HEC

Electrolytic Capacitor

SPECIFICATION

Serial No.: Spec2021030904

Version No.: A0

Customer:

Series: ZD

Load life: 105℃ 5000h

Client No.	Spec
	ZD 100V330μF M 13*25 C : (E=3.5±0.3）

Received

Supplier

WRITTEN	CHECKED	APPROVED
WEILINZHANG	ZIQIONGLU	LIXIAYU

DONGGUAN CITY DONGYANGGUANG CAPACITORS CO. , LTD.

Add：2ND INDUSTRIAL AREA JINXIA HEDONG ROAD CHANGAN, DONGGUAN

TEL：（0769）85315188 FAX：（0769）853135188

SHAOGUAN CITY DONGYANGGUANG CAPACITORS CO.,LTD.			
Name		Aluminum electrolytic capacitor	
Issue No.		A0	
No.	Date	Revision records	Reviser
1	2021.03.09	《SPECIFICATION》has been written	WEILINZHANG

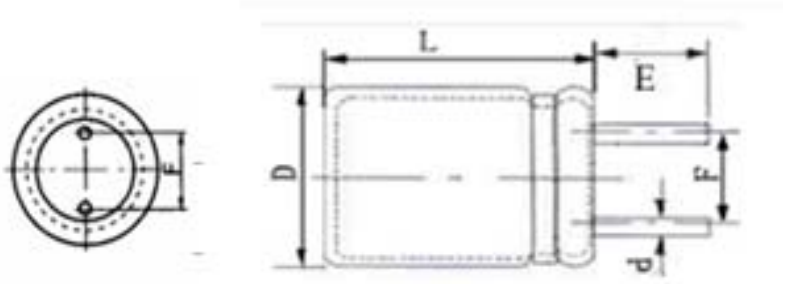
APPROVED SERIES

NO.	Client No.	SPECIFICATION	*HEC* No.
1		ZD100V330μF -20% ~ +20% 13*25	ZD100C4331M013BBEHT

1、SPECIFICATIONS

Item	Performance Characteristics	
Operating Temp. Range	-40 to +105℃	
Rated Voltage Range	6.3V ～ 120V	
Capacitance Tolerance	-20% ~ +20% (120Hz/20℃)	
DC Leakage Current	I≤0.03CV or 4μA Whichever is greater (After 5 minutes) Where : C: Nominal capacitance in μF； V : Rated working voltage in V	
Stability at low Temp	R.V.(V)	100
	$Z_{-25℃}/Z_{+20℃}$	2
	$Z_{-40℃}/Z_{+20℃}$	3

2、DIMENSION(mm)

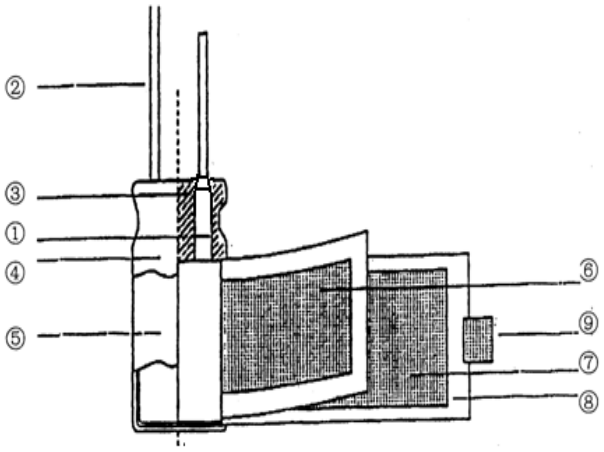


D	L	F	d	E		
±1	+2Max	±0.5	±0.1	±0.3		
13	25	5	0.6	3.5		

ITEM	P/N	R.V. (Vcd)	Cap. (μF)	Size	Cap. Tol.	D.F. Max	L.C.Max. 20℃		Ripple Current 100KHz 105℃	ESR 100kHz /Ω 25℃	Note
					120Hz(20℃)		min	(μA)	(mA)rms		
1		100	330	13*25	-20% ~ +20%	0.10	5	990	1300	/	C

3、CONSTRUCTION

NO.	PART	MATERIALS
1	Lead Line	Aluminum 99.85%
2	Terminal	Tinned copper-ply wire
3	Sealing Pad	Rubber
4	Sleeve	P.E.T (polyethylene terephthalate)
5	Case	Aluminum 99.5%
6	Al-foil(+)	Formed aluminum 99.9%
7	Al-foil(-)	Etched aluminum 99.7%
8	Separator	Kraft or manila
9	Sealing tape	Polypropylene



