

capacitors

UL31 SERIES FILM CAPACITORS



**offers “ultimate”
performance for high power
filter applications**

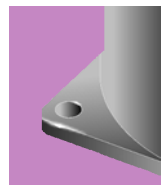
- INDUCTANCE AS LOW AS 25nH (*LESS THAN 10nH AVAILABLE*)
- TEMPERATURE RANGE: -55°C TO +105°C
- VOLTAGES TO 2200VDC
- LOW ESR
- CAPACITANCE TO 275 μ F
- CURRENT CARRYING CAPABILITY TO 110amps
- WITHSTANDS HOSTILE ENVIRONMENTS
- INTEGRATED MOUNTING FLANGES

The **UNLYTIC UL31 SERIES** represents the “best” choice for high power DC filter applications because of the combination of physical and electrical properties it

offers. This encompasses low inductance with high current carrying capability — and a low profile to make the most efficient use of system space and increase cooling efficiency. Plus an in-house developed, “specific to the task” thermoplastic formulation for the enclosure, improves thermal conductivity.

There is also an integrated flange with predrilled holes to simplify mounting.

With its introduction, the designer has a film capacitor for high power filter systems that will maximize space utilization, performance and reliability. With the added potential for measurable production cost savings.



performance

CHARACTERISTICS

OPERATING TEMPERATURE RANGE

From -55°C to +105°C.

INSULATION RESISTANCE

When measured at 25°C and 100VDC for a minimum of five (5) minutes, the insulation resistance equals or exceeds the following values:

| Temperature | 25°C | 85°C | +105°C |
|-----------------------|--------|-------|--------|
| Megohms x Microfarads | 10,000 | 1,000 | 100 |

DISSIPATION FACTOR

Polypropylene has an intrinsic dissipation factor of less than 2.1×10^{-4} over the operating temperature range of -55°C to 105°C and frequencies to 1MHz.

CAPACITANCE CHANGE

Capacitance change versus temperature for these capacitors shall not exceed the following:

| Temperature Degrees C. | -55 | +25 | +105 |
|------------------------|------|-----|------|
| Percent Change | +2.0 | 0 | -4.0 |

VOLTAGE RATING

As specified in the table with 50% linear voltage derating from 85°C to 105°C.

DIELECTRIC STRENGTH

Capacitors withstand a DC potential of 1.3 x rated voltage for one (1) minute without damage or breakdown. Test voltage is applied and discharged through a minimum resistance of 100 OHM per volt minimum.

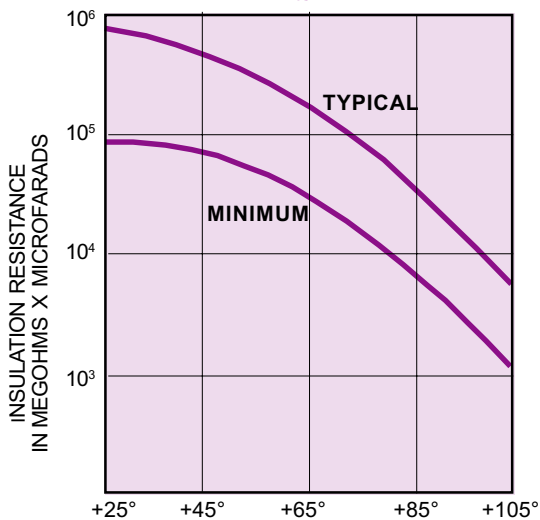
CAPACITANCE TOLERANCE

Standard tolerance is $\pm 10\%$. Tolerances of $\pm 20\%$ and $\pm 5\%$ are also available.

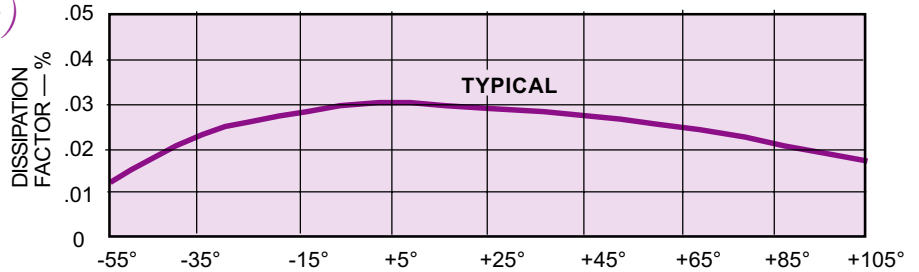
NOTE: Capacitance is measured at 25°C, and at, or referred to, a frequency of 1kHz for all values.

electrical characteristics vs. temperature (centigrade)

