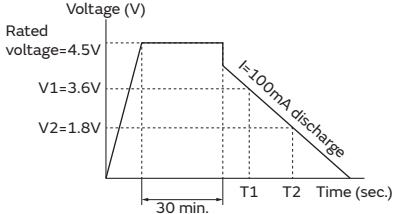
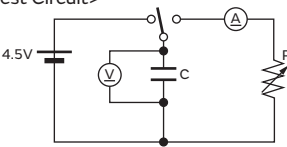
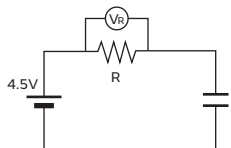


Spec and Test Methods

Item	Validation Method	Specification															
Operating Temperature	—	-40 to +85°C															
Dimensions	Microscope with length measuring function, or vernier caliper. Thickness is measured with placing a capacitor between flat plates and applying 2kg weight.	Please refer to Lineup list.															
Nominal Capacitance	<p>Measurement method: four-terminal method Measurement temperature: 25±2°C Charge capacitor for 30min. at 4.5V, then discharge. Charge current: 100mA (See the profile below)</p>  <p>V1: 80% of 4.5V V2: 40% of 4.5V T1: Time with voltage V1 T2: Time with voltage V2 I: Discharge current: 100mA <Applying Formula> $C = I \cdot (T2 - T1) / (V1 - V2)$ <Test Circuit></p> 	Please refer to Lineup list.															
ESR	<Impedance Method> Measurement method: four-terminal method Measurement temperature: 25±2°C Measured at AC1kHz. Charge current: 10-200mA	Please refer to Lineup list.															
Leakage Current	<p>Measurement temperature: 25±2°C Charge voltage: 4.5V Charge time: 30 min. Measure the current value after charged by the above condition. The current value can also be calculated by measuring the voltage of protective resistance. <Test Circuit></p> 	60μA max.															
Temperature Characteristics	-40 to +85°C	<table border="1"> <thead> <tr> <th>Temperature (°C)</th> <th>Capacitance</th> <th>ESR (@1kHz)</th> </tr> </thead> <tbody> <tr> <td>85 (max.)</td> <td>+10/-0%</td> <td>Less than std value</td> </tr> <tr> <td>40 (Ref.)</td> <td>+10/-0%</td> <td>Less than std value</td> </tr> <tr> <td>25</td> <td>Standard value</td> <td>Standard value</td> </tr> <tr> <td>-40 (min.)</td> <td>-30% min.</td> <td>+500% max.</td> </tr> </tbody> </table>	Temperature (°C)	Capacitance	ESR (@1kHz)	85 (max.)	+10/-0%	Less than std value	40 (Ref.)	+10/-0%	Less than std value	25	Standard value	Standard value	-40 (min.)	-30% min.	+500% max.
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