

4 MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS



PART NUMBER SYSTEM

● Part Number System

							
①	②	③	④	⑤	⑥	⑦	⑧
Series Name	Rated Voltage	Capacitance	Cap. Tol.	Case Diameter	Case Height	Lead Taping Forming and Cutting	Internal Control Code

1 Series Name

See page 4~5.

2 Rated Working Voltage

WV	2.5	4	6.3	10	16	20	25
Code	0E	0G	0J	1A	1C	1D	1E
WV	35	40	50	63	80	100	160
Code	1V	1G	1H	1J	1K	2A	2C
WV	200	250	315	350	400	450	500
Code	2D	2E	2F	2V	2G	2W	2H

3 Capacitance

ex) $0.47\mu\text{F}$	474
$4.7\mu\text{F}$	475
$47\mu\text{F}$	476
$470\mu\text{F}$	477
$4700\mu\text{F}$	478
$47000\mu\text{F}$	479

4 Capacitance Tolerance

Tolerance (%)	± 10	± 20	$\begin{matrix} -10 \\ +20 \end{matrix}$	$\begin{matrix} -10 \\ +30 \end{matrix}$	$\begin{matrix} -10 \\ +50 \end{matrix}$
Code	K	M	V	Q	T

5 Case Diameter

Øx)	Ø3	03	Ø12.5	12
	Ø4	04	Ø14.5	14
	Ø5	05	Ø16	16
	Ø6.3	6L	Ø18	18
	Ø8	08	Ø22	22
	Ø10	10	Ø25.4	25

6 Case Height

ex)	5mm	005
	11mm	011
	12.5mm	12M
	20mm	020
	31.5mm	31M
	35.5mm	35M

7 Lead Taping, Forming and Cutting

See pages 80 ~ 82

PACKING

● BULK PACKING QUANTITY(pcs) / BOX

Unit : mm

SIZE		BULK (QUANTITY)		
ØD	L	V-Bag	INNER BOX	MIDDLE BOX
3	5	500	12000	48000
4	5, 7	500	10000	40000
5	5, 7, 9, 11	500	7000	28000
6.3	5, 7, 9, 11	500	6000	24000
8	5	500	5000	20000
	9, 11.5	300	3600	14400
10	9, 12.5	200	2400	9600
	16	200	2000	8000
	20, 25	200	1600	6400
12.5	16	100	1200	4800
	20	100	1000	4000
	25	100	900	3600
16	16	100	800	3200
	20	50	600	2400
	25	50	500	2000
	31.5, 35.5	50	400	1600
18	16	50	600	2400
	20	50	500	2000
	20, 25(31.5)	50	400	1600
	35.5	50	300	1200

● CUTTING PACKING QUANTITY(pcs) / BOX

Unit : mm

SIZE		CUTTING (QUANTITY)		
ØD	L	V-Bag	INNER BOX	MIDDLE BOX
4	5, 7	500	9000	36000
5	5, 7, 9, 11	500	7000	28000
6.3	5, 7, 9, 11	500	6000	24000
8	6	500	5000	20000
	9, 11.5	300	3600	14400
10	9		1000	8000(16000)
	12.5		800	6400(12800)
	16		700	5600(11200)
	20		500	4000(8000)
	25		400	3200(6400)
	30		900	2700
	40		900	1800
12.5	16		400	3200(6400)
	20		300	2400(4800)
	25		250	2000(4000)
	40		600	1200
16	16		400	1200
	20		400	1200
	25, 31.5		400	1200
	35.5		400	1200
	40		400	1200
18	16		300	900
	20		300	900
	25		300	900
	31.5, 35.5		300	900
	40		300	900
20	41		240	720
22	35.5		200	600
	40 ↑		200	600
25.4	35.5		100	300
	40 ↑		100	300

