

客戶
CUSTOMER : 頂興國際企業有限公司

承認圖號
DRAWING NO : 940314010

承 認 書

SPECIFICATION FOR APPROVAL

零件名稱 : 鋁質電解電容器
DESCRIPTION : ALUMINUM ELECTROLYTIC CAPACITOR

客戶料號 : 468118
USER NO

合美料號 : HTC102M1VJ21VR6HMAC5
CODE NO



ASIACON

合美電機股份有限公司
HER-MEI ELECTRONIC CORP., LTD

總公司

雲林縣大埤鄉豐田工業區豐田路 61 號
電話 : +886-5-5913640-1 傳真 : +886-5-916609
E-mail : www.hermei.com.tw

營業部

台北縣樹林市三德街 32-1 號
電話 : 886226762416 傳真 : 886226762418
新竹市金山 23 街 67 號 1 樓
電話 : + 886-3-5678829 傳真 + 886-3-5670585

大陸中山宥宏廠

廣東省中山市火炬開發區逸仙科技園區
電話:+286-760-5311098 傳真:+286-760-5311096

HEAD OFFICE

NO.61 FONG TIEN RD.,FONG TIEN INDUSTRY PARK,
DAH-PYISHING YUN-LIN HSIAN,TAIWAN R.O.C.
TEL:+886-5-5913640-1 FAX:+886-5-916609
E-mail: www.hemei.com.tw

SALES DEPARTMENT OFFICE

NO.32-1 SAN TEI ST., SHULIN TAIPEI HSIEN, TAIWAN R.O.C.
TEL:886226762416 FAX:886226762418

HSIN-CHU SALES DEPT

1F,NO.67,23TH JIN-SHAN ST HSIN-CHU CITY.TAIWAN
TEL:+886-3-5678829 FAX:+886-3-5670585

ZHONG SHAN IOU-HUNG FACTORY

YAT-SEN HIGH-TECH INDUSTRIAL PARK TORCH DEVELOPMENT
ZONE,ZHONSHAN,KUANGDONG
TEL:+286-760-5311098 FAX:+286-760-5311096

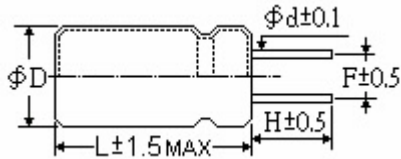
承認日期： 年 月 日

貴公司承認印 APPROVAL SIGNATURES

核准 APPROVER	確認 CHECK	經辦 DESIGNER
張汪池	沈玉貞	羅雅心

承認後請寄回一份
PLEASE RETURN ONE COPY WITH YOUR APPROVAL

CUSTOMER		頂興國際企業有限公司			
CODE	YOUR	468118		NO	940314010
	OUR	HTC102M1VJ21VR6HMAC5		DATE	Mar.14.2005
SERIES		HT	TYPE	POLARITY	
RATED VALUE		1000	μF	35	WV
				SAFETY VENT	$\geq 6.3 \phi$



DIMENSION (mm)			
ϕD	13	L	21
ϕd	0.6	F	5.0
H	5.0 \pm 0.5		
※13 ϕ L > 26mm $\phi d = 0.8$			

Item	Characteristics			
Operation Temperature Range	-	40	°C ~ +	105 °C
Capacitance Tolerance	-	20	% ~ +	20 % (M)
Surge Voltage (SV)	44		VDC	
Leakage Current (LC)	\leq	350	μA	3 minutes
Dissipation Factor (DF · tan δ)	\leq	0.12	120 Hz	25 °C
E.S.R.	\leq	Ω	120 Hz	25 °C
Ripple Current (RC)	\leq	865	mA	120 Hz 105 °C
Impedance (Z)	\leq	Ω	100K Hz	25 °C
Low Temperature Stability	Impedance Ratio At 120Hz			
	Z	-25 °C / Z	+25 °C	2 MAX
	Z	-40 °C / Z	+25 °C	3 MAX
Load Life	After 2000 Hrs At 105 °C			
	Capacitance Change	$\leq \pm$	20	% of initial value
	D.F. (tan δ)	\leq	200	% of initial specified value
	Leakage Current	\leq	initial specified value	
	Out Look	Should be without any change		
Shelf Life	After 1000 Hrs At 105 °C			
	Capacitance Change	$\leq \pm$	20	% of initial value
	D.F. (tan δ)	\leq	200	% of initial specified value
	Leakage Current	\leq	initial specified value	
	Out Look	Should be without any change		
Terminal Strength	Pull Test	1.0	Kg	10 sec ± 1
	Bend Test	0.5	Kg	2 cycle
Soldering	250 \pm 5 °C		Soldering must covered more than 3/4	
	3 \pm 0.5 sec			

