

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.

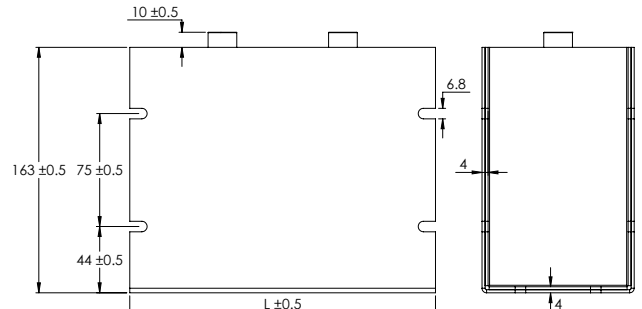
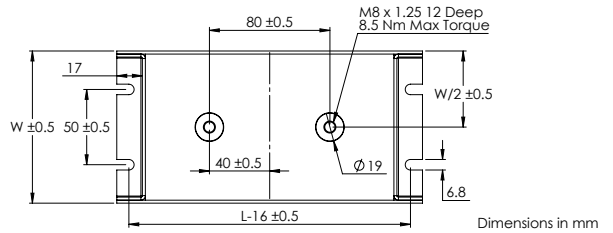
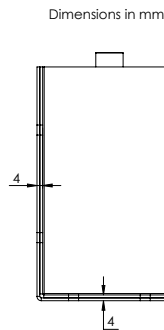
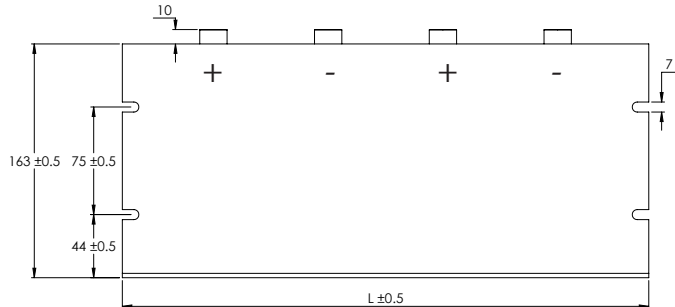
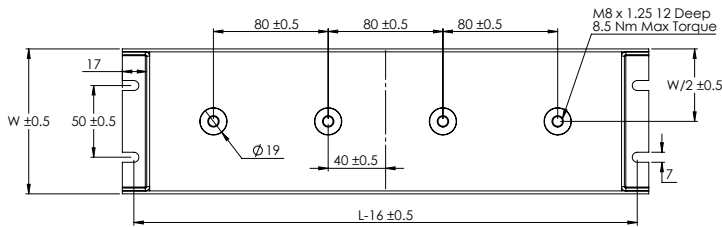
Specifications

Capacitance Range	600 to 4200 μ F
Capacitance Tolerance	$\pm 10\%$ standard
Rated Voltage	900 to 1300 Vdc
Operating Temperature Range	-25 $^{\circ}$ C to 70 $^{\circ}$ C (ambient)
Maximum rms Current	see data tables
Maximum rms Voltage	200 Vac
Test Voltage between Terminals @ 25 $^{\circ}$ C	150% rated DC voltage for 10 s
Test Voltage between Terminals and Case @ 25 $^{\circ}$ C	4 kVac @ 50/60 Hz for 10 s
Life Test	5000 h @ 85 $^{\circ}$ C core, rated voltage
Life Expectancy	200,000 h @ 60 $^{\circ}$ C core, rated voltage
Reliability	300 FIT typical
Standards	IEC 61071
Regulatory Information	

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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Part Numbering System

MDL Type MDL	122 Capacitance 601 = 600 μ F 422 = 4200 μ F	K Tolerance K = \pm 10%	132 Voltage 901 = 900 Vdc 112 = 1100 Vdc 132 = 1300 Vdc	A Width (W) A = 76 B = 101	B Length (L) A = 203 B = 367	I Terminal I = M8 Insert M = M10 Stud
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Ratings

Catalog Part Number	Cap (μ F)	Rated	W	L	Typical ESR	Max Irms	Thermal Resistance		Terminals
		Voltage (Vdc)	Width (mm)	Length (mm)	10kHz (m Ω)	55 $^{\circ}$ C (A)	Θ_{cc} ($^{\circ}$ C/W)	Θ_{ca} ($^{\circ}$ C/W)	
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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Expected Lifetime Predictions

Capacitance: C (μF)
Equivalent Series Resistance: ESR ($\text{m}\Omega$)
Frequency: f (kHz)
Ripple Current: I (A_{rms})
Ambient Temperature: T_A ($^{\circ}\text{C}$)
Core Temperature: T_C ($^{\circ}\text{C}$)
Total Thermal Resistance: Θ ($^{\circ}\text{C}/\text{W}$)
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: $\text{ESR} - 31.83/(10C) + 31.83/(fC)$.

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

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

Expected Lifetime vs Core Temperature and Applied DC Voltage

