

S P E C I F I C A T I O N O F

ALUMINUM ELECTROLYTIC CAPACITORS

U B Y series
(Pb free·RoHS complied)

		sheet 1 of 19	APPROVED	J.Kobayashi Nov. 17. 2017		
DWG. No.		H170930e6	CHECKED	M.Murayama Nov. 17. 2017		
REV. LET.			DESIGNED	H.Tokuno Nov. 17. 2017		
LET.	REVISIONS		DATE	DR.	CK.	AP.

1. SCOPE

This specification covers "UBY series" miniature single-ended aluminum electrolytic capacitors.

2. APPLICABLE SPECIFICATION

Japanese Industrial Standard JIS C 5101-4:1998 Characteristics W and JIS C 5101-1:1998 except as specified in this specification.

3. OPERATING TEMPERATURE RANGE

Operating temperature range is the range of ambient temperature at which the capacitor can be operated continuously at rated voltage.
-40~+135°C

4. CHARACTERISTICS

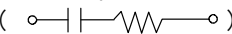
Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows :

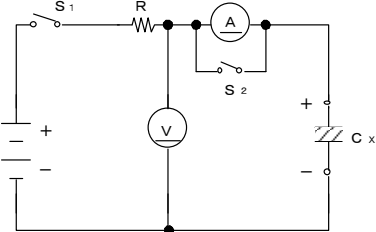
Ambient temperature : 5 to 35°C
Relative humidity : 45 to 85%RH
Air pressure : 86kPa to 106kPa

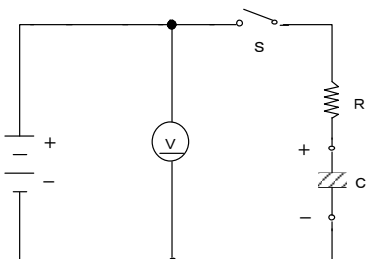
If there may be doubt on the results, measurements shall be made within the following limits,

Ambient temperature : 20±2°C
Relative humidity : 60 to 70%RH
Air pressure : 86kPa to 106kPa

4.1 ELECTRICAL CHARACTERISTICS

No.	Item	Test method	Performance
4.1.1	RATED VOLTAGE		DC 25~100 V
4.1.2	CAPACITANCE	Measuring frequency 120Hz ±20 % Measuring circuit : Series equivalent circuit () Measuring voltage : 0.5Vrms or less +1.5 to 2.0 VDC	620~12000 μF Capacitance tolerance: ±20%
4.1.3	Tan δ	Measuring frequency, measuring circuit and measuring voltage are the same those for capacitance.	Not more than the value given in table-1.

No.	Item	Test method	Performance															
4. 1. 4	LEAKAGE CURRENT	The rated voltage shall be applied across the capacitor and its protective resistor which shall be $1000\pm100\Omega$. The leakage current shall then be measured after an electrification period of 1 min. Measurement circuit  R : Protective resistor ($1000\pm100\Omega$) Ⓐ : DC ammeter Ⓥ : DC voltmeter S₁ : switch S₂ : Protective switch for an ammeter C_x : Test Capacitor	After 1 min; I=0.03CV I: Leakage current (μA) C: Capacitance (μF) V: Rated voltage (V)															
4. 1. 5	TEMPERATURE CHARACTERISTIC	<table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>20±2℃</td><td>-----</td></tr><tr><td>2</td><td>-25, -40⁺⁰₋₃ ℃</td><td>2h.</td></tr><tr><td>3</td><td>20±2℃</td><td>15min.</td></tr><tr><td>4</td><td>135⁺³₋₀ ℃</td><td>2h.</td></tr></table> Step 1 : Capacitance and impedance shall be measured. (Z 20℃ 120Hz±20%) Step 2 : After the capacitor being stored for 2 hours, Impedance shall be made at thermal stability. (Z -25, -40℃ 120Hz±20%) Step 4 : After the capacitor being stored for 2 hours, capacitance shall be measured. The measurement shall be made at thermal stability.	Step	Temperature	Time	1	20±2℃	-----	2	-25, -40 ⁺⁰ ₋₃ ℃	2h.	3	20±2℃	15min.	4	135 ⁺³ ₋₀ ℃	2h.	Step 2 : Impedance ratio Ratio to the value at step 1 shall be not more than the value given Table-1. Step 4 : Variation of capacitance Within ±20% of the value at Step 1.
Step	Temperature	Time																
1	20±2℃	-----																
2	-25, -40 ⁺⁰ ₋₃ ℃	2h.																
3	20±2℃	15min.																
4	135 ⁺³ ₋₀ ℃	2h.																
<table><tr><td>SPECIFICATION</td><td></td><td>DWG. No.</td><td>H170930e6</td><td>sheet</td><td>2</td></tr></table>				SPECIFICATION		DWG. No.	H170930e6	sheet	2									
SPECIFICATION		DWG. No.	H170930e6	sheet	2													