TEST FREQ: 120Hz	TEST TEMP: 25°C	REFERENCE STANDARD: JIS C5141
------------------	-----------------	-------------------------------

**HER-MEI
ASIACON**

APPROVER

張汪池

CHECKR

沈玉貞

DESIGNER

羅雅心

SN	R	102	M	1C	G	21	V	R	6
系列 SERIES	型式 TYPE & FORMING	容量 CAPACITANCE (μ F)	級數 CAP. (TOL.)	電壓 VOLTAGE (WV)	直徑 CASE SIZE (ϕ D)	長度 CASE SIZE (L)	防爆 VENT	迫緊型式 RUBBER	端子線 LEAD WIRE

SERIES
LE
LT
LR
LZ
LL
ZL
SN
HT
SP
LB
BL
SS
SH
NP
NK
BP
LA
HC
EC
PL

TYPE	Code
Radial	R
Radial	P
Taping	P
Lead Cut	C
Lead Snap in	Y
Lead Forming	F
Cut	F
Snap in	S

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
6.8	6R8
10	100
22	220
33	330
47	470
100	101
220	221
330	331
470	471
1000	102
1500	152
2200	222
3300	332
4700	472
10000	103
15000	153

TOL (%)	Code
+20	M
-20	M
+20	V
-10	V
+10	K
-10	K
+50	T
-10	T
+20	R
-0	R
+5	A
-5	A
+20	H
-5	H

Voltage (WV)	Code
6.3	0J
10	1A
16	1C
25	1E
30	1F
35	1V
40	1G
50	1H
63	1J
80	1K
100	2A
160	2C
180	2P
200	2D
250	2E
315	2F
350	2V
400	2G
420	2S
450	2W
500	2H

ϕ D (mm)	Code
4	C
5	D
6	W
6.3	E
8	F
10	G
13	J
16	K
18	L
20	M
22	N
25	O
30	P
35	Q
40	R
51	V

Model	Code
NO VENT	A
VENT	V
	X

Model	code
Flat Rubber	R
Rubber Stand- off	M

Size (mm)	code
0.5	5
0.6	6
0.8	8
1.0	1
Snap-in	A
Screw	B

ALUMINUM ELECTROLYTIC CAPACITOR SPECIFICATIONS

SERIES	HT	Reference standard	JIS C5141
---------------	-----------	--------------------	------------------

1. Scope

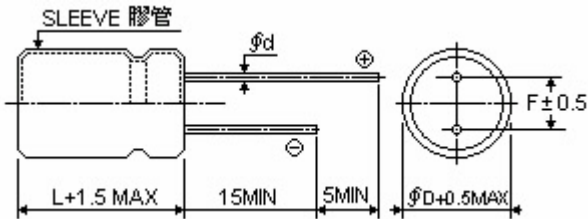
This specification applies to aluminum electrolytic capacitor, used in electronic equipment.

