DOGGUAN XUANSN ELECTRONIC TECH CO.,LTD

DATASHEET

Conductive Polymer Hybrid Alulminum Electrolytic Capacitor

CUSTOMER

Spec. SMD 100 μF 16V 6.3*5.8mm 105℃ 2000hours

MPN: XSS101M1CD06L05T

PREPARED BY	CHECKED BY	APPROVED BY
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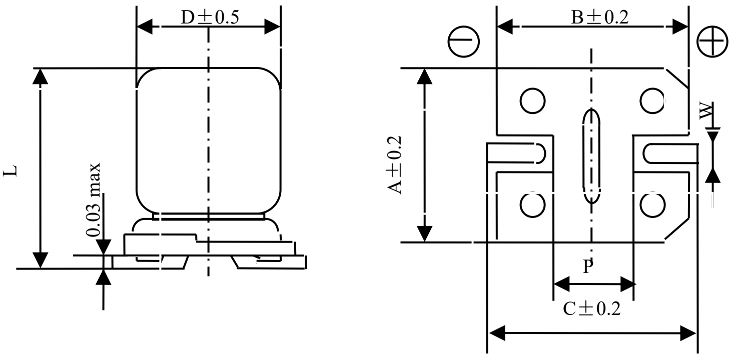
Parts list &Characteristics

Part NO.	SPEC	Size (mm)	Cap. Tol ±(%)	Tanδ	Leakage Current (μA)	ESR(mΩ) 20℃ 100KHz	Ripple Current/(mA) 105℃ 100KHz	LEAD STYLE
XSS101M1CD06L05T	100μF 16V	6.3*5.8	±20%	0.12	500	40	1900	SMD

一、SCOPE

The product specification is adapted to series SMD Conductive Polymer Hybrid Aluminum Electrolytic Capacitors.

二、Case size table



Dimensions(mm)

D	L±0.5	A±0.2	B±0.2	C±0.2	W	P
6.3	5.8	6.5	6.5	7.2	0.5~0.8	2.2

Rated Ripple Current Coefficient

Frequency(Hz)	120Hz≦F＜1KHz	1KHz≦F＜10KHz	10KHz≦F＜100KHz	100KHz≦F＜500KHz
Case code	0.15	0.40	0.7	1.0

How To Order

<u>XSS</u> <u>101</u> <u>M</u> <u>1C</u> <u>D06</u> <u>L05</u> <u>T</u>
① ② ③ ④ ⑤ ⑥ ⑦