No.	Item	Test method	Performance												
4. 1. 6	SURGE TEST	Voltage application : 1000 times of charging for 30 ± 5 sec., with a period of 6 ± 0.5 min.. Test temperature : $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$ And the capacitor shall be stored under standard atmospheric conditions to obtain thermal stability, after which measurements shall be made. Test circuit  R : Protective series resistor ⓧ : DC voltmeter S : Switch Cx : Test capacitor Note : This requirement is applicable only to instantaneous over voltage which may be applied to the terminals of capacitor, therefore, not applicable to such over voltages as often applied.	Capacitance : Not less than 70% of the value before test. Dissipation factor : Not more than 300% of the specified value in Table 1. Leakage current : To satisfy No. 4. 1. 4.												
4. 2 MECHANICAL PERFORMANCE															
No.	Item	Test method	Performance												
4. 2. 1	TERMINAL STRENGTH	Tensile strength of termination: A static load of ※1 N shall be applied to the terminal in the axial direction and acting in a direction away from the body for 10 sec. <table border="1"><tr><td>dia. of wire ϕ</td><td>0. 6</td><td>0. 8</td></tr><tr><td>※1 Tensile force N</td><td>10</td><td>10</td></tr></table> Bending strength of termination: Hang the specified dead weight of ※2 N, then bent the body through 90° , return to the original position. Next bend it in opposite direction through 90° with the same speed, again return to the original position. Carry out this operation in about 5 sec. <table border="1"><tr><td>dia. of wire ϕ</td><td>0. 6</td><td>0. 8</td></tr><tr><td>※2 Tensile force N</td><td>5</td><td>5</td></tr></table>	dia. of wire ϕ	0. 6	0. 8	※1 Tensile force N	10	10	dia. of wire ϕ	0. 6	0. 8	※2 Tensile force N	5	5	When the capacitance is measured, there shall be no intermittent contacts, or open or short- circuiting. There shall be no such mechanical damage.
dia. of wire ϕ	0. 6	0. 8													
※1 Tensile force N	10	10													
dia. of wire ϕ	0. 6	0. 8													
※2 Tensile force N	5	5													
4. 2. 2	RESISTANCE TO VIBRATION	To comply with JIS C 5101-1 4. 17 Direction and duration of vibration: 3 orthogonal directions mutually each for 2h. Total 6h.	When the capacitance is measured, there shall be no intermittent contacts, or open or short- circuiting. There shall be no such mechanical damage.												
4. 2. 3	SOLDERABILITY	To comply with JIS C 5101-1 4. 15 Temperature or solder : $235 \pm 5^{\circ}\text{C}$ Dipping time : 2 ± 0.5 sec. This specification shall be met after the capacitors are stored under standard atmospheric conditions for 6 months.	At least $3/4$ of circum- ferential surface of the dipping portion of termination shall be covered with new solder.												
SPECIFICATION		DWG. No.	H170930e6												
		sheet	3												

4.3 ENDURANCE PERFORMANCE

No.	Item	Test method	Performance													
4.3.1	RESISTANCE TO SOLDERING HEAT	Solder bath method Solder temperature : 260±5℃ Immersion time : 10±1 sec. Printed wiring board : 1.6mm Soldering iron method Bit temperature : 350±10℃ Application time of soldering iron : 3¹/₂ sec. For other procedures then those specified, refer to JIS C 5101-1 4.14. Test Method 1 (Solder bath at 260℃) and Method 2 (Soldering iron at 350℃)	Variation of capacitance Within ±10% of the value before test. Tan δ : To satisfy Table 1 Leakage current : To satisfy No. 4.1.4 Appearance : No remarkable abnormality.													
4.3.2	RESISTANCE TO DAMP HEAT (STEADY STATE)	To comply with JIS C 5101-1 4.22 Test temperature : 40±2℃ Test time : 240±8h Relative humidity : 90~95%RH After complection of test, the capacitor shall be subjected to standard atmospheric conditions for 1 to 2 hours, after which measurements shall be made.	Variation of capacitance Within ±15% of the value before test. Tan δ : To satisfy Table 1 Leakage current : To satisfy No. 4.1.4 Appearance : No remarkable abnormality.													
4.3.3	ENDURANCE	To comply with JIS C 5101-1 4.23 Applied voltage D.C. bias with rated ripple current through protective resistance of 1000Ω, so that its peak voltage shall not exceed the rated D.C. voltage. The capacitors shall be removed from the test chamber and stabilized at room temperature for 2 h.. Test temperature 125±2℃ or 135±2℃ Test time <table><tr><th>Rated voltage</th><th>Test temperature</th><th>Test time</th></tr><tr><td rowspan="2">25~50V</td><td>125±2℃</td><td>3000⁺⁷²/₋₀ h</td></tr><tr><td>135±2℃</td><td>3000⁺⁷²/₋₀ h</td></tr><tr><td rowspan="2">63~100V</td><td>125±2℃</td><td>3000⁺⁷²/₋₀ h</td></tr><tr><td>135±2℃</td><td>2000⁺⁷²/₋₀ h</td></tr></table>	Rated voltage	Test temperature	Test time	25~50V	125±2℃	3000 ⁺⁷² / ₋₀ h	135±2℃	3000 ⁺⁷² / ₋₀ h	63~100V	125±2℃	3000 ⁺⁷² / ₋₀ h	135±2℃	2000 ⁺⁷² / ₋₀ h	Variation of capacitance : Within ±30 of the value before test. Tan δ : Not more than 300% of the specified value in Table 1. Leakage current : To satisfy No. 4.1.4 Appearance : No remarkable abnormality.
Rated voltage	Test temperature	Test time														
25~50V	125±2℃	3000 ⁺⁷² / ₋₀ h														
	135±2℃	3000 ⁺⁷² / ₋₀ h														
63~100V	125±2℃	3000 ⁺⁷² / ₋₀ h														
	135±2℃	2000 ⁺⁷² / ₋₀ h														

No.	Item	Test method	Performance						
4.3.4	SHELF LIFE TEST	The capacitors are then stored with no voltage applied at a temperature of $125 \pm 2^{\circ}\text{C}$ for 1000 h Following this period the capacitors shall be removed from the test chamber and be allowed to stabilized at room temperature. Next they shall be connected to a series limiting resistor with D.C. rated voltage applied for 30 min. after which the capacitors shall be discharged.	Variation of capacitance : Within $\pm 30\%$ of the value before test. Tan δ : Not more than 300% of the specified value in Table 1. Leakage current : To satisfy No.4.1.4 Appearance : No remarkable abnormality.						
4.3.5	PRESSURE RELIEF VENT TEST	A.C. Application Test The capacitor shall be subjected to an A.C. voltage(50 or 60Hz) with r.m.s.value equal to 0.7 times the rated D.C. voltage through a series resistor. The series resistor as follows. <table><tr><td>Cap. (μF)</td><td>R(Ω)</td></tr><tr><td>$C \leq 1000$</td><td>1</td></tr><tr><td>$1000 < C$</td><td>0.1</td></tr></table> D.C. Application Test The capacitor Shall be subjected to a reverse D.C. voltage equal to the rated D.C. voltage. The current flowing through the capacitor shall be limited to 1A.	Cap. (μF)	R(Ω)	$C \leq 1000$	1	$1000 < C$	0.1	The vent device is actuated under the test conditions, thereby preventing terminals,metal pieces, etc., of the capacitor from scattering due to burst, the case from separating from the seal packing, or the capacitor from producing flame.
Cap. (μF)	R(Ω)								
$C \leq 1000$	1								
$1000 < C$	0.1								
Note : The test is terminated if the vent device is not actuated when 30min. has elapsed from the start of the test conducted under the conditions.									