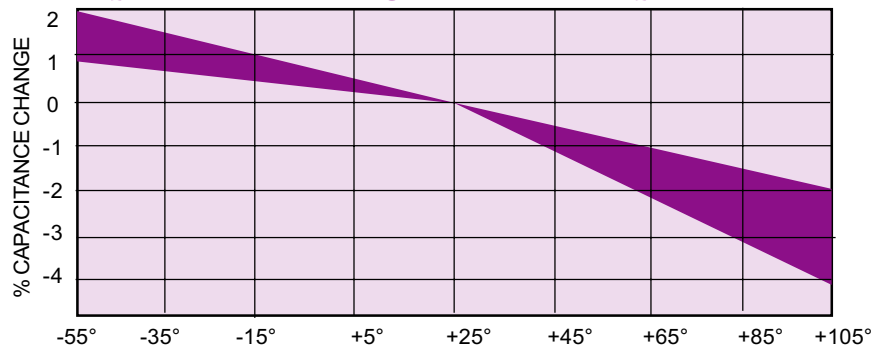
insulation resistance versus temperature



dissipation factor versus temperature

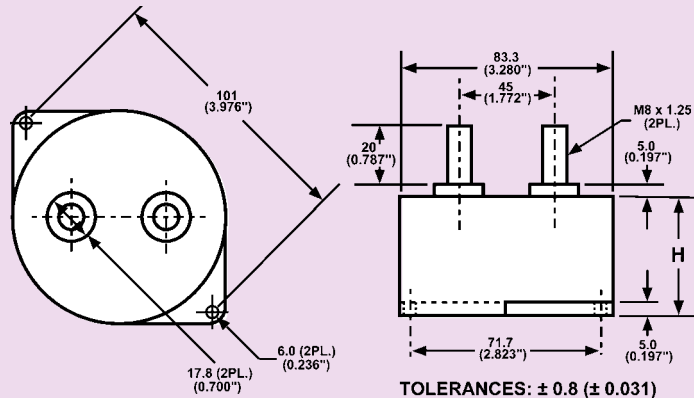


capacitance change versus temperature



dimensions

DIMENSIONS IN MILLIMETERS,
INCHES SHOWN IN PARENTHESIS.



electrical data

| PART NUMBER | | | | | | | | | | | CURRENT RATING (AMPS RMS) 10kHz TO 100kHz CONTINUOUS | | | |
|-------------|------|-----|------------|----|-------|------|-----|------|-------|------|---|------|------|--|
| | | | | | | | | | | | | | | |
| UL31Q157K | 500 | 150 | 40(1.575") | 25 | 82.2 | 5769 | 38 | 0.47 | 110.3 | 95.7 | 78.5 | 56.3 | 13.4 | |
| UL31Q207K | 500 | 200 | 51(2.008") | 32 | 62.9 | 5809 | 29 | 0.57 | 105.4 | 91.5 | 75.1 | 53.9 | 12.8 | |
| UL31Q277K | 500 | 275 | 64(2.520") | 50 | 42.9 | 5672 | 21 | 0.77 | 97.2 | 84.4 | 69.3 | 49.7 | 11.8 | |
| UL31K107K | 600 | 100 | 40(1.575") | 25 | 100.7 | 4396 | 44 | 0.62 | 91.2 | 79.2 | 65.0 | 46.6 | 11.1 | |
| UL31K157K | 600 | 150 | 51(2.008") | 32 | 72.6 | 4979 | 33 | 0.67 | 96.8 | 84.0 | 68.9 | 49.9 | 11.8 | |
| UL31K207K | 600 | 200 | 64(2.520") | 50 | 50.3 | 4714 | 24 | 0.93 | 87.0 | 75.7 | 62.0 | 44.5 | 10.6 | |
| UL31N706K | 800 | 70 | 40(1.575") | 25 | 120.3 | 3846 | 55 | 0.71 | 88.0 | 76.4 | 62.7 | 45.0 | 10.7 | |
| UL31N107K | 800 | 100 | 51(2.008") | 32 | 89.0 | 4149 | 41 | 0.80 | 89.5 | 77.7 | 63.8 | 45.7 | 10.9 | |
| UL31N137K | 800 | 130 | 64(2.520") | 50 | 62.4 | 3830 | 29 | 1.15 | 78.8 | 68.4 | 56.1 | 40.3 | 9.6 | |
| UL31BL356K | 1000 | 35 | 40(1.575") | 25 | 170.1 | 2692 | 77 | 1.02 | 72.6 | 63.0 | 51.7 | 37.1 | 8.8 | |
| UL31BL506K | 1000 | 50 | 51(2.008") | 32 | 125.8 | 2905 | 58 | 1.16 | 74.1 | 64.3 | 52.8 | 37.8 | 9.0 | |
| UL31BL706K | 1000 | 70 | 64(2.520") | 50 | 85.1 | 2887 | 41 | 1.53 | 69.6 | 60.4 | 49.6 | 35.6 | 8.5 | |
| UL31L256K | 1200 | 25 | 40(1.575") | 25 | 201.3 | 2198 | 88 | 1.26 | 63.7 | 55.3 | 45.4 | 32.5 | 7.8 | |
| UL31L356K | 1200 | 35 | 51(2.008") | 32 | 150.4 | 2324 | 66 | 1.45 | 64.0 | 55.5 | 45.6 | 32.7 | 7.8 | |
| UL31L506K | 1200 | 50 | 64(2.520") | 50 | 100.7 | 2357 | 47 | 1.87 | 61.3 | 53.2 | 43.7 | 31.3 | 7.5 | |
| UL31M186K | 1500 | 18 | 40(1.575") | 25 | 237.3 | 1978 | 110 | 1.42 | 62.8 | 54.5 | 44.7 | 32.1 | 7.6 | |
| UL31M256K | 1500 | 25 | 51(2.008") | 32 | 177.9 | 2075 | 83 | 1.64 | 62.7 | 54.4 | 44.7 | 32.0 | 7.6 | |
| UL31M356K | 1500 | 35 | 64(2.520") | 50 | 120.3 | 2062 | 59 | 2.15 | 59.1 | 51.3 | 42.1 | 30.2 | 7.2 | |
| UL31BX106K | 1800 | 10 | 40(1.575") | 25 | 318.3 | 1596 | 160 | 1.67 | 57.3 | 49.7 | 40.8 | 29.3 | 7.0 | |
| UL31BX156K | 1800 | 15 | 51(2.008") | 32 | 229.7 | 1719 | 115 | 1.91 | 58.0 | 50.3 | 41.3 | 29.6 | 7.1 | |
| UL31BX206K | 1800 | 20 | 64(2.520") | 50 | 159.2 | 1559 | 78 | 2.79 | 50.1 | 43.5 | 35.7 | 25.6 | 6.1 | |
| UL31S655K | 2200 | 6.5 | 40(1.575") | 25 | 394.8 | 1297 | 199 | 2.06 | 51.9 | 45.1 | 37.0 | 26.5 | 6.3 | |
| UL31S905K | 2200 | 9.0 | 51(2.008") | 32 | 296.6 | 1289 | 143 | 2.56 | 49.0 | 42.5 | 34.9 | 25.0 | 6.0 | |
| UL31S126K | 2200 | 12 | 64(2.520") | 50 | 205.5 | 1170 | 97 | 3.72 | 42.5 | 36.9 | 30.2 | 21.7 | 5.2 | |