1. Series

Code	Series
XSS	High Stability and Low ESR

2. Capacitance

Code	Capacitance/μF
101	100

3. Tolerance

Code	Tolerance/%
M	±20

4. Voltage

Code	Voltage/V
1C	16

5. Diameter

Code	Diameter/mm
D06	6.3

6. Length

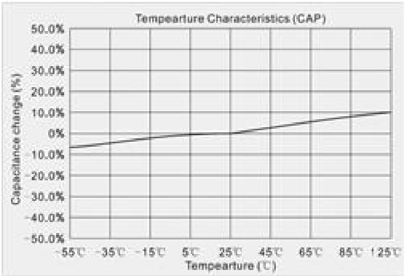
Code	Diameter/mm
L05	5.8

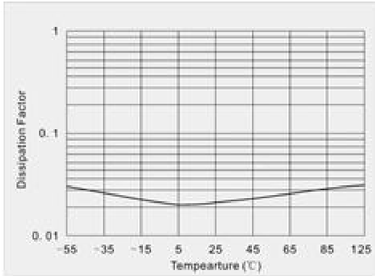
7. Package

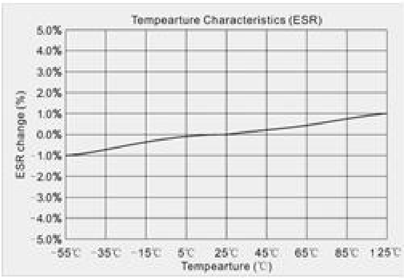
Code	Package
T	Tape & Reel

三、Specifications

<table>
<tr><td>1</td><td>(SERIES)</td><td>XSS SERIES (SMD)</td></tr>
<tr><td>2</td><td>Rated voltage</td><td>16v</td></tr>
<tr><td>3</td><td>Operating temperature range operating</td><td>Operating temperature range is the range of ambient temperature at which the capacitor can be operated continuously at rated voltage.
SPEC: -55℃ ~ +105℃</td></tr>
<tr><td rowspan="5">4</td><td rowspan="5">Capacitance</td><td>measuring circuit equivalent series circuit</td></tr>
<tr><td>measuring temperature，20℃</td></tr>
<tr><td>measuring frequency，120HZ</td></tr>
<tr><td>measuring voltage，0.5Vrms</td></tr>
<tr><td>Nominal Capacitance Tolerance:±20% MAX</td></tr>
<tr><td>5</td><td>Tangent of the loss angle</td><td>Measurement should be made under the same conditions as those given for the measurement of capacitance
SPEC：<table><tr><td rowspan="2">tgδ</td><td>U_R (V)</td><td>16</td></tr><tr><td>tgδ</td><td>0.12</td></tr></table></td></tr>
<tr><td>6</td><td>Leakage current</td><td>The rated voltage shall be applied across the capacitor and its protective resistor which shall be 1000±100Ω.The leakage current shall be then measured after an electrifications period of (A)min. The leakage current shall be calculated by the following equation
After adding the rated voltage for a certain period of time, the following requirements should be met: I≤0.2CV or 200μA Which is greater (whichever is greater) (20℃, 2 minutes)
SPEC: The following specifications shall be satisfied when the rated voltage is applied for the required time.</td></tr>
<tr><td rowspan="4">7</td><td rowspan="4">Equivalent Series Resistance （ESR）</td><td>measuring circuit equivalent series circuit </td></tr>
<tr><td>measuring temperature,20℃</td></tr>
<tr><td>measuring frequency,100KHZ</td></tr>
<tr><td>measuring voltage，0.5Vrms</td></tr>
</table>

<table>
<tr>
<td>8</td>
<td>Maximum permissible ripple current</td>
<td>
The maximum sinusoidal alternating current of a frequency specified below, at which the capacitor can be operated continuously. This requirement shall be satisfied even after the measurement electrical endurance Where(DC voltage +peak ripple voltage)≤rated voltage
<table>
<tr><td>Frequency</td><td>120Hz≤freq.<1KHz</td><td>1KHz≤freq.<10KHz</td><td>10KHz≤freq.<100KHz</td><td>10KHz≤freq.<100KHz</td></tr>
<tr><td>Coefficient</td><td>0.05</td><td>0.3</td><td>0.7</td><td>1</td></tr>
</table>
</td>
</tr>
<tr>
<td>9</td>
<td>Temperature Characteristics</td>
<td>


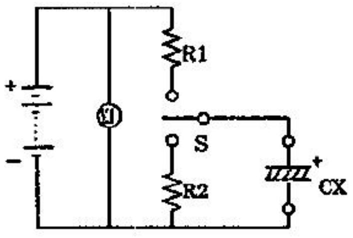


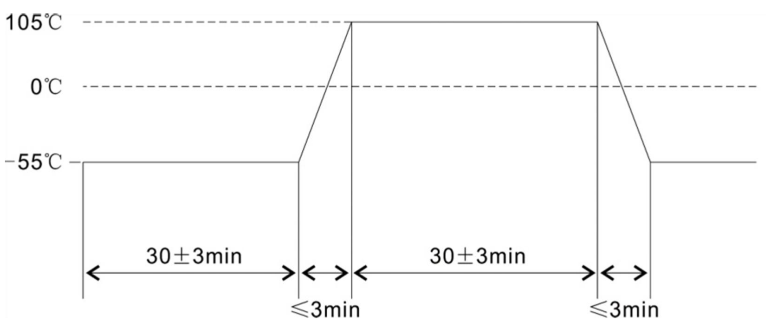


</td>
</tr>
</table>

四、Test methods and requirements

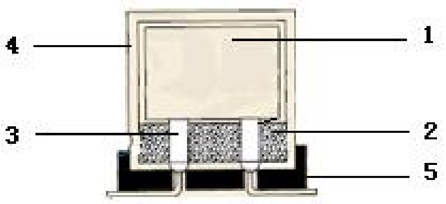
<table>
<tr><td rowspan="2">1</td><td rowspan="2">Surge test</td><td>
The capacitor shall be subjected to 1000cycles at a temperature specified below, each consisting of a charge period of 30±5sec, followed by a discharge period of approx. 5min30sec. And the capacitor shall be stored under standard conditions thermal to obtain stability,after which measurements shall be made.