Table - 1 Electrical Characteristics

Rated voltage (V)	Surge voltage (V)	Tan δ ※4	Impedance ratio at 120Hz	
			$\frac{[Z]-25^{\circ}\text{C}}{[Z]+20^{\circ}\text{C}}$	$\frac{[Z]-40^{\circ}\text{C}}{[Z]+20^{\circ}\text{C}}$
25	32	0.14	2	4
35	44	0.12	2	4
50	63	0.10	2	4
63	79	0.10	2	4
80	100	0.08	2	4
100	125	0.08	2	4

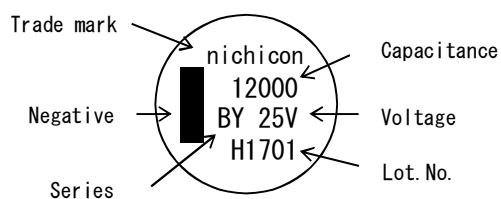
※4 For capacitance of more than $1000\mu\text{F}$, add 0.02 for every increase of $1001\mu\text{F}$.

5 . MARKING

5.1 The following items shall be marked indelibly on the capacitor.

- (1) Manufacture's name(abbreviated manufacture's name permitted)
or trade mark. : nichicon
- (2) Month and year of production or cord(including Lot No.)
- (3) Rated voltage
- (4) Capacitance
- (5) Polarity of the terminals
- (6) Series identification : BY

<MARKING>



5.2 Marking color

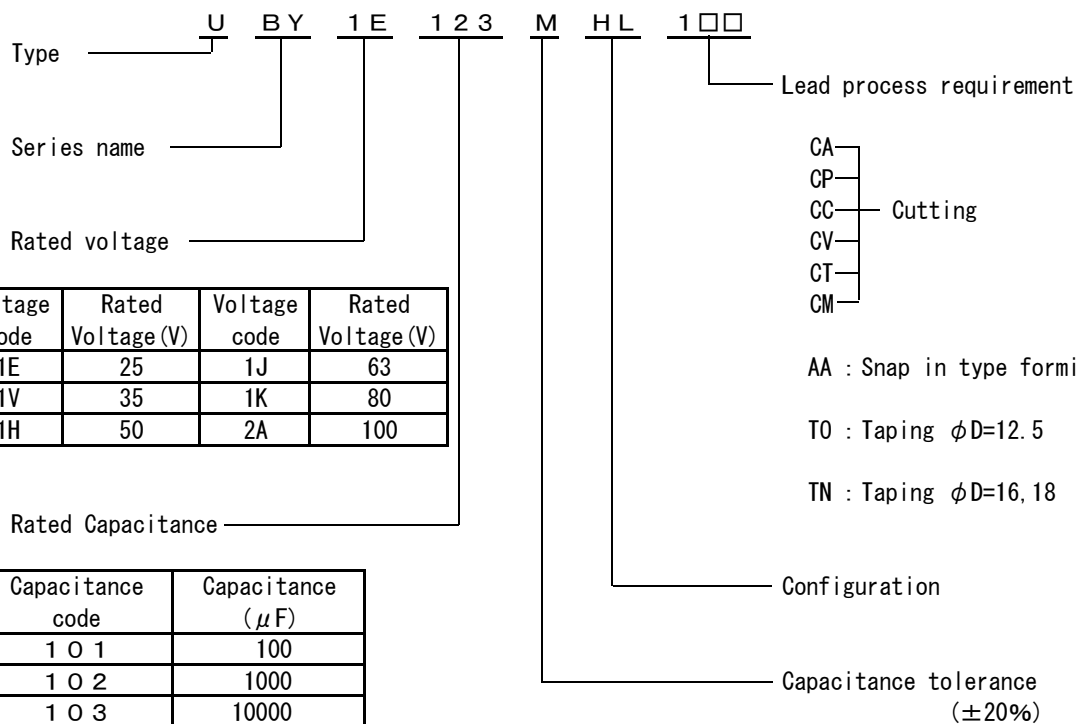
Cort :Resin Coated Aluminum case
Print :Black

5.3 Lot No.

<Example>

H 1 7 0 1	1st week 2 0 1 7 Factory code H:NICHICON (OHNO) CORPORATION N:NICHICON (IWATE) CORPORATION B:NICHICON (MALAYSIA) SDN. BHD. C:NICHICON ELECTRONICS (WUXI) CO., LTD.
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6. TYPE NUMBERING SYSTEM



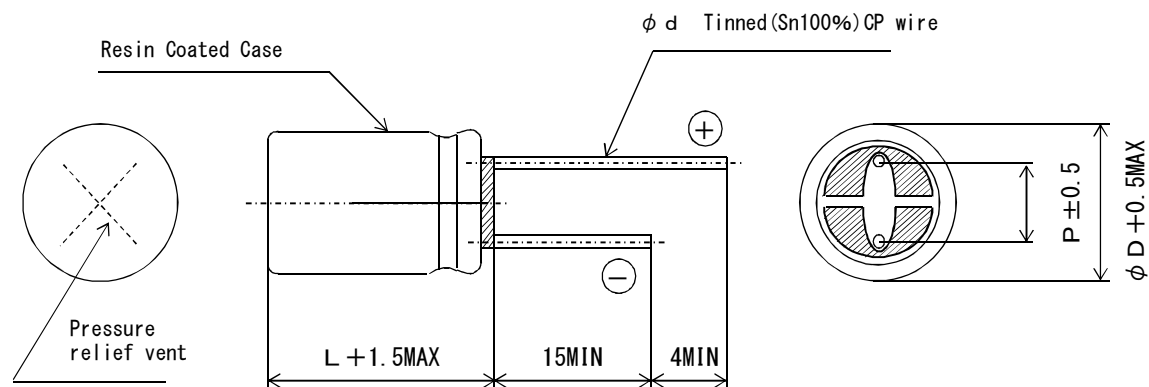
Voltage code	Rated Voltage (V)	Voltage code	Rated Voltage (V)
1E	25	1J	63
1V	35	1K	80
1H	50	2A	100

