# Type MDL Polypropylene, High Energy Density, DC Link Capacitors

## High Current, High Capacitance Module for Inverter Applications

Type MDL series uses the most advanced metallized film technology for long, life and high reliability in DC Link applications. This series combines high capacitance and very high ripple current capability needed for today's inverter designs for wind, solar, fuel cells, UPS systems and more.

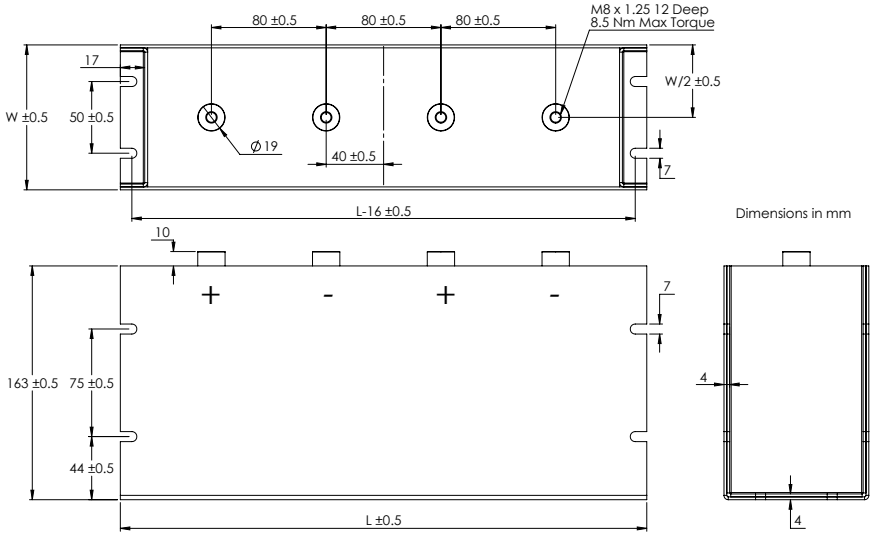
## Specifications

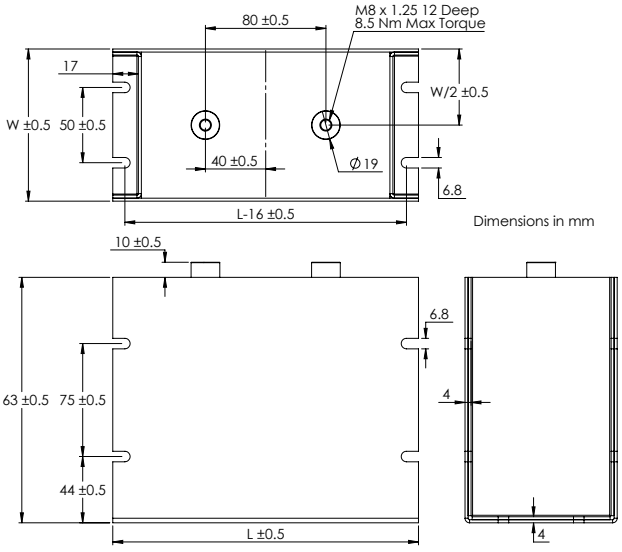
| | |
|---|---|
| Capacitance Range | 600 to 4200 µF |
| Capacitance Tolerance | ±10% standard |
| Rated Voltage | 900 to 1300 Vdc |
| Operating Temperature Range | -25 °C to 70 °C (ambient) |
| Maximum rms Current | see data tables |
| Maximum rms Voltage | 200 Vac |
| Test Voltage between Terminals @ 25 °C | 150% rated DC voltage for 10 s |
| Test Voltage between Terminals and Case @ 25°C | 4 kVac @ 50/60 Hz for 10 s |
| Life Test | 5000 h @ 85 °C core, rated voltage |
| Life Expectancy | 200,000 h @ 60 °C core, rated voltage |
| Reliability | 300 FIT typical |
| Standards | IEC 61071 |
| RoHS Compliant | |