4、PART NUMBERING SYSTEM

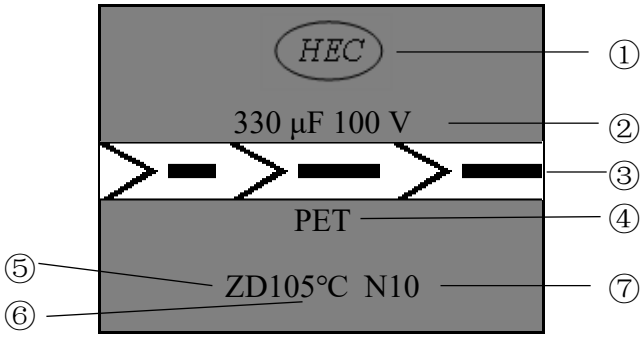
Voltage rating/V	6.3	10	16	25	35	50	63	100	160	200	215	220
Code	6r3	010	016	025	035	050	063	100	160	200	215	220
Voltage rating/V	250	300	330	350	360	400	420	450	500	550	600	
Code	250	300	330	350	360	400	420	450	500	550	600	

Nominal cap	0.1	1	10	100	1000	10000
Code	0R1	1R0	100	101	102	103

ZD 100 C4 331 M 013B B E H T

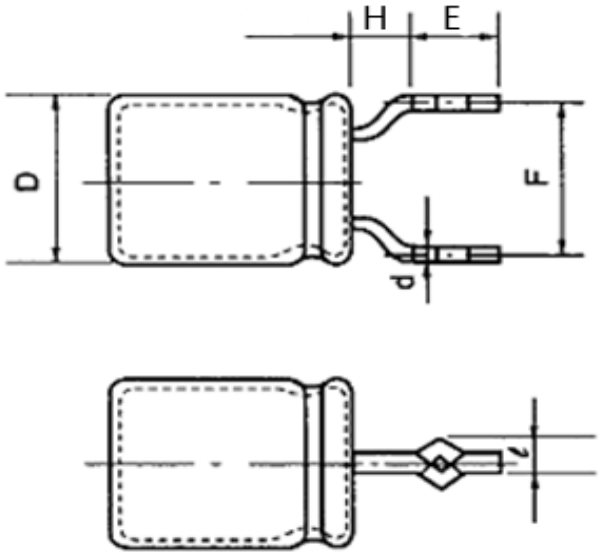
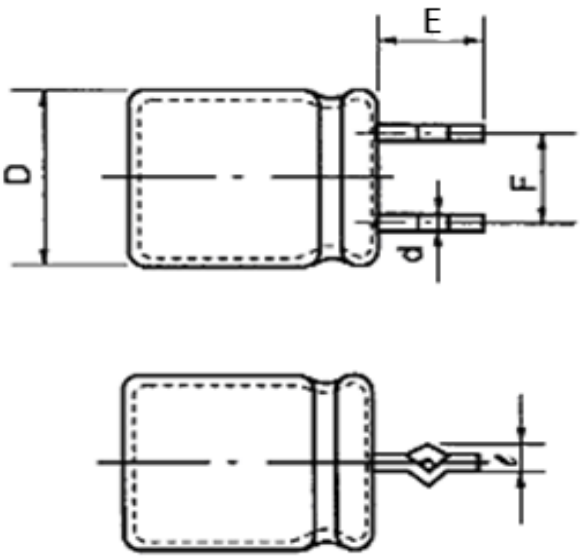
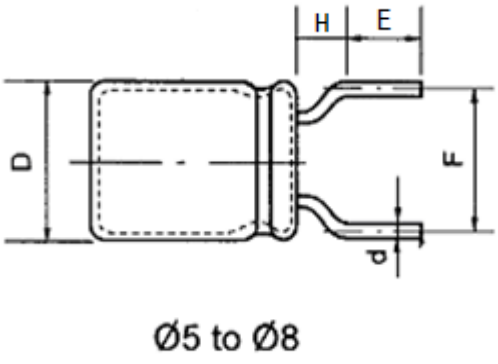
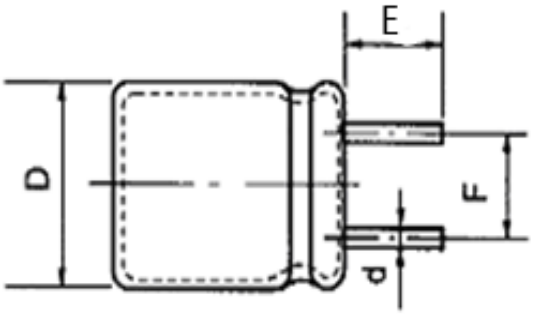
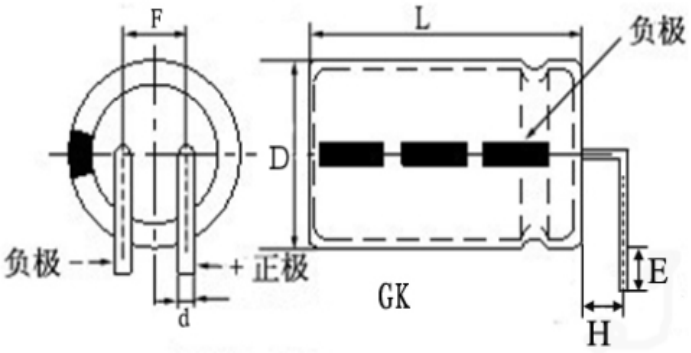
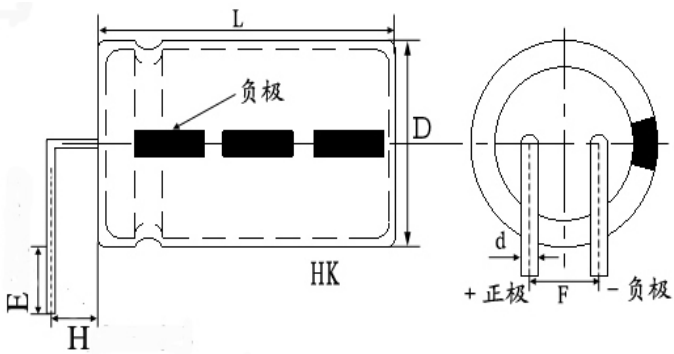
- T — Sleeve Demand (PET)
- H — Sleeve Color (Black)
- E — Terminal Far (5mm)
- B — Terminal Length (3.5mm)
- 013B — Size (13*25)
- M — Cap. Tolerance (-20% ~ +20%)
- 331 — Nominal Cap. in μF (330μF)
- C4 — Terminal/Forming Type: ---Cutting IV
- 100 — Rated Voltage in volts (100V)
- ZD — Series name