Rated Capacitance _____

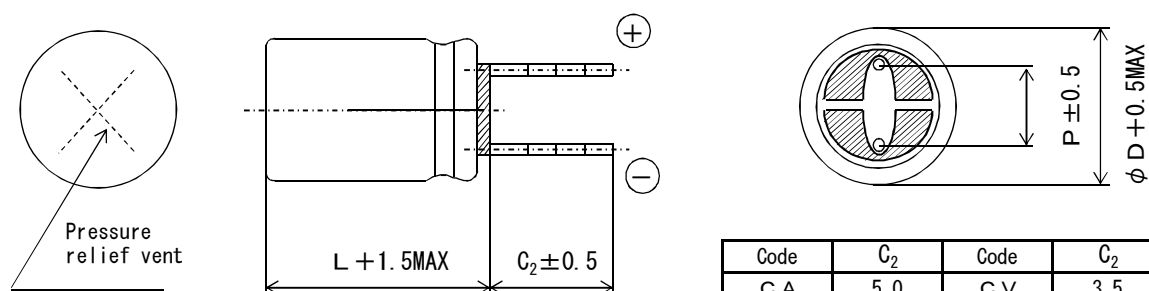
Capacitance code	Capacitance (μF)
1 0 1	100
1 0 2	1000
1 0 3	10000

7. SHAPE AND DIMENSIONS

A : LONG LEAD

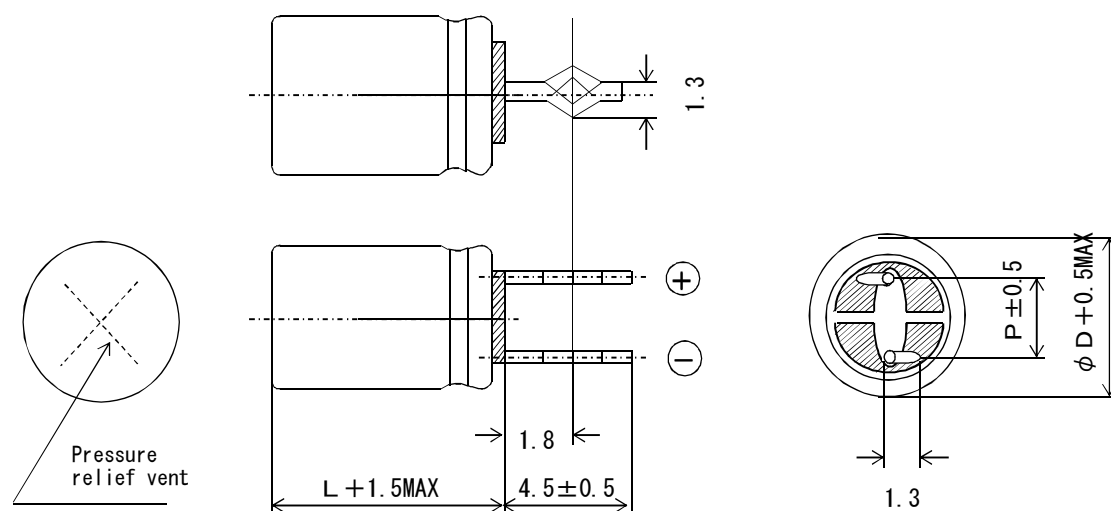


B : STRAIGHT CUT TYPE LEAD (Formed lead code : CA, CP, CC, CV, CT, CM)



Code	C_2	Code	C_2
CA	5.0	CV	3.5
CP	4.5	CT	3.2
CC	4.0	CM	3.0

C : SNAP-IN TYPE LEAD (Formed lead code : AA)



	(mm)		
ϕD	12.5	16	18
P	5.0	7.5	7.5
ϕd	0.6	0.8	0.8
	*0.8		

* : Applied to $L > 25$ products

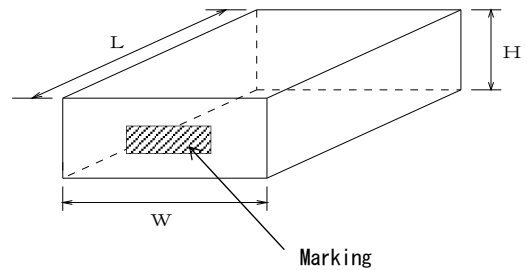
• Packing

(1)Quantity in box(sacks)

Size ϕ D $\times$ L (mm)	Long lead			Formed lead		
	sacks	Inside box	Outside box	sacks	Inside box	Outside box
ϕ 12.5 $\times$ 20	100	1000	4000	—	1330	5320
ϕ 12.5 $\times$ 25	100	800	3200	—	1000	4000
ϕ 12.5 $\times$ 31.5	100	600	2400	—	650	2600
ϕ 12.5 $\times$ 35.5	100	500	2000	—	650	2600
ϕ 12.5 $\times$ 40	100	400	1600	—	650	2600
ϕ 16 $\times$ 20	50	600	2400	—	840	3360
ϕ 16 $\times$ 25	50	400	1600	—	630	2520
ϕ 16 $\times$ 31.5	50	300	1200	—	630	2520
ϕ 16 $\times$ 35.5	50	300	1200	—	400	1600
ϕ 16 $\times$ 40	50	300	1200	—	400	1600
ϕ 18 $\times$ 20	50	400	1600	—	600	2400
ϕ 18 $\times$ 25	50	300	1200	—	450	1800
ϕ 18 $\times$ 31.5	50	300	1200	—	450	1800
ϕ 18 $\times$ 35.5	50	250	1000	—	300	1200
ϕ 18 $\times$ 40	50	200	800	—	300	1200

(2)Package dimensions

ϕ D		L	W	H
ϕ 12.5~ ϕ 18	Inside box	255	210	130
	Outside box	437	265	278



(3)Marking of inside box

Inside box shall be marked.

- 1)Rated voltage
- 2)Type No. (When requested)
- 3)Quantity
- 4)Produced lot number
- 5)Identification corresponding to environment.