measurement circuit
<table>
<tr><td rowspan="3">
</td><td>VZ:Surge voltage</td><td>V1:DC voltmeter</td></tr>
<tr><td>R1:Protection resistance （1KΩ）</td><td>R2:Discharge resistor</td></tr>
<tr><td>CX:Test capacitor</td><td>S:Switch</td></tr>
</table>
SPEC: 1) Change in capacitance: Within±10% of the initial value
2）tangent of the loss angle: The initial specified value or less
3）ESR（equivalent series resistance）：The initial specified value or less
4) Leakage current：The initial specified value or less
Voltage setting
</td></tr>
<tr><td>
<table>
<tr><td>RATED VOLTAGE(V_{DC})</td><td>16</td></tr>
<tr><td>SURGE VOLTAGE(V）</td><td>18.4 (15℃ ~ 35℃)</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>Tensile Test</td><td>After fixing the capacitors, the terminals are pulled in vertical direction.
Load is gradually increased until it reached 5N and held for 10 sec.</td></tr>
<tr><td>3</td><td>Solderability</td><td>Solder：H60A. H60S or H63A
Solder temperature：245±2℃
Immersion time：3±0.5sec
Immersion depth：1.5~2mm
Flux：25％ by weight of rosin in ethanol
SPEC:3/4 of the circumference of the surface up to the immersed shall be covered with new solder.</td></tr>
<tr><td>4</td><td>Resistance to soldering heat</td><td>Solder：H60A. H60S or H63A
Solder temperature：260±5℃ or 350±10℃
Immersion time：10±1sec or 3.5±0.5sec
Thickness of heat shunt:1.6mm：1.6mm
SPEC: 1) Change in capacitance: Within±10% of the initial value
2）Tangent of the loss angle: The initial specified value or less
3）ESR（equivalent series resistance）：The initial specified value or less
4) Leakage current：The initial specified value or less</td></tr>
</table>

5	Mark solvent resistance	The sign should be clearly visible. Reagent: isopropyl alcohol, Test temperature: 20~25℃, Immersion time: 30±5S
6	High temperature and humidity	the capacitor shall be stored at a temperature of 85±2℃ and relative humidity of 85% to 90% for 2000hours. And then the capacitor shall be subjected to standard atmospheric conditions for 1 to 2hours, after which measurements shall be made SPEC: 1) Change in capacitance: Within±30% of the initial value 2）Tangent of the loss angle: within ±200%of the initial value 3）ESR（equivalent series resistance）：within ±200%of the initial value 4）Leakage current：The initial specified value or less
7	Shelf life	The capacitor shall be stored at +105℃ temperature specified below for 1000 hours.During which time no voltage shall be applied. And then the capacitor shall be sujected to standard atmospheic conditions for 1 to 2 hours, after which measurements shall be made, Prior to the measurement of leakage current, following conditioning may be made. SPEC: 1) Change in capacitance: Within±20% of the initial value 2）Tangent of the loss angle: within ±150%of the initial value 3）ESR（equivalent series resistance）：within ±150%of the initial value 4）Leakage current：The initial specified value or less
8	Load life	The rated voltage with specified ripple current shall be applied continuously to the capacitor at maximum operating temperature +105℃ for 10000 hours. And then the capacitor shall be subjected to standard atmospheric conditions for 1 to 2hours, after which measurement shall be made. SPEC: 1) Change in capacitance: Within ±30% of the initial value 2）Tangent of the loss angle: within ±200%of the initial value 3）ESR（equivalent series resistance）：within ±200%of the initial value 4）Leakage current：The initial specified value or less
9	Rapid temperature change	The characteristics of a capacitor kept under the temperature cycle indicated in Figure1 for 5 cycles . And then the capacitor shall be subjected to standard atmospheric conditions for 1 to 2hours, after which measurement shall be made.  Figure.1 SPEC: 1) Change in capacitance: Within±10% of the initial value 2）tangent of the loss angle: The initial specified value or less 3）ESR（equivalent series resistance）：The initial specified value or less 4）Leakage current：The initial specified value or less

