.5\%$ Capacitance change: $\Delta C/C \leq \pm 0.5\%$	参照标准(Reference standard): IEC61071-5.13.1 试验条件 Test conditions: $\theta A = -40 \pm 3^\circ\text{C}$ 持续时间 30min, 转换时间 1min, $\theta B = +85 \pm 2^\circ\text{C}$ 持续时间 30min, 此过程为一个循环, 共 5 次循环。 $\theta A = -40 \pm 3^\circ\text{C}$ The duration is 30 minutes, the transition time is 1 minute, and the $\theta B = +85 \pm 2^\circ\text{C}$ duration is 30 minutes. This process is a cycle, totaling 5 cycles.
12	引出端强度 Terminal strength	无明显损伤 There shall be no visible damage 静电容量变化: $\Delta C/C \leq \pm 0.5\%$	参照标准(Reference standard): IEC61071-5.14.1 M6, $T=5.0\text{Nm}$

		Capacitance change: $\Delta C/C \leq \pm 0.5\%$	M8, T=6.0Nm M12, T=14.0Nm
13	热稳定性 Thermal stability test	$\Delta T < 1^\circ\text{C}$	参照标准(Reference standard): IEC61071-5.10 试验条件 Test conditions: 试验温度 (Temperature): $45 \pm 3^\circ\text{C}$ 试验电流 (Current): I_{rms} 试验频率 (frequency): 1kHz 试验时间 (Time): 48h 在最后 6h 内每隔 1.5h 测试一下电容器的温度 During the last 6h, the temperature of the case near of the top rise shall be measured per 1.5h.
14	稳态湿热 Steady damp-heat	试品不应发生击穿或闪络 No breakdown or flashover should be observed. 允许自愈性击穿 Allowable self healing breakdown 电容量变化不超过 5% The capacitance change is not more than 5%.	参照标准(Reference standard): IEC61071-5.13.2 稳态湿热应按照 IEC60068-2-78 进行 Steady humidity and heat should be carried out according to IEC60068-2-78 试验条件 Test conditions: 温度: $40 \pm 2^\circ\text{C}$, 湿度: $93\% \pm 2\%RH$, 时间: 56d Temperature: $40 \pm 2^\circ\text{C}$, Humidity: $93\% \pm 2\%RH$, Time: 56d
15	高温耐久性 High temperature durability	静电容量变化: $\Delta C/C \leq \pm 3\%$ Capacitance change: $\Delta C/C \leq \pm 3\%$ 损耗角正切: $\Delta \tan \delta \leq 1.2 * \tan \delta_0 + 1.0 * 10^{-4}$ Dissipation Factor: $\Delta \tan \delta \leq 1.2 * \tan \delta_0 + 1.0 * 10^{-4}$ 绝缘电阻: $\geq$ 额定值的 50% Insulation Resistance: $\geq 50\%$ of the rated value	参照标准(Reference standard): IEC61071-5.15 试验条件 Test conditions: 时间 (Time): 1000h 电压 (Voltage): $1.3U_R$ 温度 (Temperature): $70 \pm 3^\circ\text{C}$ 试验后常温放置 24h 测定 The capacitors shall then be removed from the test chamber and stabilized at room temperature for 24 hrs. after.

7. 包装package

请参照包装规范

注：批量生产前由生产厂家提供相关包装规范

Refer to the packing instructions

Note: The manufacturer provides the relevant packaging specifications before mass production

8. 注意事项Cautionitems

(1)该电容器没有内置电阻，所以使用后的电容器内部可能会残留致命的电能。操作请先用电阻放电，不允许使用短路线直接放电。

(2)不要在有氯气、硫化气体、酸、碱、盐或者有类似物质的环境中使用和储存该电容器。在粉尘较多的环境中，需定期维护和清洁电极间的粉尘，避免两极之间短路。

(3)如果电容器使用在海拔高度大于 2000米的环境中，需考虑对外部绝缘和冷却的影响。

(4)使用前需确认端子连接是否牢固，端子松动可能会导致端子过热。

(5)有任何疑问或者需要更多详细的信息请联系我们的技术部门。

(1) The capacitor does not have a built-in resistor, so a residual capacitor may remain in the capacitor after use. Operation first with the resistance discharge, does not allow the use of short-circuit direct discharge.

(2) The capacitor is to be used and stored in an environment with chlorine gas, sulfurized gas, acid, alkali, salt or the like. In a dusty environment, regular maintenance and cleaning of the dust between the electrodes to avoid short-circuit between the poles.

(3) If the capacitor is used at an altitude greater than 2000 m, consider the effects of external insulation and cooling.

(4) Before use, make sure that the terminals are securely connected. Loosening the terminals may cause the terminals to overheat.

(5) If you have any questions or need more detailed information, please contact our technical department.