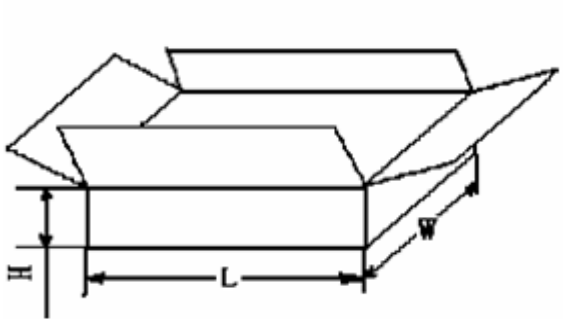
5、MARKING



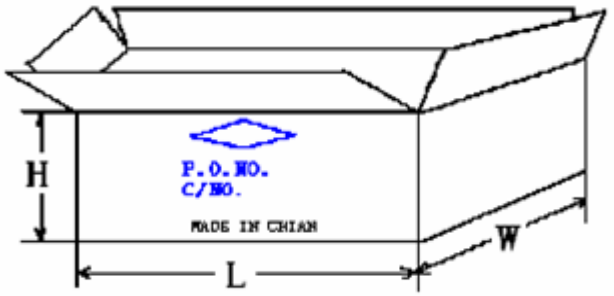
No.	Item
①	Manufacturer's identification mark
②	Capacitance & voltage
③	Negative marking
④	PET Sleeve
⑤	Products Series
⑥	Maximum operating temperature
⑦	Lot No.(N--2021year 10-- The 10 th weeks

6、PACKING SPECIFICATION

Cutting Ⅰ	Cutting Ⅲ
	
Cutting Ⅱ	**Cutting Ⅳ**
	
GK Radial Lead	**HK Radial Lead**
	



INSIDE BOX



OUTSIDE BOX

Inside Box Dimensions			Outside Box Dimensions			Case Size	Packing Quantity	
L	W	H	L	W	H	ΦD×L	Inside	Outside
546	272	125	560	290	270	13*25	1500	3000

