CUSTOMER：ROPLA
客　　戶
(PE48AA3)

NO：BFX1740023
編號

APPROVAL SHEET
承　認　書

PARTS　ALUMINUM　ELECTROLYTIC　CAPACITOR
品　名　：　鋁　質　電　解　電　容　器

USER P/N
客戶產品編號：

JAMICON P/N
凱美產品編號：

THR220M2CG16M
THR330M2GK20R
THR330M2WKKDBM

SIGNATURE（承認欄）

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JAMICON 凱美電機股份有限公司

	CHECKER 確　認	DESIGNER 作　成
	副　理 APR.27.2017 胡建明	技術部 APR.27.2017 潘开栋

產品符號 Parts Number System

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T	H	R	2	2	0	M	2	C	G	1	6	M			
SERIES		TYPE	CAPACITANCE (μF)			CAP. TOL	VOLTANGE (WV)		CASE (ΦD mm)	SIZE L. mm-Length of AL.case					

Series		
PS	NS	HM
PT	SK	LT
PH	SM	LL
PC	TK	HT
PF	TM	HV
CS	NK	HL
CA	LK	HF
CN	MZ	HX
CR	TB	KP
CT	WL	MP
CE	WG	RP
CP	TL	XP
CH	TZ	
CL	TH	
CF	TX	
CK	TF	
CZ	WB	
CB	UK	
SV	NC	
ST	RV	
NT	LP	
SS	HP	
SH	LS	
SL	HS	

Code	Type	Description
R	Radial	Bulk
P	Radial	Taping (Ammo Pack)
C	Radial	Lead Cut
F	Radial	Lead Forming Cut
B	Radial	Lead Forming Only
Y	Radial	Lead Snap in
W	Lug	Snap in Terminal
G	Lug	G Type Terminal
V	Lug	V Type Terminal
S	Screw	Screw Terminal Type
M	Chip	Surface Mount Type

CAP (μ F)	Code
0.1	0R1
0.22	R22
0.33	R33
0.47	R47
1	010
2.2	2R2
3.3	3R3
4.7	4R7
10	100
22	220
33	330
47	470
100	101
220	221
330	331
470	471
1000	102
2200	222
3300	332
4700	472
10000	103
22000	223
33000	333
47000	473

Tolerance (%)	Code
+10	K
-10	
+15	L
-15	
+20	M
-20	
+100	P
-0	
+30	Q
-10	
+20	R
-0	
+50	T
-10	
+75	U
-10	
+20	V
-10	
+20	H
-5	
+30	F
-0	
+100	W
-10	

Voltage (W.V)	Code
2.5	0E
4	0G
6.3	0J
10	1A
13	1P
16	1C
20	1D
25	1E
35	1V
40	1G
50	1H
63	1J
80	1K
100	2A
125	2B
160	2C
180	2M
200	2D
250	2E
315	2F
330	2U
350	2V
400	2G
450	2W
500	2H

Diameter (§)	Code
3	A
3.8	S
4	C
5	D
6	W
6.3	E
7	Y
8	F
10	G
12	H
12.5	I
13	J
16	K
18	L
20	M
22	N
25	O
30	P
35	Q
40	R
51	V
64	1
77	2
90	3

Length (L)	Code
11	11
11.5	BB
12.5	BC
31.5	DB
35.5	DF
100	1H
110	1A
115	1K
120	1B
121	1M
130	1C
131	1P
140	1D
144	1Q
150	1E
155	1N
157	1R
160	1F
170	1G
180	1I
190	1J
196	1S
215	1L
236	1T

Code	Dascription
M	Without Sleeve
1~9	Customer Assign Brand
A~Z	
a~	

ALUMINUM ELECTROLYTIC CAPACITOR SPECIFICATIONS P2

Series	TH	Reference standard	JIS C5101-18-2(1999)

Attached list

Capacitance tolerance : ± 20%

No.	Jamicon No.	Rated voltage (V)	Surge voltage (V)	Cap (uF)	Leakage current(max) 2minutes (uA)	DF ≦tan δ (%)	I.M.P. 20℃ 100kHz (Ω)max	R.C.(max) 105℃ 100kHz (mA/rms)	DXL(mm)	
									D	L
1	THR220M2CG16M	160	200	22	221.2	15	1.00	280	10	16
2	THR330M2GK20R	400	450	33	802.0	24	0.91	560	16	20
3	THR330M2WKDBM	450	500	33	901.0	24	1.15	620	16	32

