No：JXP0001 - 20 **TO: Ozdisan**

APPROVAL SHEET No. : G-1305A

Series No.: KS

Specification No.: add black

RoHS

APPROVAL SHEET

FOR CONDUCTIVE POLYMER ALUMINUM SOLID ELECTROLYTIC CAPACITORS

No.	(Customer No.)	(Koshin Part No.)	Description	ΦD x L
1		KS-6R3V331MC080-L/C3.2	6.3V330UF	5X8

APPROVED BY：

PLEASE SIGN RETURN US ONE COPY OF THE APPROVAL SHEET

APPROVED BY: SHENZHIHONG CHECKEDBY: DINGCHANGHUA DESIGNED BY: LUOLI

DATE: 2015-9-21

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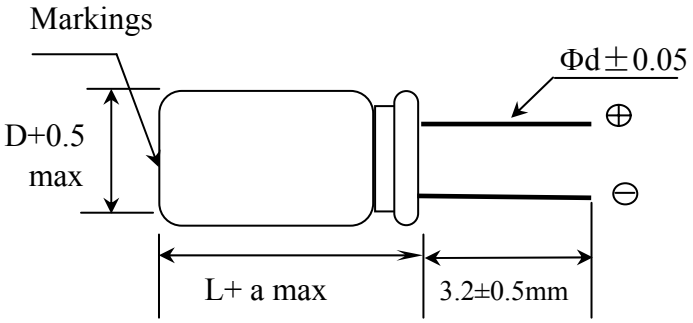
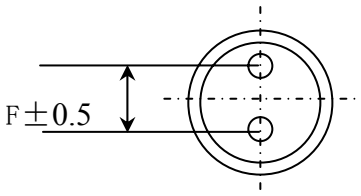
Standard Size map:





ΦD	5
F	2.0
Φd	0.5
L	8
a	1.0

Frequency Coefficient for Ripple Current

Frequency(Hz)	120≤F＜1K	1K≤F＜10K	10K≤F＜100K	100K≤F＜500K
Coefficient	0.05	0.3	0.7	1

Series KS Conductive Polymer Aluminum Solid Capacitors

1. Our part No. :

For example:

KS	-	6R3 V	331	M	C080
Se rise code		rated voltage	capacitance	tolerance	case size symbol
KS		6.3 V	330μF	±20%	Φ5X8

2. Your part No.:

3. Marking:

Include company's brand series code, rated **voltage,** capacitance**, polarity.**

4.Specifications :

4.1 Temperature range : -55~+105℃

4.2.1 Capacitance tolerance : ±20%

4.2.2 Tangent of loss angle (tan δ) : 0.12（20℃，120HZ）

4.2.3 Leakage current (μA) :

Rated voltage（V）	**2.5-35**
Leakage current (μA)	**Less than 0.2CV or 280 whichever is large (after 2 minutes)**

Note：I : Leakage current (μA) ， C : Capacitance (μF) ， V : Rated DC working voltage (V)

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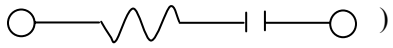
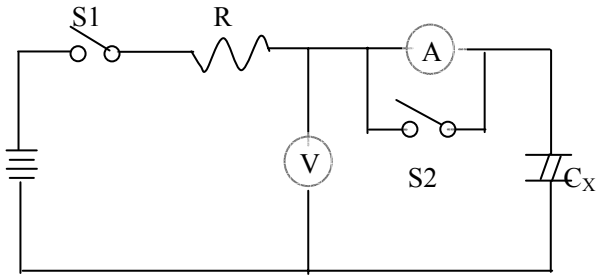
1. Scope:

This specification applies to conductive polymer aluminum solid capacitors used in electronic equipment.

2. Electrical characteristics:

<table>
<tr><th>NO.</th><th>ITEM</th><th>TEST METHOD</th><th>SPECIFICATION</th></tr>
<tr><td>2.1</td><td>Rated voltage</td><td></td><td rowspan="2">Voltage range、capacitance range ,see specification of this series</td></tr>
<tr><td>2.2</td><td>Capacitance</td><td rowspan="2">1. Measuring frequency:120Hz±12Hz
2. Measuring voltage:≤0.5Vrms+0.5VDC~2.0VDC
3. Measuring circuit: ()</td></tr>
<tr><td>2.3</td><td>Dissipation factor</td><td rowspan="2">Dissipation factor, leakage current, see specification of this series.</td></tr>
<tr><td>2.4</td><td>Leakage current</td><td>DC leakage current shall be measured after 1~2minutes application of the DC rated working voltage through the 1000Ω resistor at 20℃
 