*() is for oversea

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

● Lead Forming & Cutting

Unit : mm

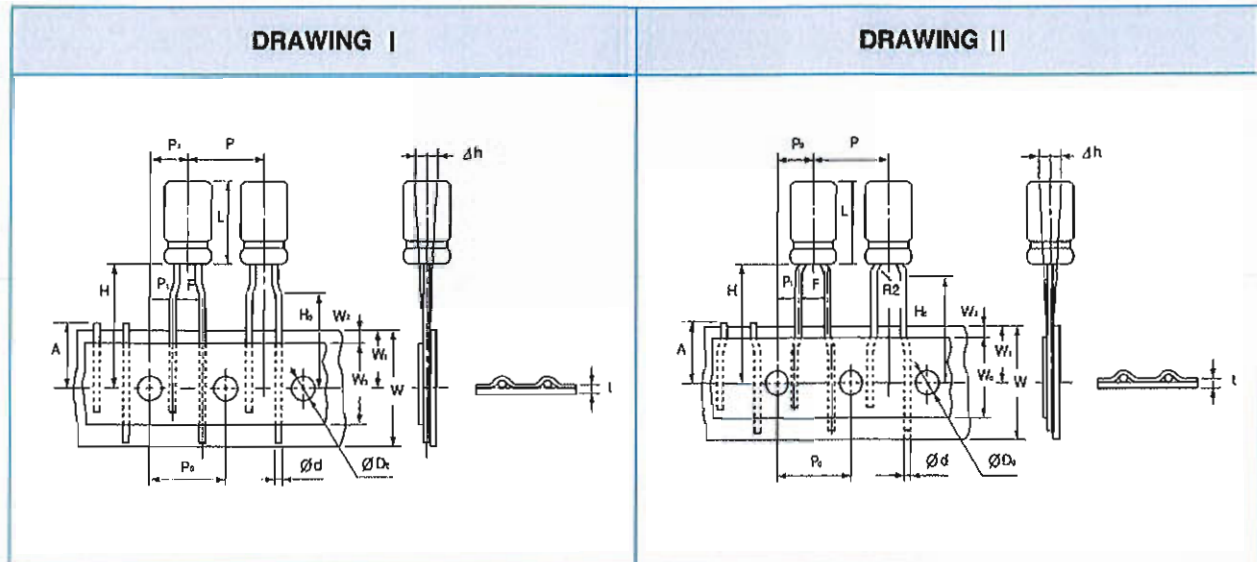
Configurations	Case dia.	Shape	Code	Drawing	
				L	F
T - Type	$\varnothing D \leq 8$		TS	4.5	5.0
S - Type	$\varnothing D \geq 10$		SS	4.5	-
F - Type	$\varnothing D \leq 8$		FS	5.0	5.0
C - Type	ALL		CS	5.0	-

Configurations	Case dia.	Shape		Drawing	
				M	N
	$\varnothing D \geq 8$				
D - Type	Code	DL	DR	3.0	3.2
H - Type		HL	HR	3.0	3.7
M - Type		ML	MR	6.0	2.5
Q - Type		QL	QR	6.0	1.5
J - Type		JL	JR	6.0	0.5