SU ZHOU KAIMEI ELECTRONIC LTD.	Chart number	BFX1740023

Series	TH	Reference standard	JIS C 5101- 4

1 . Scope

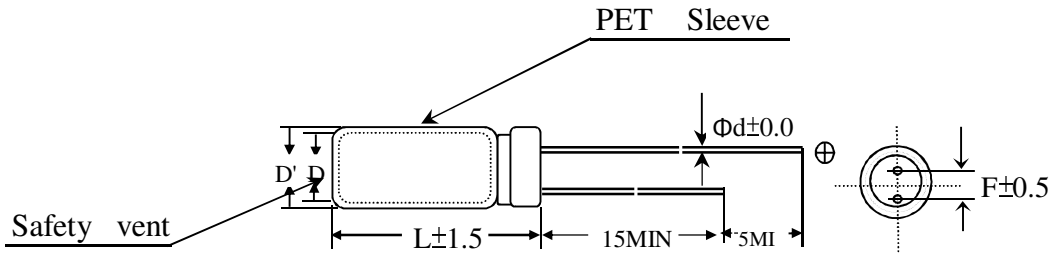
This specifcation applies to aluminium electrolytic capacitor , used in electronic equipment.
Type : Radial

2 . Electrical characteristics

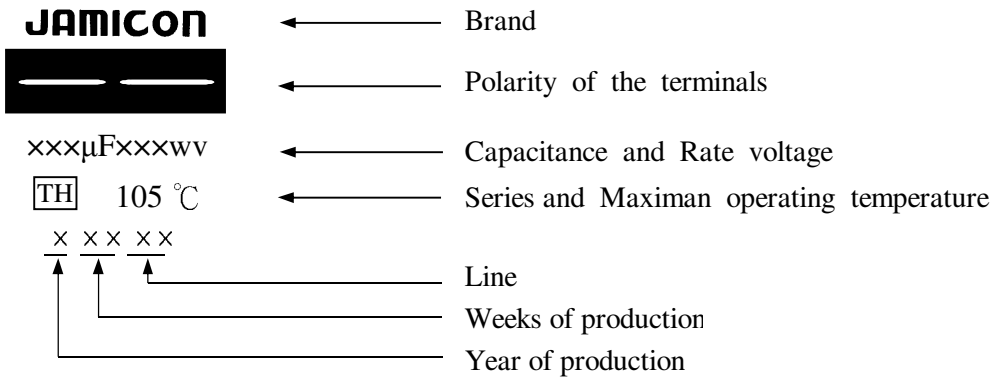
A) Operation temperature range : 160 ~ 400 VDC : -40 ~ +105℃
: 450 VDC : -25 ~ +105℃
B) Capacitance tolerance : a) - 20% ~ + 20%(M) 20 ℃ 120 Hz
C) Capacitance : 1 ~ 220 μF
D) Rated working voltage (WV) : DC 160 ~ 450 V
E) Surge voltage (SV) : Values in Table 1 P (7)
F) Leakage current : Values in Table 2 P (7) or less
G) Dissipation Factor (tan δ) : Values in Table 3 P (7) or less
H) Low temperature stability : Values in Table 4 P (7) or less

3. Dimensions and materials

D	6.3	8	10	12.5	16	18
F	2.5	3.5	5.0	5.0	7.5	7.5
d	0.5	0.6	0.6	0.6	0.8	0.8
a	1.5	1.5	1.5	1.5	1.5	1.5



4. Marking



SU ZHOU KAIMEI ELECTRONIC LTD.	Chart number	BFX1740023

Series	TH	Reference standard	JIS C5101- 4

5. Load life test

After (§D≦8mm 2000hours , §D≧10mm 3000 hours) application of WV at +105℃ the capacitor shall meet the following limits.(DC+ripple peak voltage≦rate working voltage)

(A) Capacitance change :≦ ±20% of initial valu
(B) Dissipation factor :≦ 200% of initial specified value
(C) Leakage current :≦ initial specified value

6. Shelf life test

The capacitor without rated voltage at a temperature of 105℃ for 1000 hours after 4 hours in room temperature, and then through the aging treatment (reference JIS C5101-4-4.1), should do final measurements, the value are as following:

(A) Capacitance change :≦ ±20% of initial value
(B) Dissipation factor :≦ 200% of initial specified value
(C) Leakage current :≦ initial specified value

7. Low temperature storage test

The capacitor without rated voltage at the lowest operation temperature 16 hours, after 16 hours in room temperature, should do final measurements, the values are as following:

(A) Capacitance change :≦ ±10% of initial value
(B) Dissipation factor :≦ initial specified value
(C) Leakage current :≦ initial specified value

8. Lead strength

(A) Tensile strength:

d (mm)	0.6	0.8
load (kg)	1.0	1.0

The capacitor shall withstand the constant tensile force specified between the body and each lead for 10 seconds without either mechanically or electrically.