## Dimensions

| Mounting Details | |
|---|---|
| Terminal Torque | 7 Nm |

| Construction Details | |
|---|---|
| Case Material | Aluminum |
| Resin Material | Dry Resin UL94V-0 |
| Terminal Material | Tin Plated Aluminum |

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## High Current, High Capacitance Module for Inverter Applications

## Part Numbering System

| MDL | 122 | K | 132 | A | B | I |
|---|---|---|---|---|---|---|
| Type | Capacitance | Tolerance | Voltage | Width (W) | Length (L) | Terminal |
| MDL | 601 = 600 µF<br>422 = 4200 µF | K = ±10% | 901 = 900 Vdc<br>112 = 1100 Vdc<br>132 = 1300 Vdc | A = 76<br>B = 101 | A = 203<br>B = 367 | I = M8 Insert<br>M = M10 Stud |

## Ratings

| Catalog Part Number | Cap (µF) | Rated Voltage (Vdc) | W Width (mm) | L Length (mm) | Typical ESR 10kHz (mΩ) | Max Irms 55 °C (A) | Thermal Resistance Θcc (°C/W) | Thermal Resistance Θca (°C/W) | Terminals |
|---|---|---|---|---|---|---|---|---|---|
| MDL152K901AA* | 1500 | 900 | 76 | 203 | 0.23 | 200 | 0.59 | 0.88 | 2 |
| MDL212K901BA* | 2100 | 900 | 101 | 203 | 0.29 | 200 | 0.66 | 0.77 | 2 |
| MDL302K901AB* | 3000 | 900 | 76 | 367 | 0.10 | 400 | 0.35 | 0.48 | 4 |
| MDL422K901BB* | 4200 | 900 | 101 | 367 | 0.14 | 400 | 0.37 | 0.42 | 4 |
| MDL901K112AA* | 900 | 1100 | 76 | 203 | 0.27 | 200 | 0.59 | 0.88 | 2 |
| MDL132K112BA* | 1300 | 1100 | 101 | 203 | 0.35 | 200 | 0.66 | 0.77 | 2 |
| MDL182K112AB* | 1800 | 1100 | 76 | 367 | 0.12 | 400 | 0.35 | 0.48 | 4 |
| MDL262K112BB* | 2600 | 1100 | 101 | 367 | 0.16 | 400 | 0.38 | 0.42 | 4 |
| MDL601K132AA* | 600 | 1300 | 76 | 203 | 0.31 | 200 | 0.59 | 0.88 | 2 |
| MDL901K132BA* | 900 | 1300 | 101 | 203 | 0.41 | 200 | 0.66 | 0.77 | 2 |
| MDL122K132AB* | 1200 | 1300 | 76 | 367 | 0.14 | 400 | 0.35 | 0.48 | 4 |
| MDL182K132BB* | 1800 | 1300 | 101 | 367 | 0.19 | 400 | 0.38 | 0.42 | 4 |

* I= M8 Insert  M = M10 Stud

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## High Current, High Capacitance Module for Inverter Applications

## Expected Lifetime Predictions

Capacitance: C (µF)
Equivalent Series Resistance: ESR (mΩ)
Frequency: f (kHz)
Ripple Current: I ($A_{rms}$)
Ambient Temperature: $T_A$ (°C)
Core Temperature: $T_C$ (°C)
Total Thermal Resistance: Θ (°C/W)
Airflow Speed: v (m/s)
Applied Voltage: $V_A$ ($V_{DC}$)
Rated Voltage: $V_R$ ($V_{DC}$)

Use the 10 kHz ESR from the ratings tables.
For operation below 10 kHz, the ESR will need to be adjusted using the following equation: ESR - 31.83/(10C) + 31.83/(fC).

Look up Expected Lifetime on the graph using $V_A/V_R$ and $T_C = T_A + I^2$ (ESR/1000) Θ

The maximum allowed temperature rise is 40 °C and the maximum allowed core temperature is 95 °C.