NO.	TEST ITEM	SPECIFICATION	TEST METHOD
1	Capacitance	Within specified value	(1) Measuring frequency: 120Hz±20% (2) Measuring circuit: series equivalent circuit (3) Measuring voltage: 0.5Vrms max. or less 1.5 to2.0Vdc. (4) Measuring temperature: 20℃
2	Dissipation factor(D.F.)	Within specified value	
3	DC leakage current	I≤0.03CV or 4μA Whichever is greater (After 5 minutes)	The DC leakage current shall be measured after the rated DC voltage has been applied across the capacitor in series with a protective resistor (1000 ohms) for rated times at 20℃ Where, C: nominal capacitance(μF) V: rated voltage(V) I: leakage current(μA)
4	Surge voltage	(a) Capacitance ≥80% of the initial value (b) Dissipation factor ≤200% of the initial specified value (c) Leakage current ≤the initial specified value	(1) Surge voltage application: 1000times charging for 30±5sec, witha period of 6±0.5minutes. (2) Test temperature: 15-35℃ (3) Series protective resistance: about 1000ohm. (4) Surge voltage: R.V.(V) 100 S.V(V) 125

<table>
<tr><th>NO.</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST METHOD</th></tr>
<tr><td>5</td><td>Temperature characteristic</td><td>(a) Step 2: impedance ratio
Ratio to the value at step 1 shall be not more than the specified value.
(b) Step 4:
Variation of capacitance within ±20% of the value as step 1</td><td>Step1: to measure capacitance and impedance (120Hz±10%)
Test time at step 2 and step 4:
Time required until almost no variation in impedance or capacitance measured at 15 minutes intervals are recognized.
<table><tr><th>STEP</th><th colspan="2">TEMPERATURE(℃)</th><th>TIME</th></tr><tr><td>1</td><td colspan="2">20±2</td><td>---</td></tr><tr><td>2</td><td>-40</td><td>+0, -3</td><td>2HRS</td></tr><tr><td>3</td><td colspan="2">20±2</td><td>15MIN</td></tr><tr><td>4</td><td>+105</td><td>+3, -0</td><td>2HRS</td></tr></table></td></tr>
<tr><td>6</td><td>Solder ability</td><td>Terminal to be covered with solder for 3/4 and over in the direction perpendicular to terminal axis and continuously up to the dipped end point in the direction parallel to terminal axis.</td><td>(1) Temperature of solder 245±5℃, dipping time 2±0.5 sec.
(2) Flux: methanol and solution of rosin to be used.
(3) Observation: it shall take place after dipping.</td></tr>
<tr><td>7</td><td>Resistance to vibration</td><td>(a) Capacitance:
During test measured value to be stabilized (when measured several times within 30 minutes before completion of test).
(b) Appearance: No remarkable abnormality.</td><td>(1) Direction and duration of vibration:
3 orthogonal directions mutually each for 2 hours total 6 hrs.
(2) Frequency: 10 to 55 Hz reciprocation for 1 minute.
(3) Total amplitude: 1.5mm.</td></tr>
<tr><td>8</td><td>Resistance to soldering heat</td><td>(a) Capacitance change≤10% of the initial value
(b) D.F.≤the initial specified value
(c) L.C.≤the initial specified value
(d) Appearance: No remarkable abnormality</td><td>(1) Temperature: 270±10℃, time: 10±1sec.
OR
(2) Temperature:350±10℃, time: 3 +1,-0sec.</td></tr>
</table>