(B) Bending strength:

d (mm)	0.6	0.8
load (kg)	0.5	0.5

With the capacitor in a vertical position apply the load specified axially to each lead . The capacitor shall be rotated slowly form the vertical to the horizontal position. Back to the vertical position. The 90 in the opposition direction and back the original position. performance of capacitor shall not have changed and leads shall be undamaged.

Series	TH	Reference standard	JIS C5101- 4

9. Solderability

Capacitor lead wire is dipping into the oven, and then dip in 245±3℃, solder liquid for 3±0.5 seconds, the substance is above the liquid solder 2mm, the dipping lead must be adherent 95% fresh tin at least.

10. Resistance to soldering heat

Put capacitor lead wire to dip 260±5℃ in solder liquor away the body 2mm, after 10±1 seconds taken out , after 2 hours in room temperature, should do final measurments, the values are following :

(A) Capacitance change :≦ ±10% of initial value
(B) Dissipation factor :≦ initial specified value
(C) Leakage current :≦ initial specified value
(D) Visual : No damage

11. Surge test

The capacitor shall be applied the surge voltage connected with the 1kΩ resistor at temperature 25±5℃ , and shall be applied the surge voltage 1000 cycle, each for 30 seconds charge and 5 minutes 30 seconds discharge, the final test values should be as following:

(A) Capacitance change :≦ ±15% of initial value
(B) Dissipation factor :≦ initial specified value
(C) Leakage current :≦ initial specified value
(D) Visual : No damage

12. Safety vent

(A) Test condition (DC method)

Reverse voltage shall be applied, then current is as bellow:

Diameter ≦ 22.4mm 1 A DC.
Diameter > 22.4mm 10 A DC.

(B) Criteria

(a) Safety vent shall be operated.
(b) Emission of flame shall not be fount before and after venting.
(c) Terminal,lead wire, metal chip and so on shall not be flown apart and case shall not be separated before and after venting.
(d) Sealing part and case shall not be separated before and after venting.
(e) When capacitor is soldered,some space must be kept above the vent as per following list.

¢ D (mm)	≦ 16	18 ~ 35	≦ 40
Space (mm)	2 min	3 min	5 min

Series	TH	Reference standard	JIS C5101- 4

13.Characteristics at high and low temperature

Step	Temperature	Time(MIN)
1	The lowest using temperature ± 3 ℃	30±3
2	20±2℃	≦ 3
3	The highest using temperature ± 2 ℃	30±3
4	20±2℃	≦ 3

5 Cycle

(A) Capacitance change :≦ ±5% of initial value
(B) Dissipation factor :≦ initial specified value
(C) Leakage current :≦ initial specified value
(D) Visual : No damage

14.Endure High And Low Temperature Abil

Step	Test temperature	Time
1	20 ± 2℃	———
2	Minimum Operating tempera	120 minutes
3	20 ± 2℃	15 minutes
4	Maximum Operating tempera	120 minutes
5	20 ± 2℃	15 minutes

Impedance should be measured : 120Hz
Step2
Impedance ratio : Less than the table 4 value of page 7.
Step4
Capacitance change : ≦ ± 20 % of initial value
Step5
(A)Capacitance change : ≦ ± 10 % of initial value
(B)Dissipation factor : ≦ initial specified value
(C)Leakage current : ≦ initial specified value

15. Humidity test
Put the capacitor in the equipment 500 hours, in which the humidity must be about 93(+2/-3)% and the temperature must be about 40±2℃.After 1~2 hou in room temperature, should do the final measurements, the values are as following:
(A) Capacitance change : ≦ ±10% of initial value
(B) Dissipation factor : ≦ 120% of initial specified value
(C) Leakage current : ≦ initial specified value
(D) Visual : No damage

Series	TH	Reference standard	JIS C5101- 4

Table 1

Surge voltage

w.v.	160	200	250	400	450
s.v.	200	250	300	450	500

Table 2

Leakage current

160~450 VDC
I ≦ 0.06cv+10 (μA)
Whichever is greater after 2 minutes.
(I:Leakage Current (μA) C: Rated Capacitance(μF) V:Working Voltage(v)).