Type : Radial

2. Electrical characteristics

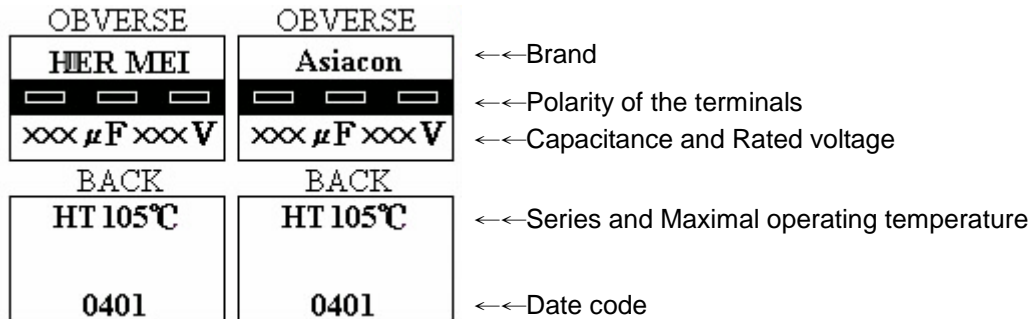
(A) Operating temperature range	: 6.3~250V : - 40 ~ +105°C	350~450V : -25 ~ +105°C
(B) Capacitance tolerance	: ±20%(M) 25°C 120Hz	
(C) Capacitance (CAP)	: 0.1 μF ~ 15000 μF	
(D) Rated working voltage (WV)	: DC 6.3 ~ 450V	
(E) Surge voltage (SV)	: Values in Table 1 (P.4)	
(F) Leakage current (LC)	: Values in Table 2 (P.4) or less	
(G) Dissipation Factor (DF, tan δ)	: Values in Table 3 (P.4) or less	
(H) Low temperature stability	: Values in Table 4 (P.4) or less	

3. Dimensions and materials



φD	5	6.3	8	10	13	16	18	20	22
φd	0.5			0.6		0.8			
F	2.0	2.5	3.5	5.0		7.5		10	
	8×20			φd=0.6 13×31, 13×36		φd=0.8			

4. Marking



5. Load life test

After life test with rated ripple current at conditions stated in the table below, the capacitors shall meet the following requirements.

Capacitance Change	Within ±20% of the initial value
Dissipation Factor	Not more than 200% of the specified value
Leakage Current	Not more than the specified value
Life Time	2000hrs

6. Shelf life test

After applying no rated voltage for 1000hrs at 105°C, pre-treatment for measurements shall be conducted after application of DC rated voltage for 60 minutes. (Reference Standard JIS C5102 4.4)

The capacitors shall meet the following requirements.

Capacitance Change	Within ±20% of the initial value
Dissipation Factor	Not more than 200% of the specified value
Leakage Current	Not more than the specified value

ALUMINUM ELECTROLYTIC CAPACITOR SPECIFICATIONS

SERIES	HT	Reference standard	JIS C5141
---------------	-----------	--------------------	------------------

7. Low temperature storage test

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

Capacitance Change	$\leq \pm 10\%$ of initial value
Dissipation Factor	\leq initial specified value
Leakage Current	\leq initial specified value

8. Lead strength

(A) Tensile strength:

φ d	≤ 0.5	0.6	0.8	1.0
Lead(Kg)	0.5	1.0		2.5

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:

φ d	≤ 0.5	0.6	0.8	1.0
Lead(Kg)	0.25	0.5		1.0

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 changed and leads shall be undamaged.

9. Solderability test

Capacitor lead wire dipping in flux, and then dip in 250°C±5°C, solder liquid for 3 seconds, the substance is above the liquid solder 2mm, the dipping lead must be adherent 90% fresh tin at least.

10. Resistance to soldering heat

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

Capacitance Change	$\leq \pm 10\%$ of initial value
Dissipation Factor	\leq initial specified value
Leakage Current	\leq initial specified value
Visual	No damage

11. Surge test

The capacitor shall be applied the surge voltage connected with the 1 kΩ resistor in room temperature, 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:

Capacitance Change	$\leq \pm 10\%$ of initial value
Dissipation Factor	\leq initial specified value
Leakage Current	\leq initial specified value
Visual	No damage