(4)Weight

SIZE	WEIGHT	SIZE	WEIGHT
ϕ 12.5 $\times$ 20	3.43	ϕ 16 $\times$ 35.5	11.00
ϕ 12.5 $\times$ 25	4.56	ϕ 16 $\times$ 40	12.30
ϕ 12.5 $\times$ 31.5	6.01	ϕ 18 $\times$ 20	7.71
ϕ 12.5 $\times$ 35.5	7.06	ϕ 18 $\times$ 25	10.20
ϕ 12.5 $\times$ 40	7.57	ϕ 18 $\times$ 31.5	13.30
ϕ 16 $\times$ 20	5.92	ϕ 18 $\times$ 35.5	14.30
ϕ 16 $\times$ 25	7.38	ϕ 18 $\times$ 40	16.40
ϕ 16 $\times$ 31.5	8.43		

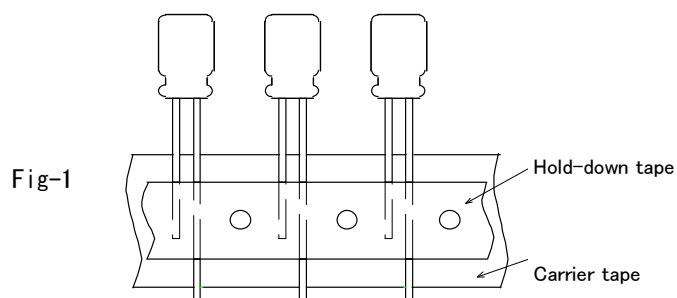
8. Application

This specification applied to the single-ended lead aluminum electrolytic capacitors for $\phi 8 \sim 16$ case diameter.

9. Taping method

9.1 Leads of capacitor shall be fixed between on the hold-down tape and carrier tape as shown Fig-1.

All capacitors shall be orientated in one direction such that the positive lead comes right side of the capacitor when seeing from hold-down tape up.



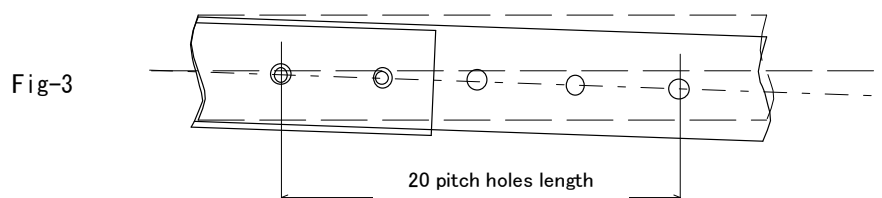
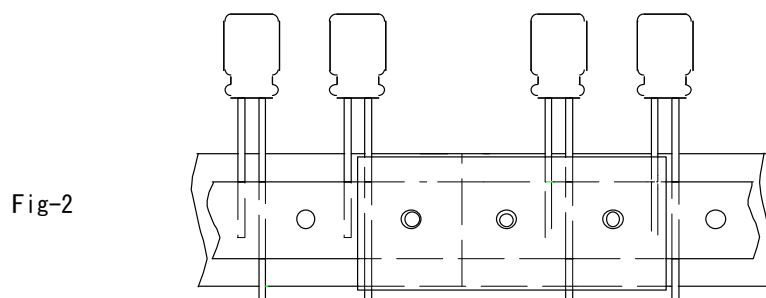
9.2 leader length and trailer length shall be 3 feeding hold unless otherwise requested.

9.3 There shall be no three successive missing product on tape.

9.4 Joint of carrier tape

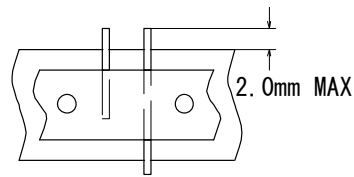
For joint of carrier tape, two carrier tape shall be joined together by winding adhesive tape around carrier tape.

Divergence of feed hold center shall not be exceed 1 mm at 20 feed holes length.



- 9.5 When leads are snipped to remove a capacitor, lead protrusion above the carrier tape shall be 2mm MAX.

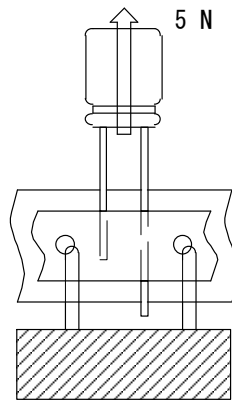
Fig-4



- 9.6 Pull strength

Capacitors shall be withstand 5N pull test without being removed from tape.

Fig-5

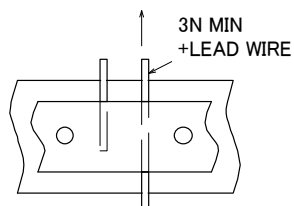


- 9.7 Lead pull strength

Lead pull strength after taped shall be 3N min (+ lead only).

+ lead shall be pulled vertically as show Fig-6 until the lead is completely removed from the tape by using pull tester.

Fig-6

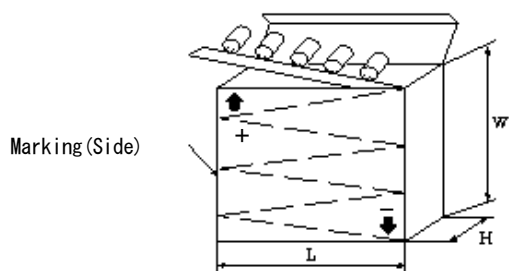


10 Packing

10.1 Taped capacitors are packed into carton case in zigzag each folding will have following units.

Diameter	Quantity
$\phi 12.5$	20
$\phi 16, 18$	10

10.2 Package dimensions



ϕD		L	W	H
$\phi 12.5$	20L	315	284	58
	25L	325	280	62
$\phi 16$	20L	305	220	58
	25L	305	220	61
$\phi 18$	20L	315	284	58
	25L	315	280	62