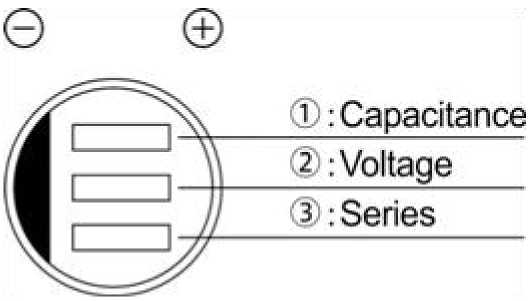
10	Low temperature test	the capacitor shall be stored at a temperature of -55℃ for 72±2hours。And then the capacitor shall be subjected to standard atmospheric conditions for 1 to 2hours, after which measurements shall be made SPEC: 1) Change in capacitance:Within±10% of the initial value 2）Tangent of the loss angle: The initial specified value or less 3）ESR（equivalent series resistance）：The initial specified value or less 4）Leakage current：The initial specified value or less

五、Frame drawing



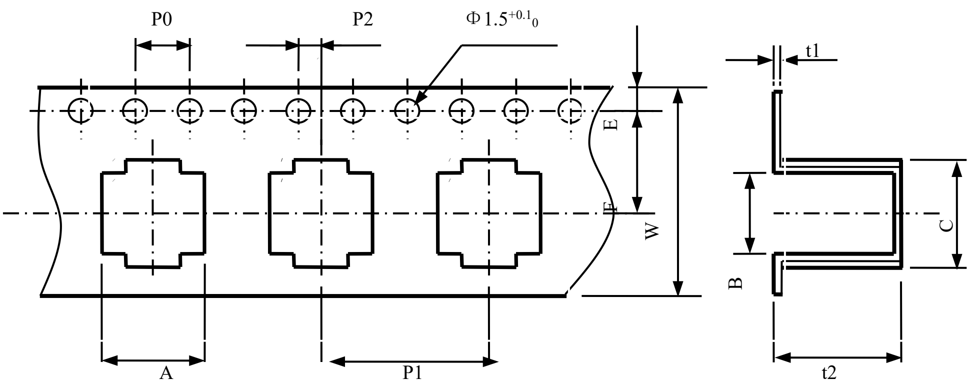
1.Capacitor body：the components are
a.Anode foil (+)　b.Cathode foil (-)
c.Separator paper　d.Electrolyte+polymer
2.Seal Rubber
3.Pins
4.Aluminum shell
5.Surface mounting

六、Marking



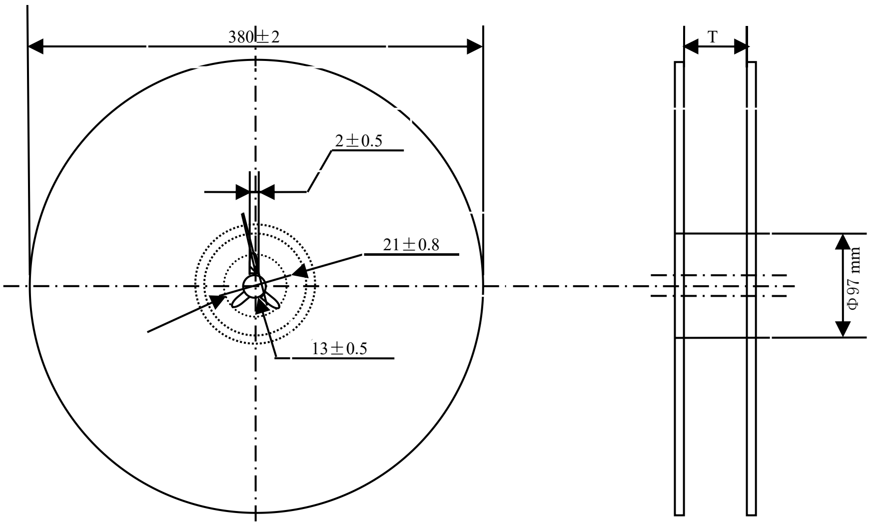
1,	Rate Capacitance
2,	Rate Voltage
3,	Series