† Inches shown in parenthesis.

*ESR measured at resonant frequency.

specifications

CONSTRUCTION

Non-inductive wound dry film.

ENCLOSURE

Thermal plastic with high current terminals.

QUALITY CONTROL

Capacitors are tested 100% for:

- ESR
- CAPACITANCE TOLERANCE
- DISSIPATION FACTOR
- DIELECTRIC WITHSTANDING VOLTAGE
- INSULATION RESISTANCE

Process and inspection data are maintained on file and available on special request.

ENVIRONMENTAL

Type UL31 withstands the following tests in accordance with MIL-STD-202:

| TEST | METHOD | TEST CONDITIONS |
|---------------|--------|-----------------|
| Vibration | 204 | D |
| Immersion | 104 | B |
| Shock | 213 | I |
| Humidity | 103 | B |
| Thermal shock | 107 | A |

MARKING

All capacitors are marked with the company initials EC and/or EC trademark, type (UL31), capacitance, tolerance, rated DC working voltage and date code.

DATE CODE

The first two digits of the date code represent the year, the second two digits the week, i.e., 0152 is the 52nd week of 2001, 0202 is the 2nd week of 2002.

QUALITY ASSURANCE

Emphasis is placed on quality assurance. The functions of raw material inspection, manufacturing process inspection and final product inspection are constantly being monitored by our Quality Control Department. Complete procedures are described in our quality control manual. Electronic Concepts, Inc. will continue to advance the state-of-the-art by utilizing leading edge technology, ultra-miniature capacitor designs and establish reliability procedures.

In the construction of the components described, the full intent of the specification will be met. Electronic Concepts, Inc., however, reserves the right to depart from detail specifications to allow for improvement in the design of its products. However, components made under military approvals will be done so in accordance with specification requirements. This information is believed to be accurate and reliable. However, Electronic Concepts, Inc. assumes no responsibility for its use, nor for any infringement of patents or other rights of third parties which may result.



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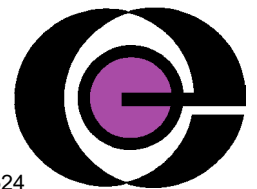
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