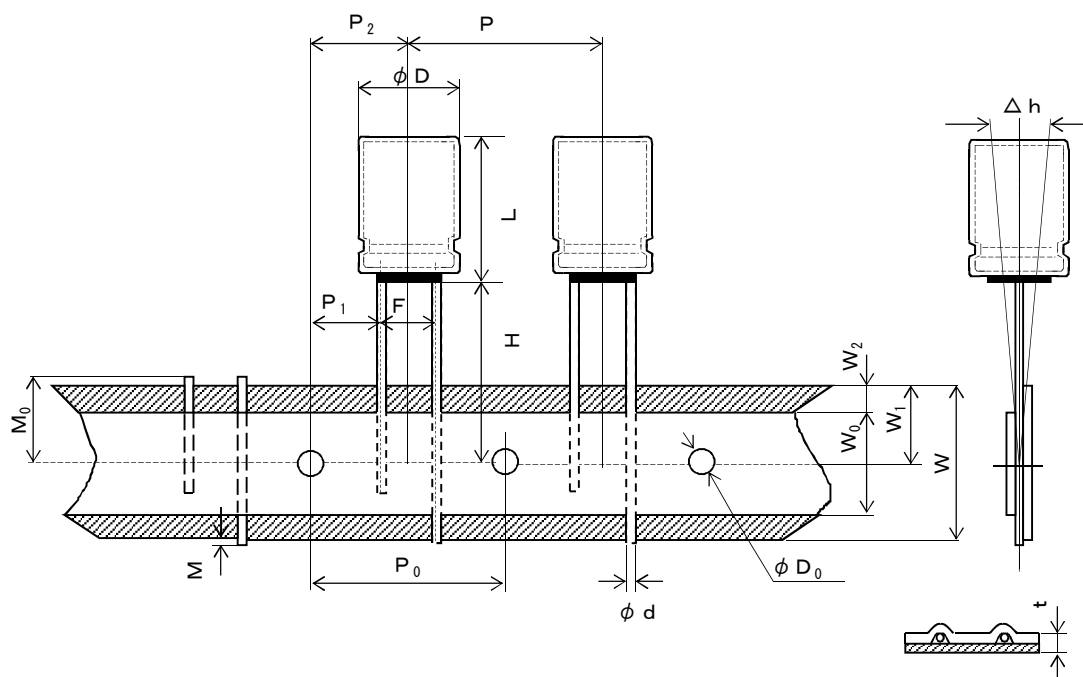
10.3 Marking(Each box shall be marked)

- 1) Polarity
As shown on 10.2, +/- polar is marked on the corresponding side surface.
- 2) Rated voltage
- 3) Type No. (When requested)
- 4) Quantity
- 5) Produced lot number
- 6) Polarity is marked on cover as +/-.

10.4 Quantity in box

ϕD	Inside box	Outside box
$\phi 12.5$	500	2500
$\phi 16$	250	1000
$\phi 18$	250	1250

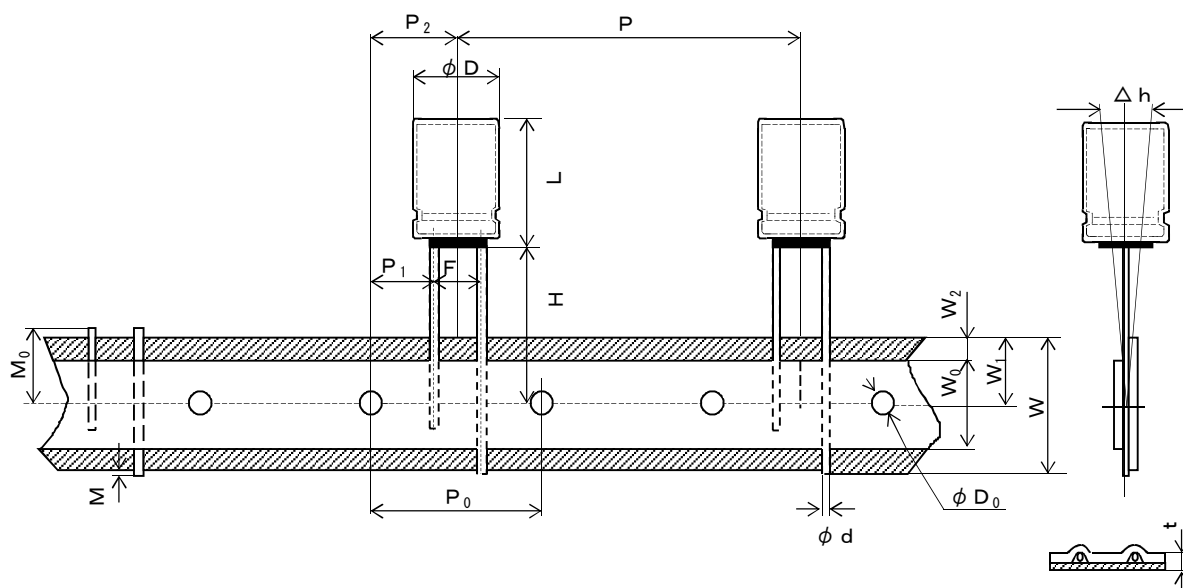
Taping Configuration (Taping code: T0)



(mm)

Item	Symbol	Value	Tolerance	Remarks
Body diameter	ϕD	12.5	+0.5MAX	
Body height	L	L	—	To comply with series specification.
Lead-wire diameter	ϕd	0.6	± 0.05	
Pitch of component	P	15.0	± 1.0	
Feed hole pitch	P ₀	15.0	± 0.2	
Hole center to lead	P ₁	5.0	± 0.5	
Feed hole center to component center	P ₂	7.5	± 1.0	
Lead to lead distance	F	5.0	+0.8 -0.2	
Component alignment F-R	Δh	0	± 1.0	Center of body.
Tape width	W	18.0	± 0.5	
Hold-down tape width	W ₀	12.5	MIN	The hold down tape shall not protrude beyond the carrier tape.
Hole position	W ₁	9.0	± 0.5	
Hold-down tape position	W ₂	1.5	MAX	
Height of component from tape center	H	18.5	+0.75 -0.5	
Lead-wire protrusion	M	1.0	MAX	
Feed hole diameter	ϕD_0	4.0	± 0.2	
Total tape thickness	t	0.6	± 0.2	
Length of snapped lead	M ₀	11.0	MAX	

Taping Configuration (Taping code: TN)



(mm)

