

Metallized Polypropylene Film AC Filtering Capacitors

ELC Series - Cylindrical Aluminum Can Oil Type

ELCOMTECH

Overview

The ELC series capacitors are designed for PFC system or filtering harmonics at the AC output of large inverter system. The ELC series capacitor consists of metallized polypropylene film, enclosed in cylindrical Al case and filled with soft PU resin.

概述

ELC 电容器适用于大型逆变器交流输出的 PFC 系统或谐振滤波器。ELC 由金属化聚丙烯薄膜构成，封装于圆柱形铝壳内，填充软 PU 树脂。



Applications

Widely used in PFC, AC Filtering and LCL System

应用

广泛应用于 PFC (功率因素校正), 交流滤波及 LCL 滤波

Features

- Double safety protection
 - Self-healing property
 - Overpressure disconnecter device
- 3 phases in one case, delta connection
- High reliability
- Oil type with good thermal dissipation

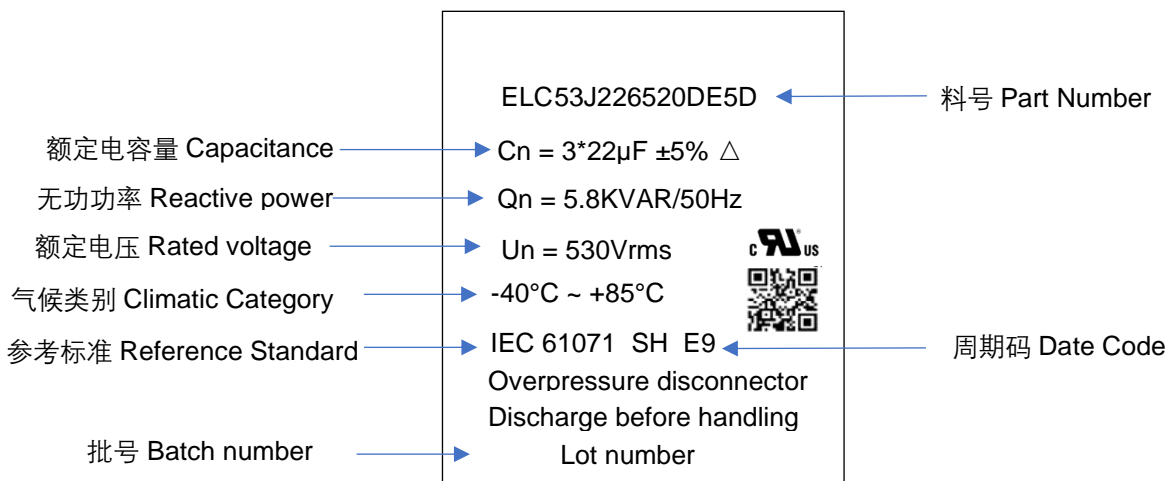
特点

- 双重安全保护
 - 自愈性
 - 过压断开装置
- 三相电容器; 三角形连接
- 高可靠性
- 具有良好的散热性能

Approvals 认证

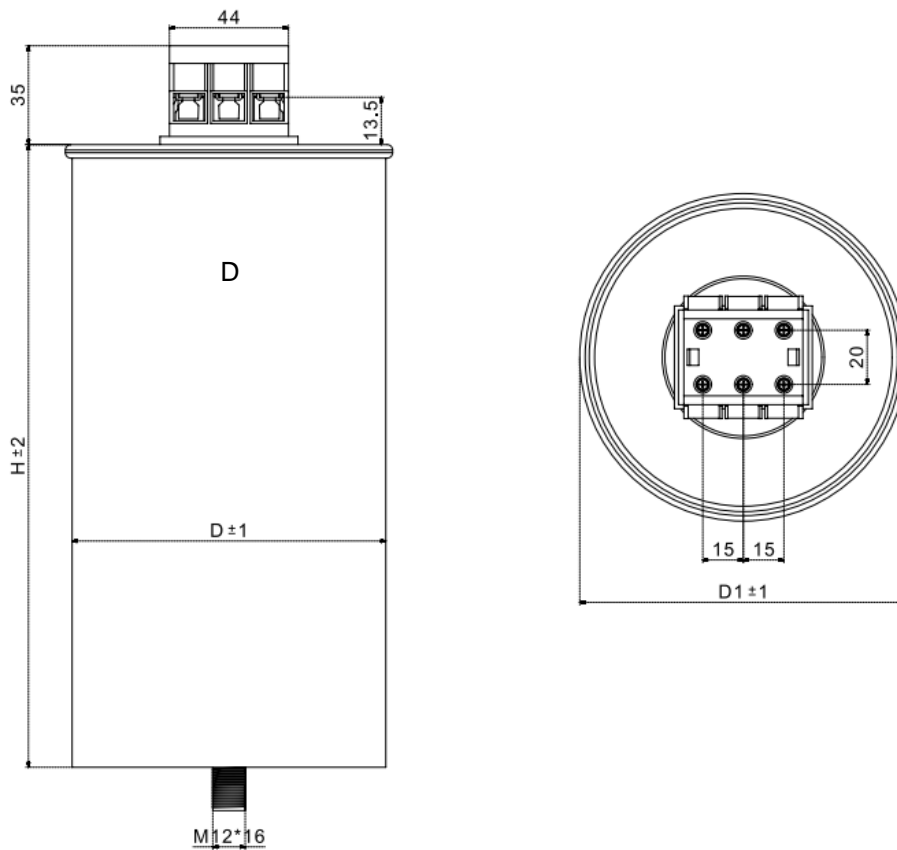
| Marking | Specification | File Number |
|---------|------------------------|-------------|
| | UL 810 (Components) | E500536 |

Marking 标识



Dimension (mm) 外形图

Terminal M5 block M5 模块端子



| Dimensions 外形尺寸 (mm) | | | | | |
|----------------------|-----------------------|---------------------|-------------------|---------|-----------|
| $D \pm 1$ 铝壳直径 | $D1 \pm 1$ 铝壳卷边处直径 | $H \pm 3$ 铝壳本体高度 | $P \pm 1$ 电极间距 | M 电极 | N 底部螺杆 |
