CUSTOMER：ROPLA
客　　戶
(PE48AA3)

NO：BFX1740008
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 ： T H R (SERIES)

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.19.2017 胡建明	技術部 APR.19.2017 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	0	1	0	M	2	G	E	1	1	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	THR010M2GE11M	400	450	1	34.0	24	11.00	70	6.3	11
2	THR2R2M2WFBBM	450	500	2.2	69.4	24	10.00	85	8	12
3	THR3R3M2GG13M	400	450	3.3	89.2	24	8.50	100	10	13
4	THR3R3M2GG16M	400	450	3.3	89.2	24	5.22	150	10	16
5	THR3R3M2WG16M	450	500	3.3	99.1	24	4.11	130	10	16
6	THR4R7M2EFBBM	250	300	4.7	80.5	15	4.50	110	8	12
7	THR4R7M2GG13M	400	450	4.7	122.8	24	6.50	180	10	13
8	THR4R7M2WGBCM	450	500	4.7	136.9	24	5.14	150	10	13
9	THR6R8M2WG16M	450	500	6.8	193.6	24	4.63	190	10	16
10	THR100M2CFBBM	160	200	10	106.0	15	4.23	180	8	12
11	THR100M2EGBCM	250	300	10	160.0	15	3.38	190	10	13
12	THR100M2EG16M	250	300	10	160	15	2.70	220	10	16
13	THR100M2GG20M	400	450	10	250.0	24	1.89	290	10	20
14	THR100M2GGI20M	400	450	10	250.0	24	1.72	310	13	20
15	THR100M2WG20M	450	500	10	280.0	24	4.50	180	10	20
16	THR100M2WI25M	450	500	10	280.0	24	2.72	300	13	25
17	THR220M2EG20M	250	300	22	340.0	15	1.47	350	10	20
18	THR220M2GI25M	400	450	22	538.0	24	0.94	510	13	25
19	THR220M2GK20R	400	450	22	538.0	24	1.21	460	16	20
20	THR220M2WK25M	450	500	22	604.0	24	1.48	450	16	25
21	THR330M2GI25M	400	450	33	802.0	24	1.25	620	13	25
22	THR330M2GK25M	400	450	33	802.0	24	0.73	620	16	25
23	THR330M2WK25M	450	500	33	901.0	24	1.15	560	16	25
24	THR470M2DI20M	200	250	47	574.0	15	0.50	550	13	20
25	THR470M2GK25M	400	450	47	1138.0	24	1.00	740	16	25
26	THR470M2WK32M	450	500	47	1279.0	24	1.00	740	16	32
27	THR680M2EI25M	250	300	68	1030.0	15	0.84	640	13	25
28	THR680M2WKDBM	450	500	68	1846.0	24	0.92	880	16	32
29	THR820M2GLDBM	400	450	82	1978.0	24	0.65	1160	18	32
30	THR101M2CI25M	160	200	100	970.0	15	0.35	880	13	25
31	THR101M2DK25M	200	250	100	1210.0	15	0.36	890	16	25
32	THR101M2EKDBM	250	300	100	1510.0	15	0.59	980	16	32
33	THR121M2WL46M	450	500	120	3250.0	24	0.57	1480	18	46

SU ZHOU KAIMEI ELECTRONIC LTD.	Chart number	BFX1740008

Series	TH	Reference standard	JIS C 5101- 4

1 . Scope

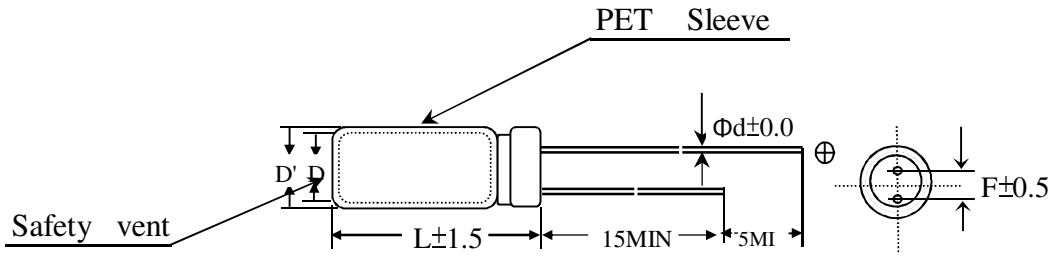
This specifcation applies to aluminium electrolytic capacitor , used in electronic equipment.
Type : Radial

2 . Electrical characteristics

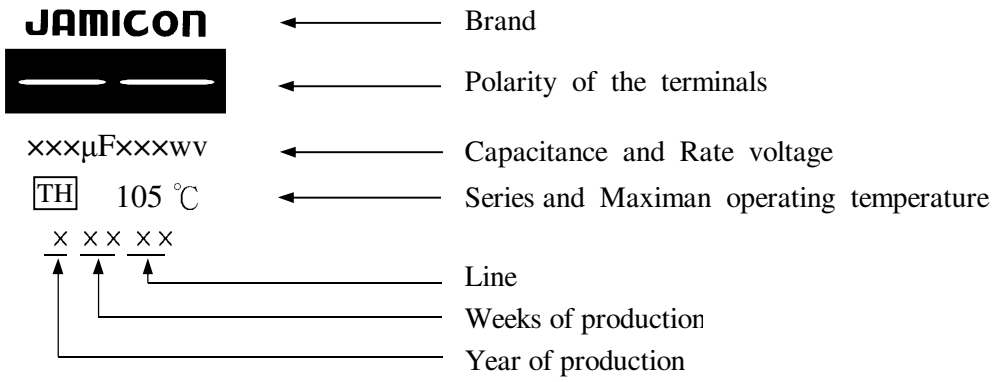
A) Operation temperature range : 160 ~ 400 VDC : -40 ~ +105℃
: 450 VDC : -25 ~ +105℃
B) Capacitance tolerance : a) - 20% ~ + 20%(M) 20 ℃ 120 Hz
C) Capacitance : 1 ~ 220 μF
D) Rated working voltage (WV) : DC 160 ~ 450 V
E) Surge voltage (SV) : Values in Table 1 P (7)
F) Leakage current : Values in Table 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	BFX1740008

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

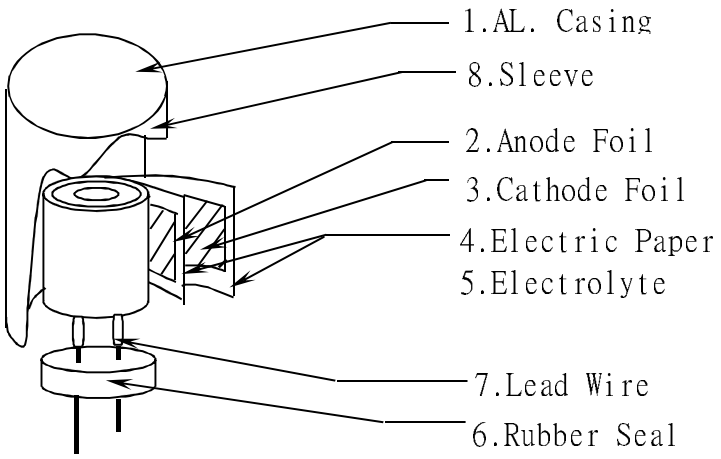
RIPPLE CURRENT COEFFICIENTS

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