R: 1000Ω 100Ω S1:Switch
A: DC current meter S2:Switch for protect of current meter
V: DC voltage meter
Cx: Testing capacitor</td></tr>
<tr><td>2.5</td><td>Temperature characteristics</td><td>
<table>
<tr><th>STEP</th><th>TEMPERATURE</th><th>ITEM</th><th>CHARACTERISTICS</th></tr>
<tr><td>1</td><td>20℃±2℃</td><td>Measure: Capacitance 、tan δ、 Impedance</td><td>----------</td></tr>
<tr><td>2</td><td>-55℃±3℃</td><td>Z-55℃/20℃</td><td>≤1.25</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>4</td><td>105℃±3℃</td><td>Z105℃/20℃</td><td>≤1.25</td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">20℃±2℃</td><td>△C/C 20℃</td><td>Within ±5% of step1</td></tr>
<tr><td>tanδ</td><td>Less than or equal to the value</td></tr>
</table>
a. Z-55℃ or 105℃/ Z 20℃: impedance ratio at 100kHz;
b. △C/C 20℃ : Capacitance change at 120Hz;
tan δ at 120H</td></tr>
</table>

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NO.	ITEM	TEST METHOD	SPECIFICATION
2.6	Surge test	Rated surge voltage shall be applied (switch on)for 30±5 second and then shall be applied (switch off) with discharge for 5 ± 0.5min at room temperature. This cycle shall be repeated for 1000 cycles. Duration of one cycle is 6 ±0.5 minutes	Capacitance change: within ± 15% of the initial specified value. Dissipation factor: Less than specified value. Leakage current: Within initial specified value.

3.Mechanical characteristics ：

NO.	ITEM	TEST METHOD	SPECIFICATION
3.1	Lead strength	(A)Tensile strength： wire lead terminal： d(mm) ⩽0.45 | 0.5~0.8 | 0.8＜d⩽1.25 load(kg) 0.51 | 1.0 | 2.0 snap-in terminal： d(mm) | snap-in terminal load(kg) | 2.0 The capacitor shall withstand the constant tensile force specified between the body and each lead for 10seconds without damage either mechanical or electrical. （B）Bending strength： wire lead terminal： d(mm) ⩽0.45 | 0.5~0.8 | 0.8＜d⩽1.25 load(kg) 0.25 | 0.5 | 1.0 snap-in terminal： cross section area of terminal (mm^2) | force (kg) 0.5＜S⩽1 | 1.0 S＞1 | 2.5 with the capacitor in a vertical position apply the load specified axially to each lead. The capacitor shall be rotated slowly from the vertical to the horizontal position, back to the vertical position. The 90° in the opposite direction and back the original position. Performance of capacitor shall not have change and leads shall be undamaged.	When the capacitance is measured, there shall be no intermittent contacts, or open-or short-circuiting. There shall be no such mechanical damage as terminal damage etc. Capacitance change: within ± 5% of the initial specified value.

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NO.	ITEM	TEST METHOD	SPECIFICATION
3.2	Vibration resistance	The frequency of the vibration shall vary uniformly within the range 10 to 55 Hz with the amplitude of 0.75mm, completing the cycle in the internal of one minute. The capacitor shall be securely mounted by its leads with hold the body of capacitor. The capacitor shall be vibrated in three mutually perpendicular directions for a period of 2 hours in each direction.	Appearance: no abnormal. Capacitance change: within ± 5% of initial measured value.
3.3	Solder ability	The leads are dipped in the solder bath of Sn at245℃±5℃ for 2±0.5 seconds. The dipping depth should be set at 1.5~2.0 mm.	The solder alloy shall cover the 95% or more of dipped lead's area.

4. Reliability:

NO.	ITEM	TEST METHOD	SPECIFICATION
4.1	Soldering heat resistance	The leads immerse in the solder bath of Sn at 280℃± 5 ℃ for 10 ± 1seconds until a distance of 1.5~2.0mm from the case.	No visible damage or leakage of electrolyte. Capacitance change: Within ± 5% of the initial measured value Tan δ : Less than specified value. Leakage current: Less than specified value
4.2	Damp head（ steady state）	Subject the capacitor to 60℃±2℃ and 90% to 95% relative humidity for 1000±48 hours.	Capacitance change: Within± 20% of the initial measured value Tan δ : Less than or equal to 1. 5 times of the value. Leakage current: Less than specified value ESR: Less than or equal to 1.5times of the value.