| 86 | 90 | 200 | 15 | M5 | M12*16 |

Electrical Characteristics 电气参数

| | | |
|---|---------------|---|
| Reference Standard 引用标准 | | IEC 61071 GB/T 17702 (IEC60831 GB/T12747 OPTIONAL) |
| Climatic Category 气候类别 | | 40/85/56 IEC 60068-1 |
| Operating Temperature Range 工作温度范围 | θ_w | -40°C ~ +85°C |
| Storage Temperature 储存温度 | θ_{ST} | -40°C ~ +85°C |
| Rated Voltage 额定电压 | V_N | 750Vac |
| RMS voltage 有效值电压 | V_{rms} | 530Vac |
| Non-recurrent surge voltage 非周期性浪涌电压 | V_s | 1610V |
| Capacitance rated 额定容量 | C_R | 3*22 μ F DELTA CONNECTION |
| Capacitance Tolerance 容量偏差 | | $\pm 5\%$ |
| Reactive power 无功功率 | Q_n | 5.8KVAR @50Hz |
| Dissipation Factor 电容器损耗 | DF | ≤ 0.0010 at 100Hz |
| Insulation Resistance 绝缘电阻 | IR | $IR \times C \geq 10,000s$ at 100VDC 1minute at +25°C |
| Irms max. @10KHz 最大电流 | I_{rms} | 3*40A @ $\theta_{amb}=50^\circ C$ (line current) |
| Terminals current max. 端子最大电流 | I_{max} | 56A |
| Peak current 峰值电流 | I_p | 3*750A |
| Surge current 浪涌电流 | I_s | 3*2150A |
| du/dt 电压变化率 | du/dt | 34V/ μ s |
| ESR 等效串联电阻 | ESR | 3*3.0m Ω typical @20°C, 1KHz, measured values between any 2 terminals |
| ESL 等效串联电感 | ESL | $\leq 120nH$ |
| Rth (hotspot to ambient) 热阻-热点到环境 | Rth | 3.2K/W (natural cooling) |
| Max hotspot 最大热点温度 | θ_{hs} | +85°C |

