ANGA POW®

ELECTRIC DOUBLE LAYER CAPACITORS

PRODUCT SPECIFICATION

規格書

CUSTOMER :	**DATE :**
(客戶) : 志盛翔	**(日期) : 2020-07-29**

CATEGORY (品名)	:	ELECTRIC DOUBLE LAYER CAPACITORS
DESCRIPTION (型号)	:	DRL 2.7V10F (φ10X30)
VERSION (版本)	:	01
Customer P/N	:	/
SUPPLIER	:	/

SUPPLIER	
PREPARED (拟定)	**CHECKED (审核)**
邓文文	付婷婷

CUSTOMER	
APPROVAL (批准)	**SIGNATURE (签名)**

ELECTRIC DOUBLE LAYER CAPACITORS SPECIFICATIONS
DRL SERIES

SPECIFICATION DRL SERIES					ALTERNATION HISTORY RECORDS		
Rev.	Date	Mark	Page	Contents	Purpose	Drafter	Approver

3. Characteristics

Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests is as follows:

Ambient temperature: 15°C to 35°C
Relative humidity : 25% to75%
Air Pressure : 86kPa to 106kPa

If there is any doubt about the results, measurement shall be made within the following conditions:

Ambient temperature: 20°C ± 2°C
Relative humidity : 60% to 70%
Air Pressure : 86kPa to 106kPa

Operating temperature range

The ambient temperature range at which the capacitor can be operated continuously at rated voltage is -40°C to 70°C.

<table>
<tr><td>3.3</td><td>ESR</td><td><Condition>
Measuring frequency :1kHz
Measuring temperature:20±2℃
Measuring point : 2mm max from the surface of a sealing resin on the lead wire.
<Criteria>
(20℃)Less than the initial limit:
ESR≤80mΩ</td></tr>
<tr><td>3.4</td><td>Leakage current</td><td><Condition>
1. Ambient temperature: 25°C ± 2°C.
2.The electrification time:72H
3. Desistance value of protective resistor less than 1Ω .
<Criteria>
Less than the initial limit(25°C ± 2°C):
I≤0.030mA
I is the Leakage current</td></tr>
<tr><td>3.5</td><td>Temperature characteristic</td><td><Condition>
<table>
<tr><th>STEP</th><th>Temperature(℃)</th><th>Item</th><th>Characteristics</th></tr>
<tr><td>1</td><td>20±2</td><td>Capacitance、ESR</td><td>----------</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">-40+3</td><td>Δ C/C</td><td>Within ±30% of initial capacitance</td></tr>
<tr><td>ESR</td><td>Less than or equal to 4 times of the value of item 3.3</td></tr>
<tr><td>3</td><td>Keep at 15 to 35℃ for 15 minutes or more</td><td>---------</td><td>---------</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">70±2</td><td>Δ C/C</td><td>Within ±30% of initial capacitance</td></tr>
<tr><td>ESR</td><td>The limit specified in 3.3</td></tr>
</table>
a. ESR -40℃/ ESR 20℃: ESR ratio at 1kHz;
b. ΔC/C 20℃: Capacitance change ;</td></tr>
</table>

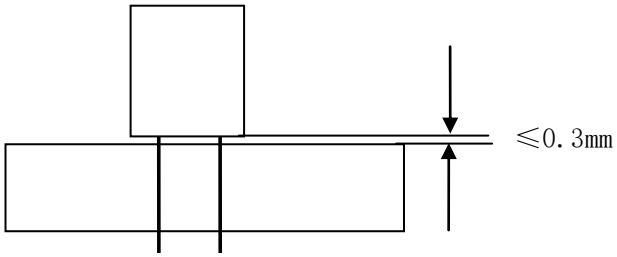
<table>
<tr>
<td>3.8</td>
<td>Lead strength</td>
<td>a) Lead pull strength
A static load force shall be applied to the terminal in the axial direction and acting in a direction away from the body for 10±1 s.
<table>
<tr><th>Lead wire diameter (mm)</th><th>Load force (N)</th></tr>
<tr><td>0.5 ＜ d ≤0.8</td><td>10</td></tr>
</table>
b) Lead bending
When the capacitor is placed in a vertical position and the weight specified in the table above is applied to one lead and then the capacitor is slowly rotated 90^0 to a horizontal position and then returned to a vertical position thus completing bends for 2~3seconds.
The additional bends are made in the opposite direction
<table>
<tr><th>Lead wire diameter (mm)</th><th>Load force (N)</th></tr>
<tr><td>0.5 ＜ d ≤0.8</td><td>5</td></tr>
</table>
Performance: The characteristic shall meet the following value after a) or b) test.
<table>
<tr><th>Item</th><th>Performance</th></tr>
<tr><td>Capacitance Change</td><td>Within ±30% of initial capacitance</td></tr>
<tr><td>Appearance</td><td>No visible damage Legible marking and no leakage of electrolyte</td></tr>
</table>
</td>
</tr>
<tr>
<td>3.9</td>
<td>Resistance to vibration</td>
<td>Frequency: 10 to 55 Hz (1minute interval / 10 → 55 → 10Hz
Amplitude: 0.75mm(Total excursion 1.5mm)
Direction :X、 Y、 Z （3 axes）
Duration: 2hours/ axial (Total 6 hours)
The capacitors are supported as the following Fig2
 

Fig2
Performance: Capacitance value shall not show drastic change compared to the initial capacitance when the value is measured within 30 minutes. Prior to the completion of exam, Capacitance difference shall be within ±10% compared to the initial value the exam.</td>
</tr>
</table>

5 . Notice item

（1）The capacitor has fixed polarity.

（2）The capacitor should be used under rated voltage.

（3）The capacitor should not be used in the charge and discharge circuit with high frequency.

（4）The ambient temperature affects the super capacitor life.

（5）Voltage reduction ΔV=IR will happen at the moment of discharge.

（6）The capacitor cannot be stored on the place with humidity over 85%RH or place with toxic gas.

（7）The capacitor should stored in the environment within -30℃~50℃ temperature and less than 60% relative humidity.

（8）If the capacitor is applied on the double-side PCB, the connection should not be around the place on which the super capacitor can contact.

（9）Don't twist capacitor or make it slanting after installing.

（10）Need avoid over heat on the capacitor during soldering (The temperature should be 260℃ with the time less than 5s during soldering on 1.6mm printed PCB.)

（11）There is voltage balance problem between each capacitor unit during series connection between super capacitor.