Item	Symbol	Value	Tolerance	Remarks
Body diameter	ϕD	16, 18	+0.5MAX	
Body height	L	L	—	To comply with series specification.
Lead-wire diameter	ϕd	0.8	± 0.05	
Pitch of component	P	30.0	± 1.0	
Feed hole pitch	P ₀	15.0	± 0.2	
Hole center to lead	P ₁	3.75	± 0.5	
Feed hole center to component center	P ₂	7.5	± 1.0	
Lead to lead distance	F	7.5	± 0.8	
Component alignment F-R	Δh	0	± 1.0	Center of body.
Tape width	W	18.0	± 0.5	
Hold-down tape width	W ₀	12.5	MIN	The hold down tape shall not protrude beyond the carrier tape.
Hole position	W ₁	9.0	± 0.5	
Hold-down tape position	W ₂	1.5	MAX	
Height of component from tape center	H	18.5	+0.75 -0.5	
Lead-wire protrusion	M	1.0	MAX	
Feed hole diameter	ϕD_0	4.0	± 0.2	
Total tape thickness	t	0.6	± 0.2	
Length of snapped lead	M ₀	11.0	MAX	

Standard ratings

V Item cap (μ F)	25 (1E)					35 (1V)				
	Case size ϕ D $\times$ L (mm)	ESR (Ω MAX)		Rated ripple (mArms)		Case size ϕ D $\times$ L (mm)	ESR (Ω MAX)		Rated ripple (mArms)	
		20°C/ 100kHz	-40°C/ 100kHz	125°C/ 100kHz	135°C/ 100kHz		20°C/ 100kHz	-40°C/ 100kHz	125°C/ 100kHz	135°C/ 100kHz
1300						12.5 $\times$ 20	0.042	0.48	2760	1690
1800						12.5 $\times$ 25	0.033	0.30	3480	2010
2000	12.5 $\times$ 20	0.042	0.48	2760	1690					
2200						12.5 $\times$ 31.5	0.028	0.24	4490	2900
2700						▲ 16 $\times$ 20	0.031	0.27	3040	1860
						12.5 $\times$ 35.5	0.025	0.21	5140	3190
						▲ 18 $\times$ 20	0.030	0.22	3250	1870
3000	12.5 $\times$ 25	0.033	0.30	3480	2010	16 $\times$ 25	0.026	0.22	4260	2870
3300	16 $\times$ 20	0.031	0.27	3040	1860	12.5 $\times$ 40	0.024	0.19	5810	3470
3600	12.5 $\times$ 31.5	0.028	0.24	4490	2900					
3900						16 $\times$ 31.5	0.023	0.18	5480	3400
						▲ 18 $\times$ 25	0.025	0.19	4500	2900
4300	18 $\times$ 20	0.030	0.22	3250	1870					
4700	16 $\times$ 25	0.026	0.22	4260	2870	16 $\times$ 35.5	0.020	0.14	6070	3630
5100	12.5 $\times$ 40	0.024	0.19	5810	3470	18 $\times$ 31.5	0.022	0.16	5600	3470
5600						16 $\times$ 40	0.019	0.12	6810	3930
6200	16 $\times$ 31.5	0.023	0.18	5480	3400	18 $\times$ 35.5	0.019	0.12	6280	3750
	▲ 18 $\times$ 25	0.025	0.19	4500	2900					
7500	16 $\times$ 35.5	0.020	0.14	6070	3630	18 $\times$ 40	0.018	0.10	7070	4080
8200	18 $\times$ 31.5	0.022	0.16	5600	3470					
9100	16 $\times$ 40	0.019	0.12	6810	3930					
10000	18 $\times$ 35.5	0.019	0.12	6280	3750					
12000	18 $\times$ 40	0.018	0.10	7070	4080					

V Item cap (μ F)	50 (1H)					63 (1J)				
	Case size ϕ D $\times$ L (mm)	ESR (Ω MAX)		Rated ripple (mArms)		Case size ϕ D $\times$ L (mm)	ESR (Ω MAX)		Rated ripple (mArms)	
		20°C/ 100kHz	-40°C/ 100kHz	125°C/ 100kHz	135°C/ 100kHz		20°C/ 100kHz	-40°C/ 100kHz	125°C/ 100kHz	135°C/ 100kHz
390						12.5 $\times$ 20	0.074	0.56	1640	1420
560						12.5 $\times$ 25	0.054	0.39	2520	2050
620	12.5 $\times$ 20	0.056	0.52	2400	1470					
750						12.5 $\times$ 31.5	0.042	0.30	3110	2630
						▲ 16 $\times$ 20	0.053	0.34	2140	1910
820	12.5 $\times$ 25	0.044	0.35	3350	2260					
950						12.5 $\times$ 35.5	0.038	0.25	3760	2970
						▲ 18 $\times$ 20	0.048	0.26	2350	2100
1000	16 $\times$ 20	0.039	0.30	2960	1870	16 $\times$ 25	0.038	0.23	2940	2680
1100	12.5 $\times$ 31.5	0.037	0.26	4220	2520	12.5 $\times$ 40	0.031	0.22	4610	3260
1300	12.5 $\times$ 35.5	0.033	0.23	4810	2780	16 $\times$ 31.5	0.034	0.20	3860	3050
	▲ 16 $\times$ 25	0.033	0.22	4040	2500	▲ 18 $\times$ 25	0.035	0.19	3080	2810
	※ 18 $\times$ 20	0.038	0.20	3130	2110					
1600	12.5 $\times$ 40	0.032	0.20	5240	3020					
1700						16 $\times$ 35.5	0.027	0.15	4590	3420
1800	16 $\times$ 31.5	0.029	0.19	5130	2960	18 $\times$ 31.5	0.028	0.15	4080	3220
	▲ 18 $\times$ 25	0.032	0.19	4230	2530					
2000						16 $\times$ 40	0.025	0.14	5190	3670
2200	16 $\times$ 35.5	0.025	0.14	5480	3160	18 $\times$ 35.5	0.023	0.12	5220	3690
2400	18 $\times$ 31.5	0.025	0.16	5240	3020					
2500						18 $\times$ 40	0.021	0.11	5660	3820
2700	16 $\times$ 40	0.022	0.13	5930	3420					
3000	18 $\times$ 35.5	0.022	0.12	5870	3390					
3600	18 $\times$ 40	0.020	0.10	6420	3700					

- For marked 「※」, "3" will be put at 12th digit of type numbering system.
- For marked 「▲」, "6" will be put at 12th digit of type numbering system.

