

DLCAP™ Module



For an easy usage of Electric Double Layer Capacitor DLCAP™, we have prepared modules.
Compared to conventional products, it is smaller when connected. (please refer 'Custom Module support example')

● Application Examples

◆ Energy Saving

- Peak power assistance
- Effective recapture of kinetic energy

◆ Renewable Energy

- Stabilization of windmill power
- High efficient charge of solar energy
- Electricity assist for fuel cell

◆ Safety & Emergency Applications

- Momentary large power supply at power failure
- Back up for power source failure



● DLCAP™ Module

◆ FEATURES

- Voltage equalization circuit installed
- Over voltage detection circuit installed
- Thermistor for temperature monitor installed

◆ SPECIFICATIONS

Items	Specifications
Operating Temperature	-40°C ~ +70°C
Capacitance Tolerance	+10%/-15% (20°C)
Temperature Characteristics	Capacitance Change $\leq \pm 30\%$ of the measured value at 20°C
	Internal Resistance Change $\leq 1200\%$ of the internal resistance maximum value given in the ratings tables (-40°C)
Load Life Test	After the capacitors are subjected to the rated DC voltage at 70°C for 2000 hours, the following specifications shall be satisfied when they are restored to 20°C.
	Capacitance Change $\leq \pm 30\%$ of the initial measured value at 20°C
	Internal Resistance Change $\leq 300\%$ of the internal resistance maximum value given in the ratings tables
Bias Humidity Test	After the capacitors are left at 60°C and 90 to 95%RH for 500 hours without voltage applied, the following specifications shall be satisfied when they are restored to 20°C.
	Capacitance Change $\leq \pm 30\%$ of the initial measured value at 20°C
	Internal Resistance Change $\leq 300\%$ of the internal resistance maximum value given in the ratings tables
Insulation Resistance	The measured value between the lumped terminal and the case using 500Vdc insulation resistance meter shall be more than 100MΩ.
Insulation Withstand Voltage	No abnormality after the AC 2500V is applied between lumped terminal and package for 1 minute. package for 1 minute.

◆ STANDARD RATINGS

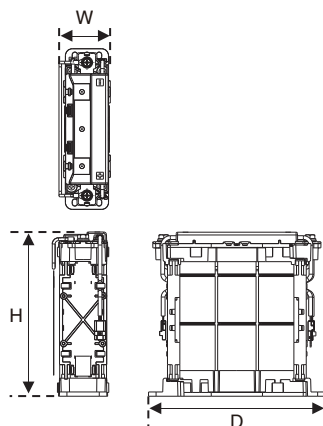
Rated Voltage [V]	Capacitance		Product Size*2			Internal Resistance		Weight*1 [kg]	Energy Storage*2 [Wh]	Part No.
	Typ. [F]	Min. [F]	W [mm]	D [mm]	H [mm]	Typ. [mΩ]	Max. [mΩ]			
7.5	466	396	54	186	172.6	3.6	4.2	1.2	3.7	MDXE7R5S461PB3111C*3

* 1 Reference data

* 2 Energy Storage (Wh) is calculated based on 「電気及び電子機器用電気二重層キャパシタの輸送に関する手引書」 (Japanese only) by JEITA.

* 3 This module uses only DXE series cells.

◆ DIMENSIONS



◆ Screw Specification
Screw : M6
Tightening torque: 5.2 Nm±10%

● DLCAP™ Custom Module Acceptable

Customized specifications can be designed upon request.

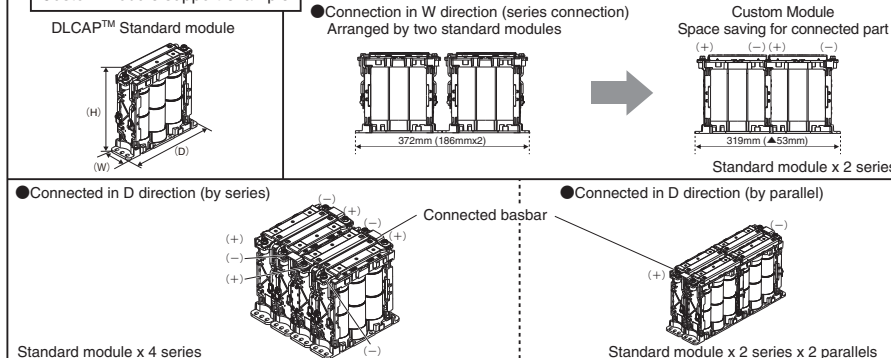
◆ Custom design examples;

- High voltage application
- Large capacitance application
- High current application

- Proper balance circuit suggestion
- Usage under vibration or physical shocks.
- Optional circuits for charge/discharge control

Please consult us for other special specifications.

