

## Datasheet

48V 165F Ultra Capacitor Module



# GTSM-48V165FUS



### FEATURES AND BENEFITS

- Compact, fully enclosed splash proof design
- Highest power performance
- Individually balanced cells
- Over 1,000,000 duty cycles
- Ultra-low internal resistance

### SPECIFICATIONS

#### ELECTRICAL

##### Capacitance

Nominal capacitance	165 F
Capacitance tolerance	+20% / -10%

##### Voltage

Rated voltage	48 V
Maximum absolute voltage	51 V
Maximum series voltage	750 V

##### Resistance

ESR, DC	5 mΩ
---------	------

##### Current

Maximum continuous current ( $\Delta T=40^{\circ}\text{C}$ )	100 A
Maximum peak current, 1 sec.	2,275 A
Leakage current (after 72hrs @ 25°C)	5.2 mA

#### TEMPERATURE

##### Operating Temperature Range

(Cell case temperature)	-40°C to +65°C
-------------------------	----------------

##### Storage Temperature Range

(Storage uncharged)	-40°C to +70°C
---------------------	----------------

#### PHYSICAL

##### Weight

14.5 kg

##### Positive Terminal

M8 Screw Hole

##### Negative Terminal

M10 Screw Hole

##### Recommended Torque - Terminal

20/30 Nm

##### Vibration Specification

SAE J2380  
ISO16750-2, T14

##### Shock Specification

SAE J2464

##### Cooling

Natural Convection

##### Environmental Protection

IP65

#### MONITORING / CELL VOLTAGE MANAGEMENT

##### Internal Temperature Sensor

NTC Thermistor

##### Cell Voltage Monitoring

Overvoltage Alarm

### TYPICAL APPLICATIONS

- Electric vehicle
- Fork lift, Cranes
- Telecommunications
- Railway transportation
- Engine starting

#### POWER AND ENERGY

Usable Power Density (Pd)	3,850 W/kg
Impedance Match Power Density (Pmax)	8,000 W/kg
Gravimetric Energy Density (Emax)	3.8 Wh/kg
Energy Available	52.8 Wh

#### LIFE

High Temperature (at Rated Voltage & Maximum operating Temperature)	1,500 hours
------------------------------------------------------------------------	-------------

Capacitance change (% decrease from minimum initial value)	≤20%
---------------------------------------------------------------	------

ESR change (% increase from minimum initial value)	≤100%
-------------------------------------------------------	-------

Room Temperature (at rated voltage at 25°C)	10 years
------------------------------------------------	----------

Capacitance change (% decrease from minimum initial value)	≤20%
---------------------------------------------------------------	------

ESR change (% increase from minimum initial value)	≤100%
-------------------------------------------------------	-------

Cycle Life (Number of cycles)	1,000,000 times
----------------------------------	-----------------

Capacitance change (% decrease from minimum initial value)	≤20%
---------------------------------------------------------------	------

ESR change (% increase from minimum initial value)	≤100%
-------------------------------------------------------	-------

Shelf Life (Stored uncharged up to a maximum storage temperature)	3 Years
----------------------------------------------------------------------	---------

#### SAFETY

##### Short Circuit Current (Isc)

(Current possible with short circuit from rated voltage. Do not use as an operating current.)	8,500 A
-----------------------------------------------------------------------------------------------	---------

Factory High-Pot Test	2,500 V/DC
-----------------------	------------