■ Standard ratings

V Item cap (μ F)	80 (1K)					100 (2A)				
	Case size ϕ D $\times$ L (mm)	ESR (Ω MAX)		Rated ripple (mA rms)		Case size ϕ D $\times$ L (mm)	ESR (Ω MAX)		Rated ripple (mA rms)	
		20°C/ 100kHz	-40°C/ 100kHz	125°C/ 100kHz	135°C/ 100kHz		20°C/ 100kHz	-40°C/ 100kHz	125°C/ 100kHz	135°C/ 100kHz
160						12.5 $\times$ 20	0.074	0.56	1640	1420
220						12.5 $\times$ 25	0.054	0.39	2520	2050
270	12.5 $\times$ 20	0.074	0.56	1640	1420	16 $\times$ 20	0.053	0.34	2140	1910
300						12.5 $\times$ 31.5	0.042	0.30	3110	2630
360						12.5 $\times$ 35.5	0.038	0.25	3760	2970
390	12.5 $\times$ 25	0.054	0.39	2520	2050	▲ 18 $\times$ 20	0.048	0.26	2350	2100
430						16 $\times$ 25	0.038	0.23	2940	2680
470	16 $\times$ 20	0.053	0.34	2140	1910	12.5 $\times$ 40	0.031	0.22	4610	3260
510	12.5 $\times$ 31.5	0.042	0.30	3110	2630	16 $\times$ 31.5	0.034	0.20	3860	3050
560						18 $\times$ 25	0.035	0.19	3080	2810
620	12.5 $\times$ 35.5	0.038	0.25	3760	2970	16 $\times$ 35.5	0.027	0.15	4590	3420
	▲ 18 $\times$ 20	0.048	0.26	2350	2100					
680	16 $\times$ 25	0.038	0.23	2940	2680					
750	12.5 $\times$ 40	0.031	0.22	4610	3260	18 $\times$ 31.5	0.028	0.15	4080	3220
820	16 $\times$ 31.5	0.034	0.20	3860	3050	16 $\times$ 40	0.025	0.14	5190	3670
	▲ 18 $\times$ 25	0.035	0.19	3080	2810	18 $\times$ 35.5	0.023	0.12	5220	3690
950										
1000	16 $\times$ 35.5	0.027	0.15	4590	3420	18 $\times$ 40	0.021	0.11	5660	3820
1100	18 $\times$ 31.5	0.028	0.15	4080	3220					
1300	16 $\times$ 40	0.025	0.14	5190	3670					
	▲ 18 $\times$ 35.5	0.023	0.12	5220	3690					
1600	18 $\times$ 40	0.021	0.11	5660	3820					

・ For marked 「▲」, "6" will be put at 12th digit of type numbering system.

・ Frequency coefficient of allowable ripple current

Cap (μ F) \ Freq.	120Hz	1kHz	10kHz	100kHz~
160	0.40	0.75	0.90	1.00
220~620	0.50	0.85	0.94	1.00
680~2000	0.60	0.87	0.95	1.00
2200~4300	0.75	0.90	0.95	1.00
4700~12000	0.85	0.95	0.98	1.00

11. RESISTANCE TO CLEANING AGENT

(1)Applicable cleaning agents

Pine Alpha ST-100S, Clean Through 750H/750L/710M, Sanelek b-12, Aqua Cleaner 210SEP, Techno Care FRW14~17, Iso-propyl Alcohol

(2)Cleaning condition

Total cleaning time shall be within 5 minutes by immersion, ultrasonic or other method. (Temperature of the cleaning agent shall be 60°C or lower)

After cleaning, capacitors should be dried using hot air for minimum of 10 minutes along with the PC board. Hot air temperature should be below the maximum operating temperature of the capacitor.

Insufficient dries after water rinse may cause appearance problems , bottom-plate bulge and such.

12. APPLICATION NOTICE

(1)Application of reverse voltage would lead the short-circuited circuitry and may further result in an explosion if the unit is kept energized.

(2)Do not use for a circuit where abrupt discharges are repeated frequency.

(3)Do not apply any voltage exceeding the rated voltage (or surge voltage when in short time).

(4)Do not allow any higher ripple currents than rated to flow through a capacitor.

(5)Whenever you use a capacitor that has been long stored, make sure to gradually increase the voltage to the rated value.

(6)The characteristics of capacitor will be adversely affected if leads are dipped in solder too long or if the solder temperature is too high.

(7)Be careful not to subject the lead wires of capacitors to excessive force.

13. OTHERS

• The Relevant Export Regulation Laws:

In case that there is a certain danger of the products conflicting with the use and activity for the developments of weapons of mass destruction, the procedures based upon the relevant export regulation laws are absolutely needed.

• Ozone Depletion Substance

Ozone depletion substances are not used in our production process and at our suppliers.

• Brominated Flame Retardants

The restricted brominated flame retardants are not used.

• RoHS Directive target substance(lead, cadmium, mercury, sexivalent chrome, PBB, PBDE)are not used.

• Estimated life

Please use the estimated life, which is calculated at various temperature conditions etc, as reference value.

• Production factory

NICHICON (OHNO) CORPORATION

NICHICON (IWATE) CORPORATION

NICHICON (MALAYSIA) SDN. BHD.

NICHICON ELECTRONICS (WUXI) CO., LTD.

SPECIFICATION		DWG. No.	H170930e6	sheet	17
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Material of Aluminum Electrolytic Capacitors

U B Y series

No.	I T E M	M A T E R I A L S
①	Anode foil	High-purity Aluminum foil
②	Cathode foil	High-purity Aluminum foil
③	Separator	Non wood fiber
④	Lead wire	Tinned (Sn:100%) CP wire
⑤	Aluminum lead tab	Aluminum
⑥	Rubber end seal	synthetic rubber
⑦	Aluminum case	Resin Coated Aluminum
⑧	Tape or binder	Tape : Polypropylene Binder : Poval
⑨	Paste	γ -buthyrolactone and organic acid

Structure for Alminum Electrolytic Capacitor