Electrical Characteristics 电气参数

| | | |
|---|-----|--|
| Life expectancy 预期寿命 | L | ≥100,000 hours at Vrms and 70°C |
| Test Voltage between terminals 极间耐压测试 | UTT | 2.15 x Vrms for 10s |
| Test Voltage between terminals and case 极壳耐压测试 | UTC | 4KVac 50Hz for 10s |
| Failure quota 失效率 | FIT | ≤100FIT |
| Over voltage 过电压 | | 1.1 Un (30 % of on-load-duration) 1.15 Un (30 min/day) 1.2 Un (5 min/day) 1.3 Un (1 min/day) 1.5 Un (30ms every time, 100 ms/day), max 1000 times during lifetime 寿命内最大允许出现1000次。 |
| Altitude max 最高海拔 | | 3000m: 不降额 no derating 3000m-5000m: derating as per 3%/ 500m.每 500m 电流降额 3%; |
| Weight 重量 | | ~1.2kg |

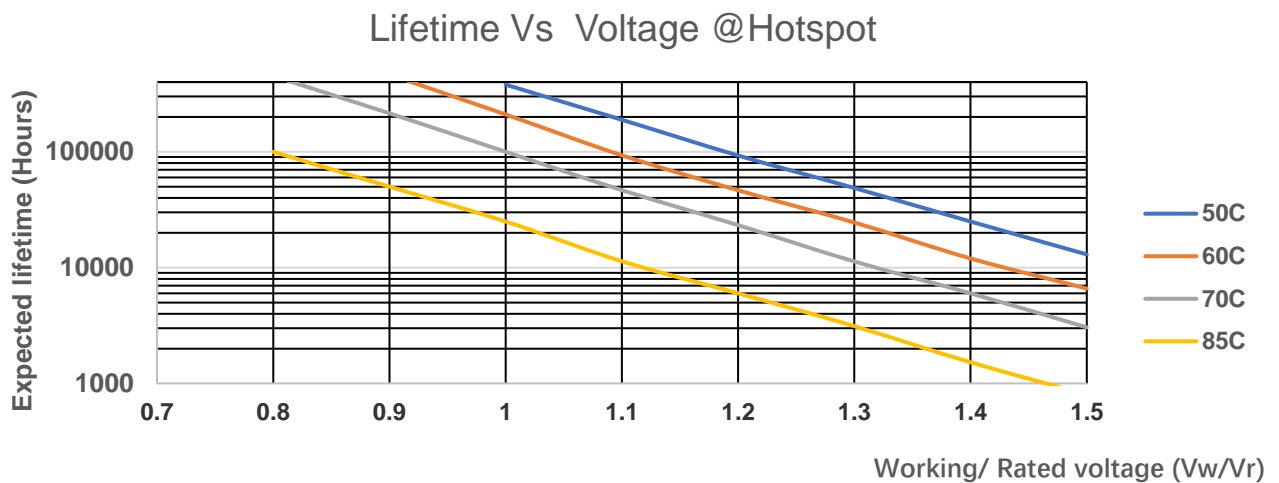
Constructions 结构设计

| | |
|--|---|
| Metallized Film 薄膜材料 | OPP & Al/Zn 金属化聚丙烯膜 |
| Metal Sprayed 涂覆 | Zn 锌 |
| Connection Stripe 连接片 | Tinned copper 镀锡铜片 |
| Aluminum Case 铝壳 | Al can with stud 铝罐, 底部带螺杆 |
| Top Cover 上盖 | Al cover 铝盖 |
| Filling 填充 | Soft PU resin 软PU树脂 |
| Terminal 引出端 | M5 clamp block, Max. 25mm ² cable available M5 接线框模块, 最大可接25mm ² 线缆 |
| Terminals torque 端子扭矩 | 2.5Nm Max. |
| Bottom stud torque max. 底部螺杆最大扭矩 | 10Nm |
| Creepage distance (between terminals) 爬电距离 | 35mm |
| Clearance (between terminals) 电气间隙 | 15mm |
| Film Construction 薄膜结构 | Normal Structure 一般膜 |
| Degree of protection 防护等级 | IP20 rating |
| Discharge resistor 放电电阻 | NA |
| Installation and space 安装及空间要求 | Vertical, at least 12 mm free space at the top of terminals for inner safety device. And 10mm clearance between capacitors for cooling. 竖直安装, 电容器顶部预留至少12mm自由空间用于防爆机构动作。电容器之间间隔至少10mm以利于散热。 |

Environmental Test 环境测试

| | |
|------------------------------------|---|