12. Safety vent

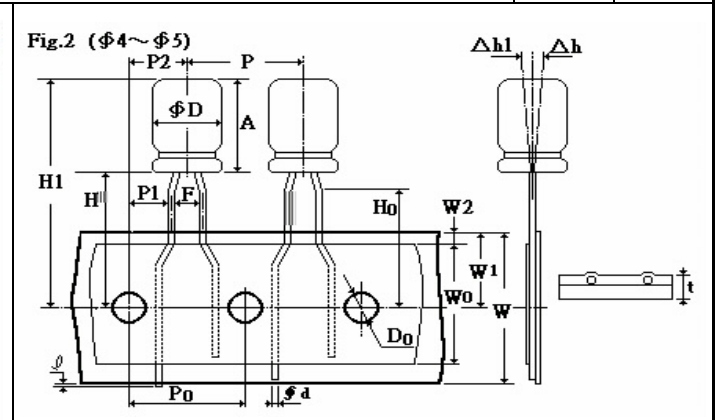
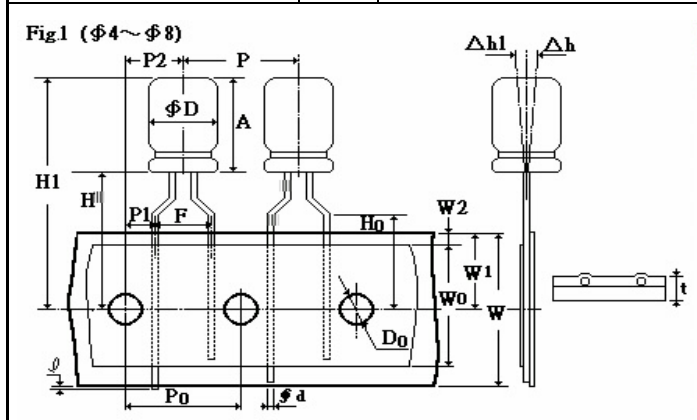
(A) Test condition (DC method)

Reverse voltage shall be applied. then current is as below:

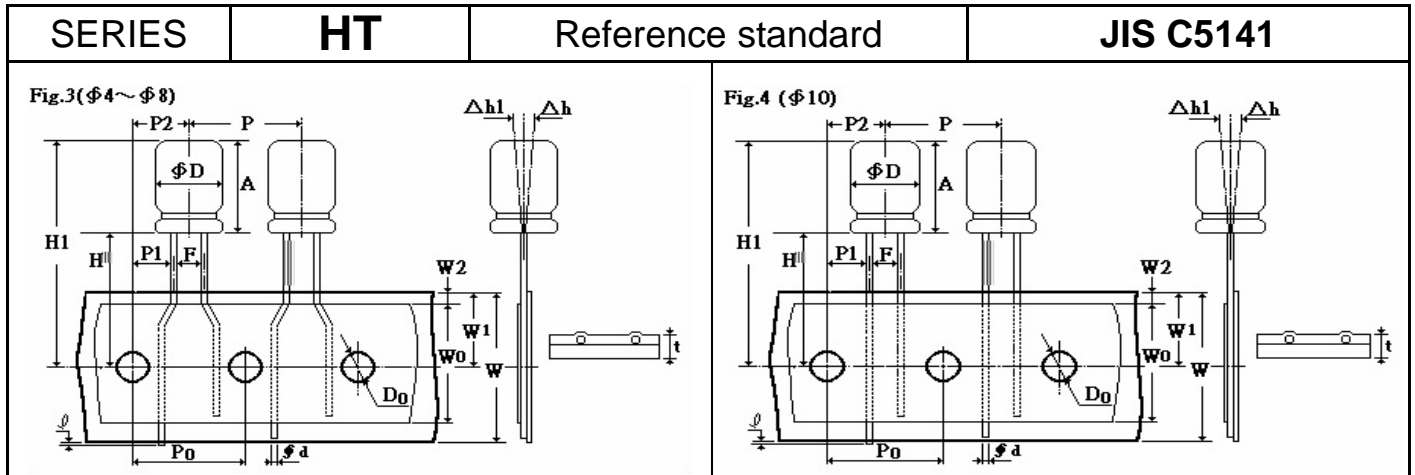
Diameter ≤ 22.4 mm 1 A	Diameter > 22.4 mm 10 A DC.
--------------------------------	----------------------------------