七、Taping shapes & Dimensions



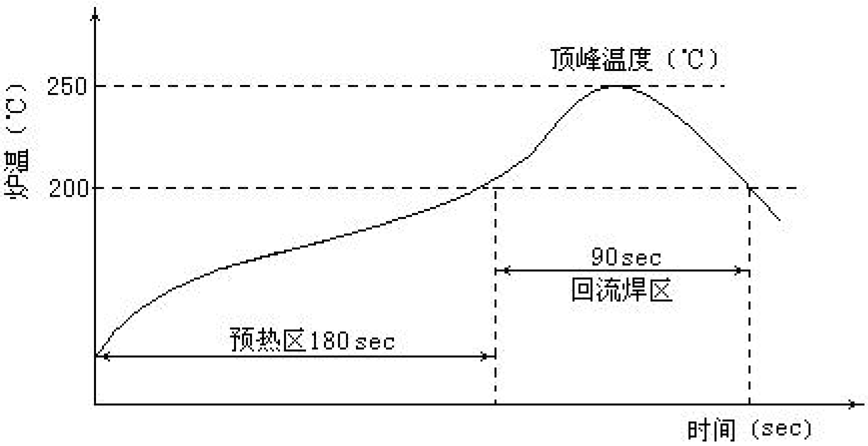
Size	W	A	B	P_0	P_1	P_2	F	E	C	t1	t2
	±0.30	±0.20	±0.20	±0.10	±0.10	±0.05	±0.10	±0.10	±0.10	±0.05	$^{+0.2}_{-0.1}$
Φ5.0×5.5	12.0	5.7	5.7	4.0	12.0	2.00	5.5	1.75	——	0.40	5.7
Φ6.3×5.8	16.0	7.0	7.0	4.0	12.0	2.00	7.5	1.75	——	0.40	6.7
Φ6.3×7.7	16.0	7.0	7.0	4.0	12.0	2.00	7.5	1.75	——	$0.40_{\pm 0.10}$	8.3
Φ8×10.5	24.0	8.7	8.7	4.0	16.0	2.0	11.5	1.75	——	0.40	11.0
Φ10×10.5	24.0	10.7	10.7	4.0	16.0	2.0	11.5	1.75		0.40	11.0

Taping packaging tray



Φd	5	6.3	8	10
T_{Max}	14	18	26	26

八、Reflow



- Preheat shall be dade at 100℃～200℃ and for maximum 180 econds.
- The temperature at capacitor top shall not exceed +250℃.
- The duration for over +200 temperature at capacitor top shall not exceed 90 seconds.
- If capacitors are subject to the conditions other than the allowable. range of reflow , please contact to us.

九、Guidelines For Using Aluminum Electrolytic Capacitor

Upon using Aluminum Electrolytic Capacitors，please proper handing and observing to following important points will insure optimum capacitor performance and long life.

1．DC electrolytic capacitors are polarized.

Make sure of the polarity. The polarity is marked on the body of the capacitor .Application of the reversed voltage cause a short circuit or damage to the capacitor. Use bipolar capacitors when the polarity is not determined or unknown. Note that DC electrolytic capacitors can not be used for AC application.

2．Do not apply voltage greater than rated voltage.

If a voltage exceeding the rated voltage is applied, the leakage current will increase, which damage the capacitor. Recommended working voltage is 70 to 80 percent of tatted voltage. Using capacitors at recommended working voltage prolongs capacitor life.

3． Do not allow excessive ripple current through the capacitor.

The flow of ripple current over permissible ripple current will cause heat of the capacitor, which may decrease the capacitance and damage the capacitor. Ripple current on the capacitor must be at or bellow allowable level.

4．Use specially designed capacitors for the circuits where charge and discharge are frequency repeated.

In the circuit subjected to rapid charge cycles, capacitors may be damaged, its life may be shortened by capacitance decrease, heat rise, ect. Be sure and use special capacitors in these applications.

5．Operating temperature range.

The characteristics of capacitors change with the operating temperature. The capacitance and leakage current increase and tgδ decrease at higher temperatures. The capacitance and leakage current decrease and tgδ at increase lower temperature. Usage at lower temperature will ensure longer life.

6．Check operating frequency.

The capacitance of electrolytic capacitors is usually measured at 100Hz or 120Hz. However, remember that capacitance decrease and tgδ increase as the applied frequency becomes higher whereas the ambient temperature becomes higher.

7．Apply rated DC voltage treatment to the capacitors which have been stored for a long time .

Long periods of storage have virtually no effect on a capacitor's capacitance and tgδ. Such periods tend however, to increase leakage current and decrease withstand voltage. After removing capacitors from long-duration storage, first apply a gradually increasing DC voltage to rated voltage and then use them.

8．The capacitor case is not insulated from the cathode terminal.

The capacitor's case and cathode terminal connect through the electrolyte. If the case is to be completely insulated, that insulation must be at the capacitor's mounting point.

9．Do not apply excessive force to the terminals and leads.

The excessive strong force applied to the terminals and lead wires may cause leads to break or terminals to separate and, in turn, cause the internal contact to fail.