Table 3

Dissipation Factor

w.v.	160	200	250	400	150
tan δ	0.15	0.15	0.15	0.24	0.24

Table 4

Low teperature stability

Impedance ratio at 120Hz

Rated voltage (v)	160~250	400	150
-25℃ /+20℃	3	6	6
-40℃ /+20℃	4	6	-

Table 5

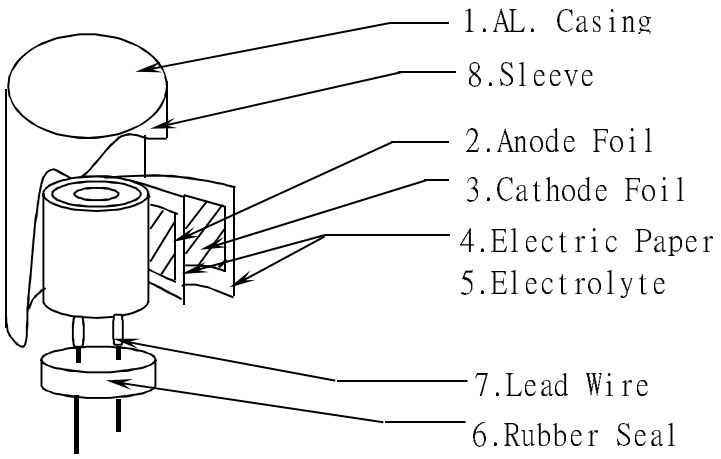
RIPPLE CURRENT COEFFICIENTS

Temperature(℃)	65	75	85	95	105
Multiplier	1.80	1.65	1.50	1.25	1.00

Frequency(Hz)	120	1K	10K	100K
W.V.	Multiplier			
160~450	0.50	0.80	0.90	1.00

Reference standard	JIS C5101- 4

ELECTROLYTIC CAPACITOR STRUCTURE AND MATERIAL LIST



No	Items Name	Raw Material Used
1	Al. Casing	Aluminum
2	Anode Foil	High Aluminum Purity
3	Cathode Foil	Aluminum Purity
4	Electric Paper	Manila Pulp and Kraft Pulp
5	Electrolyte	Ethelene Glycol, Demineralized Water,Ammonium Adipate, Adipic Acid and etc.
6	Rubber Seal	EPT
7	Lead Wire	Stitched Area, Cp Wire: Copper, iron, Tin
8	Sleeve	PET

Series	TH	Reference standard	JIS C5101-4

RADIAL TYPE

Size(DxL)	Q'ty per bag (pcs)			Inner box		Outside Box	
	Big	Small	Bag(pcs)	Package	Q'ty per box (pcs)	Number of the boxes per carton	Q'ty per box (pcs)
3.8*7，4*(5,7)		○	1000	20	20000	2	40000
5*(5,7,11)		○	500	25	12500	2	25000
6.3*(5,7,11)		○	500	20	10000	2	20000
8*(9,11,11.5)	○		500	13	6500	2	13000
8*14		○	200	25	5000	2	10000
8*(15,16,20)		○	200	20	4000	2	8000
10*(9,10,12.5,13)		○	200	20	4000	2	8000
10*(16,18)	○		200	15	3000	2	6000
10*(20,21)	○		200	14	2800	2	5600
10*(24,25,26)	○		200	12	2400	2	4800
10*(28,30)	○		100	15	1500	2	3000
12.5,13*(13,15,16)	○		100	20	2000	2	4000
12.5,13*(18,20,21)	○		100	18	1800	2	3600
12.5,13*(25,26)	○		100	14	1400	2	2800
12.5,13*(30,31)	○		100	12	1200	2	2400
12.5,13*(35,36,40,41)	○		50	16	800	2	1600
12.5*50	○		50	14	700	2	1400
16*(15,16)	○		50	24	1200	2	2400
16*25	○		50	16	800	2	1600
16*(30,31.5,32)	○		50	14	700	2	1400
16*(35,35.5)	○		50	12	600	2	1200
16*(40,42)	○		50	12	600	2	1200
18*(15,16,18,19,20,21,22)	○		50	16	800	2	1600
18*(28,30)		○	30	20	600	2	1200
18*(31.5,32,35,35.5,36,38,40,42)	○		25	20	500	2	1000
16*(20,21)	○		50	20	1000	2	2000
18*(46,48)	○		25	7	175(CIA-A)	4(CIA-A)	700
20*25	○		25	20	500	2	1000
20*40	○		25	16	400	2	800
6.3*15	○		500	12	6000	2	12000