ALUMINUM ELECTROLYTIC CAPACITOR SPECIFICATIONS

SERIES	HT	Reference standard								JIS C5141					
■ TAPING SPECIFICATIONS ■ DIMENSIONS															
Item	Symbol											Tolerance	Remark		
		4×7	5×7	6.3×7	5×11	6.3×11	8×11	10×13	10×16	10×17	10×20				
Diameter of lead	φ d	0.45				0.5				0.6				±0.05	
Height of body	A	8.5				12.5				14.5	14.5	14.5	14.5	Max.	
Distance from center to center of next body	P	12.7										±1.0			
Distance from center to center of next driving hole	P0	12.7										±0.2			
Distance between center of driving hole and lead	P1	3.85										±0.7	Fig1.Fig4.		
		5.35	5.10	-	5.1	-	-	-					Fig2.		
		5.60	5.35	5.10	5.35	5.1	4.6	-					Fig3.		
Distance between center of driving hole and body	P2	6.35										±1.0			
Pitch of lead	F	5.0										±0.3	Fig1.Fig4.		
		1.5	2.5	-	2.5	-	-	-					Fig2.Fig3.		
		-	2.0	2.5	2.0	2.5	3.5	-					F:+0.5-0.1		
Width of mounting tape	W	18.0										±0.5			
Width adhesive tape	W0	12.5										Min.			
Distance between center of Driving hole and mounting tape edge	W1	9.0										±0.5			
Max. allowable distance between mounting and adhesive tape edges	W2	1.5										Max.			
Distance between center of Driving hole and bottom of body	H	18.5										±0.3			
Distance between center of Driving hole and clinch part of lead	H0	16.0				-						±0.5			
Distance between center of Driving hole and top of body	H1	27.5				32.5				33.0	35.0	37.0	41.0	Max.	
Diameter of driving hole	D0	4.0										±0.3			
Protrusion of lead	ℓ	0.5										Max.			
Adhesive and base tape thickness	T	0.6										±0.3			
Off alignment of body top	Δh	0										±2.0			
Off alignment of body top	Δh1	0										±1.0			



ALUMINUM ELECTROLYTIC CAPACITOR SPECIFICATIONS



LEAD CUTTING FORMING SPECIFICATIONS

Symbol : C Lead cut 4φ ~ 18φ		Unit : mm							
		φ D	4	5	6.3	8	10	13	18
		φ d	0.45	0.5			0.6		0.8
		H	3~16						
Symbol : F Lead form cut 4φ ~ 8φ		Unit : mm							
		φ D	4		5		6.3	8	
		φ d	0.45		0.5				
		F	5.0						
Symbol : Y Snap in cut 10φ ~ 18φ		Unit : mm							
		φ D	5	6.3	8	10	13	18	
		φ d	0.5			0.6		0.8	
		H	4.5						
Symbol : L Bending cut 8φ ~ 18φ		Unit : mm							
		φ D	5	6.3	8	10	13	18	
		φ d	0.5			0.6		0.8	
		H	3~5						

PACKAGING SPECIFICATION

● Please note the order quantity must be in multiples of the minimum quantity. 個 (pcs)

SIZE		BULK				TAPING MINIMUM QUANTITY			
		QUANTITY PER VINYL BAG		MINIMUM QUANTITY					
		LONG LEAD	LEAD FORMING	LONG LEAD	LEAD FORMING				
LEAD	4φ	5~7L	1000	1000	5L: 14000 7L: 12000	5L: 40000 7L: 35000	2000		
	5φ				5~7L	5L: 14000 7L: 12000		5L: 35000 7L: 30000	
	6.3φ	11L			10000	20000	1500		
		5~7L			10000	14000			
	WIRE	7L			500	1000	7500	12000	1000
		9~12L				500 9L:1000	5000	9L:12000 11L:7500	
16L~		500	5000	14L:7000 16L:6000					
TYPE	10φ	10~17L	200	500	12L:3600 16L:3000	4000	800		
	21L	24~31L			200	2400		3000	
		13φ	13~25L	100	100	2000 30L:1600	23L:2.8K 25L:2.4K 30L:2K		
	31L		13L:2K 16L:1.5K			21L:1500 26L:1400			
						21L:1.4K 26L:1.2K	31L:1200 36L:1000		
	16φ	18~21L	100	100	16L:1200 21L:1000	16L:1400 21L:1200			
25L		800			1000				
30~36L		30L:700 36L:600			700				
41L		500			500				
18φ	18~21L	100	100	800	500				
	25L			600	500				
	30~36L			500	400				
	41L			400	400				