Custom Module support example



Standard Module for Large Facilities

The use of low-resistance, high-capacity DLCAP™ cells (2.8V-3150F) has made it possible to offer modules that are suitable for large current applications for large facilities.

The 24-cell series-connected package is modular enough to fit into a standard 19-inch rack, making it easy to build a high-voltage system.

● Application Examples

◆ Energy Saving

- Peak power assistance
- Effective recapture of kinetic energy

◆ Renewable Energy

- Output stabilizer of renewable energy generation systems

◆ Research Applications

- High-voltage, high-current power supply

◆ Safety & Emergency Applications

- Momentary large power supply at power failure
- Back up for power source failure



● Standard Module for Large Facilities

◆ FEATURES

- Voltage equalization circuit installed
- Over Voltage detection circuit installed
- Thermostat for temperature monitor installed

◆ SPECIFICATIONS

Items	Specifications
Operating Temperature	-40°C ~ +60°C
Capacitance Tolerance	-0%, +20% (E) (20°C)
Temperature Characteristics	Capacitance Change $\leq \pm 30\%$ of the measured value at 20°C
	Internal Resistance Change $\leq 1000\%$ of the internal resistance maximum value given in the ratings tables. (-40°C)
Load Life Test	After the capacitors are subjected to the rated DC voltage at 60°C for 2000 hours, the following specifications shall be satisfied when they are restored to 20°C.
	Capacitance Change $\leq \pm 30\%$ of the capacitance rated value given in this ratings tables.
	Internal Resistance Change $\leq 300\%$ of the internal resistance maximum value given in the ratings tables.
Bias Humidity Test	After the capacitors are left at 60°C and 90 to 95%RH for 500 hours, the following specifications shall be satisfied when they are restored to 20°C.
	Capacitance Change $\leq \pm 30\%$ of the capacitance rated value given in the ratings tables.
	Internal Resistance Change $\leq 300\%$ of the internal resistance maximum value given in the ratings tables.
Insulation Resistance	The measured value between the lumped terminal and the case using 500Vdc insulation resistance meter shall be more than 100MΩ.
Insulation Withstand Voltage	No abnormality after the AC 2500V is applied between lumped terminal and package for 1 minute. package for 1 minute.

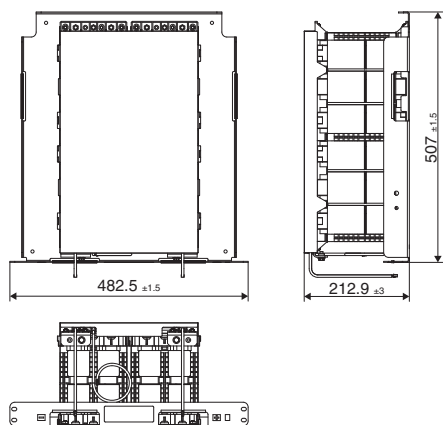
◆ STANDARD RATINGS

Rated Voltage [V]	Capacitance		Product Size			Internal Resistance		Weight*1 [kg]	Energy Storage*2 [Wh]	Part No.
	Typ. (rated) [F]	Min. [F]	W [mm]	D [mm]	H [mm]	Typ. [mΩ]	Max. [mΩ]			
67.2	145.8	131	482.5	507	212.9	9.6	12	30	82.2	MDXF670S131SBQ181A

* 1 Reference data

* 2 Energy Storage (Wh) written on this module is calculated based on 「電気及び電子機器用電気二重層キャパシタの輸送に関する手引書」 (Japanese only) by JEITA.

◆ DIMENSIONS



● Custom Module Acceptable

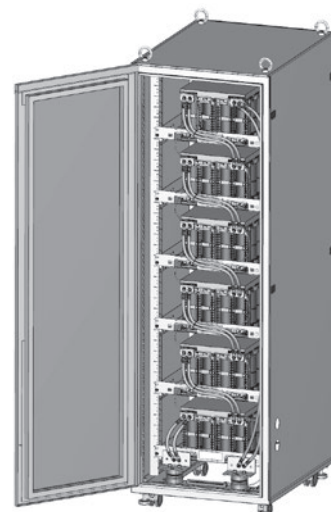
Customized specifications can be designed upon request

◆ Custom design example

- Six modules mounted in a 19" rack

Cell Connection	144-series 1-parallel
Rated Voltage [V]	403.2
Rated Capacitance [F]	21.9
Rated DCIR [mΩ]	72.0
Dimensions [mm]	W600 x D800 x H2000
Weight [kg]	300
Cooling Method	Natural air cooling

Please consult us for other special specifications.



◆ Screw Specification

Screw : M6

Tightning torque : 5.2 Nm±10%