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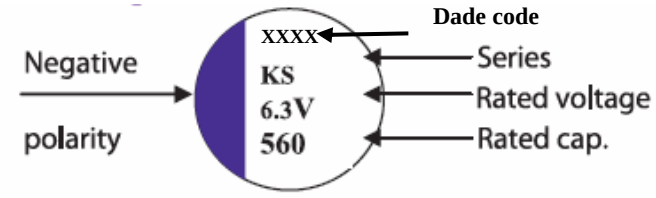
NO.	ITEM	TEST METHOD	SPECIFICATION
4.3	Load life	After 2000 hours continuous application of max allowable ripple current and DC rated voltage at 105 ℃ ± 2 ℃ ,the measurements shall meet the following limits. Measurements shall be performed after 16 hours exposed at room temperature.	Capacitance change: Within ± 20% of the initial value. Tan δ :less than 200% specified value Leakage current: Less than initial specified value. Appearance :no Abnormal
4.4	Shelf life	After storage for 1000 hours at 105℃±2℃without voltage application ,the measurements shall meet the following limits. Measurements shall be performed after exposed for 16 hrs at room temperature after application of Testing	
4.5	Storage at low temperatur e	The capacitor shall be stored at temperature of -40℃±3℃ for 16 hours, during which time be subjected to standard atmospheric conditions for 16 hours or more. After which measurements shall be made.	Capacitance change: Within ± 10% of the initial value. Tan δ :less than specified value Leakage current: Less than specified value. Appearance :no Abnormal.
4.7	Temp cycle	LSL temperature(℃):-55±3 time(H)：0.5H/timeX5 times USL temperature(℃):105±2 time(H)：0.5H/timeX5 times Judgement：CAP：△C/C≤±10%，Appearance no Abnormal. No electrolyte leakage。	
4.7	Thermal shock	dry heat temperature（℃)：105±2 time(H)：16 moist heat temperature(℃)：55 time(H)：24/ cold temperature(℃)：-55±2 time(H)：2/ moist heat temperature(℃)：55 time(H)：24 ：Judgment：CAP,△C/C≤±10%, Tan δ :Less than 1.2 specified value, Leakage current: Less than specified value. Appearance no Abnormal. No electrolyte leakage。	

5. Marking **For example:**

Marking on capacitors include:



1>. Dade code

2>. Series

3>. Rated voltage

4>. Normal capacitance (u F)

5>. Polarity

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Detergent needing attention

Hydrogen carbide liquid and halogen liquid can cause Aluminum Electrolytic Capacitor to corrode .Some of Safe and Unsafe detergent are as follows.

Safe	Unsafe
Dimethylbenzene	1,1,2-trichloroethane
Ethanol	1,2,2- trichloroethane
Butanol	Tetrachloroethylene
Methanol	Chloroform(colorless volatilizable liquid)
Propanol	Dichloromethane
Detergent	Trichloroethylene

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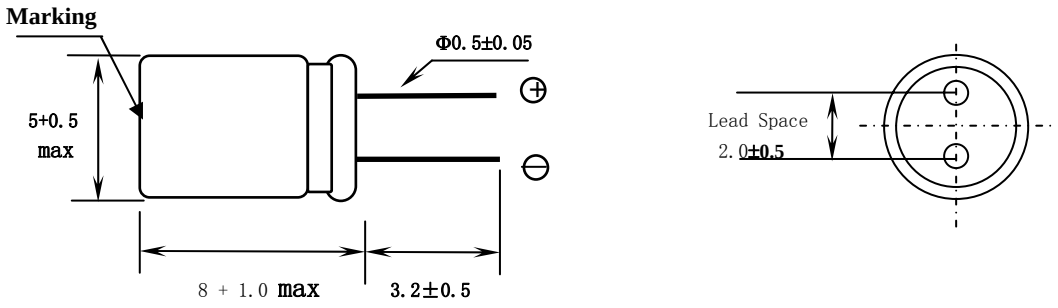
Conductive Polymer Aluminum Solid Electrolytic Capacitors Specification

Series	KS	6.3 V 330 μF	Part No.	KS-6R3V331MC080-L/C3.2
Customer No.	/		Case size	ΦD 5 X L 8

Specification	Items	Standard
	Operating temperature range	-55～+105 ℃
	Capacitance tolerance	±20% (20℃ ,120Hz)
	Dissipation factor (MAX)	(Less than) 0.08 (20℃ ,120Hz)
	Leakage current (MAX)	(Less than) 300 μA (20℃ 6.3 V 2 min)
	E S R (MAX)	15 mΩ (100KHz ,20℃)
	Ripple current (MIN)	3100 mArms (100KHz ,105℃)
	Load life	2000 hrs
Outline	Marking color	Blue
	(Dimensions)	



(unit):mm

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Wrote by: LUOLI	Checked by: DINGCHANGHUA	Approved by: SHENZHIHONG

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