| High Temperature Loading 高温负荷试验 | Test Conditions:测试条件 Testing method per IEC 61071 按照IEC61071标准 Test Temperature温度: +70±2 °C. Apply 1.25x VR for 1,000 +24/-0 hours.施加1.25倍电压1000小时。 首个500 hours后 1000 charges and discharges 按1.4倍峰值电流1000次充放电 At 1.4 x I peak (maximum respective peak current in continuous operation) Performance:合格标准 Capacitance Change Rate ($\Delta C/C$)容量变化率: $\leq 3\%$ |
|------------------------------------|---|

Expected Life Curve 寿命曲线图



Packaging Information 包装信息

Capacitors are well protected by foams. And then are packaged in the cartons.

电容器用泡棉包装，然后装进纸箱。

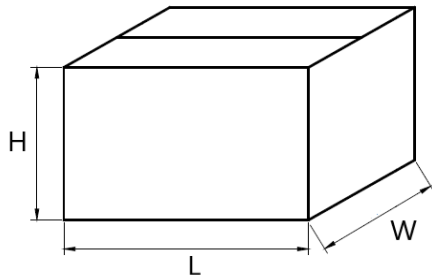


Table 1 carton dimensions

| Carton No. | L (mm) | W (mm) | H (mm) |
|------------|--------|--------|--------|
| 1 | 375 | 285 | 235 |
| 2 | 375 | 285 | 300 |
| 3 | 375 | 285 | 330 |
| 4 | 375 | 285 | 365 |
| 5 | 375 | 285 | 265 |

According to the capacitor's diameter, every carton contains capacitors as per the following Table 2.

根据电容器直径，每个纸箱的电容器数量如下。

Table 2 Capacitor quantity of each carton

| Capacitor Diameter (mm) | Quantity (pcs) |
|-------------------------|----------------|
| 75 | 12 |
| 86 | 8 |
| 96 | 6 |
| 106 | 5 |
| 116 | 5 |
| 136 | 2 |

Cautions and Warnings 注意事项

- Don't exceed the upper category temperature.
不可超出最高类别温度
- For longtime storage, maximum relative humidity 80%, no dew allowed on the capacitor.
电容器长期存放时，最大相对湿度不可超过 80%，电容器表面不允许有结露
- Do not use or store capacitor in corrosive atmosphere, in the dusty environment's regular maintenance and cleaning especially of the terminals is required to avoid conductive path between terminal / or terminal and ground.
不要在腐蚀性的环境中使用或储存电容器，在有灰尘的环境中，接线端子应定期维护和清洁，以避免接线端子间或端子与地面之间的导电。
- Avoid overload of the capacitors.
避免电容器过载使用。
- Do not have unlimited service life expectancy, the max service life expectancy may vary depending on the application the capacitor is used in.
电容器寿命不是无止尽的，最大的使用寿命可能会根据不同的电容器使用状况而变化。

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