TEST METHOD

1) Capacitance
2) DC ESR
3) Leakage Current
4) Self-Discharge

LS ULTRACAPACITOR
LSUC

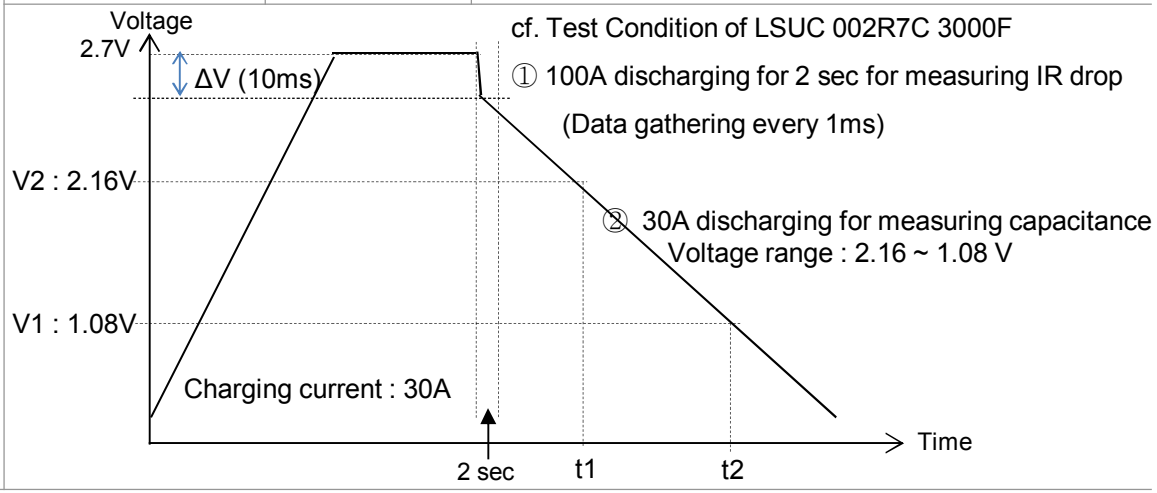
TEST METHOD

Characterization Test

1. The Measurement condition of Performance

Test was performed based on “IEC 62391-1”.

2. Test Description

Type of test	Test item	Standard	Description
Electrical Properties	Capacitance (F)	IEC62391-1	Measure the time t1 to t2 where the voltage between capacitor terminals at the time of discharge reduces from V1 to V2 as shown figure and calculate the capacitance value by the following formula: 1) Constant current charge with 10mA/F to V_R 2) Constant voltage charge at V_R for 5min 3) Constant current discharge with 10mA/F to 0.1V $C = \frac{I \times (t2 - t1)}{V2 - V1}$ (V2 : 80% of rated voltage, V1 : 40% of rated voltage)
	DC ESR (mΩ)	IEC62391-1	DC ESR of a capacitor shall be calculated by the following formula; $ESR = \frac{\Delta V \text{ (IR drop for 10ms)}}{I}$
			cf. Test Condition of LSUC 002R7C 3000F ① 100A discharging for 2 sec for measuring IR drop (Data gathering every 1ms) ② 30A discharging for measuring capacitance Voltage range : 2.16 ~ 1.08 V

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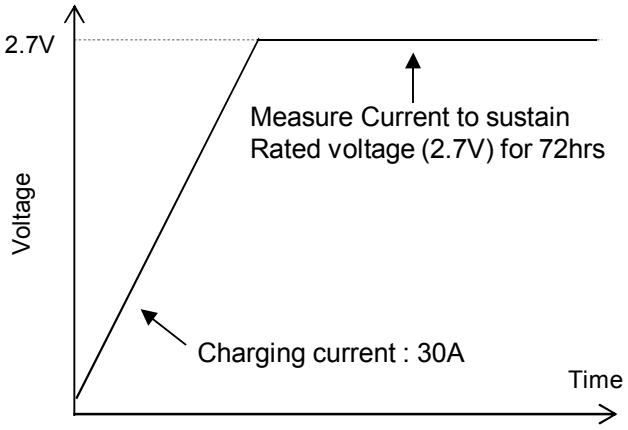
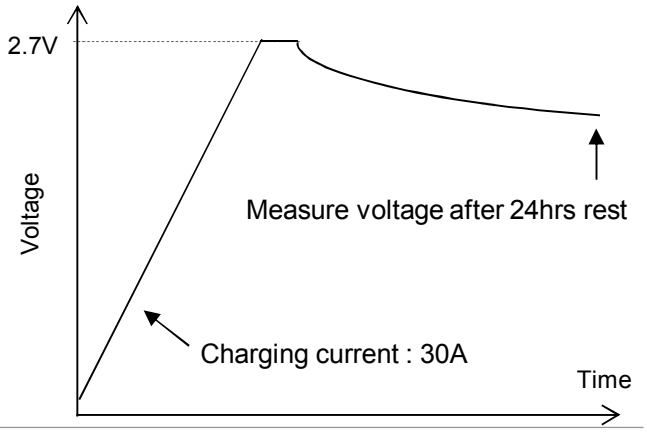
TEST REPORT

Characterization Test

2. Test Description

Type of test	Test item	Standard	Description
Electrical Properties	Leakage current (mA)	IEC62391-1, LS Mtron Engineering Spec.	The leakage current shall be measured using the direct voltage appropriate to the test temperature (25℃) for 72hrs * cf. Test Condition of LSUC 002R7C 3000F 
	Self discharge (V)	IEC62391-1, LS Mtron Engineering Spec	Self discharge voltage shall be measured after charging up for 2min, disconnect the capacitor terminals from the voltage source. The capacitor shall be kept under standard condition (25℃) for 24hrs. * cf. Test Condition of LSUC 002R7C 3000F 

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