<table>
<tr><th>NO.</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST METHOD</th></tr>
<tr><td>9</td><td>Resistance to damp heat</td><td>(a) Capacitance change≤±15% of the initial value
(b) D.F.≤the initial specified value
(c) L.C.≤the initial specified value
(d) Appearance: No remarkable abnormality</td><td>(1) Test temperature: 40±2℃.
(2) Test time: 240±8 hours.
(3) Relative humidity: 90-95%
After completion of test, to expose for 1 to 2 hours in the atmospheric conditions.</td></tr>
<tr><td>10</td><td>Shelf life test</td><td>R.V 6.3V ～ 120V
ΔC ≤ ±20% of the initial value
D.F. ≤ 200% of the initial specified value
L.C. ≤ the initial specified value</td><td>The capacitor are then stored with no voltage applied at a temperature of +105℃ for 1000 +48,-0 hours. Following this period the capacitor shall beremoved from the test chamber and be
to stabilize at room temperature. Next they shall be connected to a series limiting resistor with DC rated voltage applied for 30 minutes. After which the capacitor shall be discharged.</td></tr>
<tr><td>11</td><td>Load life test</td><td>(a) Capacitance change
≤ ±20% of the initial value
(b) D.F.≤200% the initial specified value
(c) L.C.≤the initial specified value
(d) Appearance: No remarkable abnormality</td><td>(1) Test temperature: 105 ±2℃.
(2) Test time: +72,-0 hours.
<table><tr><td>Spc</td><td>100V330</td></tr><tr><td>ΦDXL</td><td>13*25</td></tr><tr><td>Life</td><td>5000h</td></tr></table>(3) Applied voltage
To applied rated voltage (maximum value of DC voltage overlapped by an allowable ripple current) through series protective resistance 1K ohm the capacitors shall then removed from the test chamber and stabilized at room temperature for 2 hours.</td></tr>
<tr><td>12</td><td>Compensation coefficient for ripple current</td><td colspan="2">Coefficient for frequency compensation.
<table><tr><th>Rated Voltage(V)</th><th>Freq.(Hz) / Cap.(μF)</th><th>50/60</th><th>100/120</th><th>300</th><th>1K</th><th>10K～20K</th><th>50K～100K</th></tr><tr><td rowspan="3">6.3～100</td><td>≤15</td><td>0.40</td><td>0.50</td><td>0.60</td><td>0.80</td><td>0.90</td><td>1.00</td></tr><tr><td>22～1500</td><td>0.60</td><td>0.70</td><td>0.80</td><td>0.90</td><td>0.90</td><td>1.00</td></tr><tr><td>≥1800</td><td>0.85</td><td>0.90</td><td>0.95</td><td>1.00</td><td>1.00</td><td>1.00</td></tr><tr><td>160～500</td><td>4.7～220</td><td>0.50</td><td>0.63</td><td>0.78</td><td>0.88</td><td>0.94</td><td>1.00</td></tr></table>
Temperature Multiplying Factor for Ripple Current
<table><tr><td>Temperature(℃)</td><td>45</td><td>55</td><td>65</td><td>75</td><td>85</td><td>95</td><td>105</td></tr><tr><td>Factor</td><td>2.7</td><td>2.2</td><td>1.9</td><td>1.6</td><td>1.4</td><td>1.18</td><td>1</td></tr></table>
The compensation coefficient for ripple current is for reference only, and the ripple value is shown in page 4.</td></tr>
</table>

<table>
<tr><th>NO.</th><th colspan="2">TEST ITEM</th><th>SPECIFICATION</th><th>TEST METHOD</th></tr>
<tr><td>13</td><td colspan="2">Safety vent</td><td>On opening safety vent it is permissible that gas generates or inner element comes out of aluminum case but emitting fire never happen.</td><td>(1) A.C Application test
The capacitor shall be subjected to an A.C voltage (50 or 60 Hz) with r.m.s value equal to 0.7 times the rated D.C voltage through a series resistor as follows:
<table><tr><td>CAPACITANCE(μF)</td><td>R(ohm)</td></tr><tr><td>C≤10</td><td>100</td></tr><tr><td>10<C≤100</td><td>10</td></tr><tr><td>100<C≤1000</td><td>1</td></tr><tr><td>1000<C</td><td>0.1</td></tr></table>(2) D.C Application test
The capacitor shall be subjected to a reverse D.C voltage equal to the rated voltage the current flowing through the capacitor shall be limited to 1A.
*NOTES: The test is terminated if the vent device is not actuated when 30 min. has elapsed from the start of the test conducted under the conditions.</td></tr>
<tr><td rowspan="2">14</td><td rowspan="2">Terminal strength</td><td>Tensile Strength of Termination</td><td>No abnormality such as cutting off, looseness or the like of termination.</td><td>Tensile force holding time: 10 seconds
<table><tr><td>DIA OF WIRE(mm)</td><td>0.45</td><td>0.5</td><td>0.6</td><td>0.8</td><td>1</td></tr><tr><td>TENSILE FORCE(kg)</td><td>---</td><td>0.5</td><td>1</td><td>1</td><td>2</td></tr></table></td></tr>
<tr><td>Bending Strength of Termination</td><td>No abnormality such as cutting off,looseness or the like of termination.</td><td>Hang the specified lead weight then bent the body through 90°,return to the original position carry out this operation in about 5sec.and count is as ones, next bent it in opposite direction through
90° with the same speed, again return to the original position count it as 2 times . No. of times: 2 times.
<table><tr><td>DIA OF WIRE(mm)</td><td>0.45</td><td>0.5</td><td>0.6</td><td>0.8</td><td>1</td></tr><tr><td>TENSILE FORCE(kg)</td><td>---</td><td>0.25</td><td>0.5</td><td>0.5</td><td>1</td></tr></table></td></tr>
</table>