TAPING

● Lead Taping Capacitors for Automatic Insertion

● Ammo



● DIMENSIONS

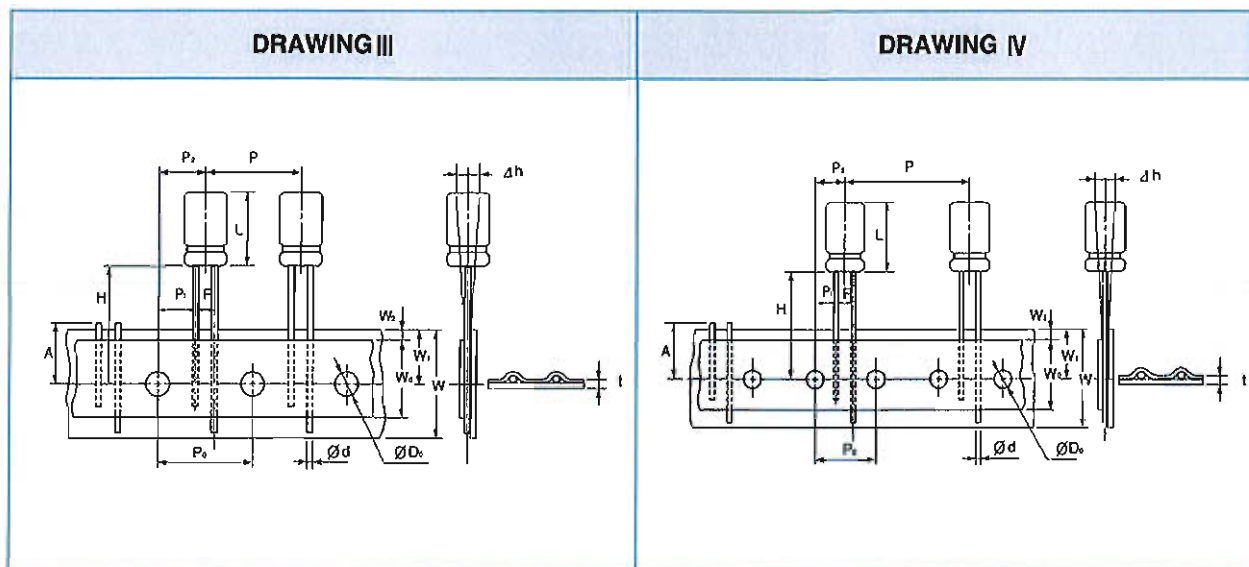
Unit : mm

Applicable Drawing No.			I (II)				III		I					
Description	Symbol	Tolerance	Ø3	Ø4	Ø5	7~11	Ø6.3	Ø8	Ø4	Ø5	Ø6.3	Ø8	Ø4	Ø5
Case Height	L	*Note	5	5, 7	5	7~11	5	7~11	5	5, 7	5	7~11	5	9, 11.5
Lead Dia.	d	±0.05	0.4	0.45	0.45	0.5	0.45	0.5	0.45	0.45	0.45	0.5	0.45	0.6
Body Pitch	P	±1.0	12.7				12.7	12.7	12.7				12.7	12.7
Feeding Hole Pitch	P0	±0.2	12.7				12.7	12.7	12.7				12.7	12.7
Feeding Hole Alignment	P1	±0.7	5.1				5.1	5.1	3.85				3.85	3.85
Feeding Hole Alignment	P2	±1.0	6.35				6.35	6.35	6.35				6.35	6.35
Lead Center Spacing	F	+0.6 -0.2	2.5				2.5	2.5	5.0				5.0	5.0
Body Inclination	Δh	±2.0	0				0	0	0				0	0
Tape Width	W	±0.5	18.0				18.0	18.0	18.0				18.0	18.0
Adhesive Tape Width	W0	min.	9.5				9.5	9.5	9.5				9.5	12.5
Feeding Hole Alignment	W1	±0.5	9.0				9.0	9.0	9.0				9.0	9.0
Adhesive Tape Margin	W2	max.	2.0				2.0	2.0	2.0				2.0	2.0
Length from Seating Plane	H	±0.5	17.5 (18.0)				17.5	18.5	18.5 (5, 7mm L = 17.5)				17.5	20.0
Lead Clinch Height	H0	±0.5	16.5 (17.0)				—	—	16.5				16.5	16.5
Feeding Hole Dia.	ØD0	±0.2	4.0				4.0	4.0	4.0				4.0	4.0
Total Tape Thickness	t	±0.2	0.7				0.7	0.7	0.7				0.7	0.7
Cut Lead Height	A	max.	11.0				11.0	11.0	11.0				11.0	11.0
Taping Code	Ammo	⊕ leader	PB(PC)				PC	PE	PA				PA	PG

* Note : Refer to the drawing of each series for tolerance.

TAPING

● Lead Taping Capacitors for Automatic Insertion



● DIMENSIONS

Unit : mm

Applicable Drawing No.			III	III	IV	IV	IV
Description	Symbol	Tolerance	Ø10	Ø12.5	Ø16	Ø18	Ø18
Case Height	L	max.	27.0	27.0	37.5	37.5	37.5
Lead Dia.	d	±0.05	0.6	0.6	0.8	0.8	0.8
Body Pitch	P	±1.0	12.7	15.0	25.4	30.0	30.0
Feeding Hole Pitch	P ₀	±0.2	12.7	15.0	12.7	15.0	15.0
Feeding Hole Alignment	P ₁	±0.7	3.85	5.0	3.85	3.75	3.75
Feeding Hole Alignment	P ₂	±1.0	6.35	7.5	6.35	7.5	7.5
Lead Center Spacing	F	+0.6 -0.2	5.0	5.0	7.5	7.5	7.5
Body Inclination	Δh	±2.0	0	0	0	0	0
Tape Width	W	±0.5	18.0	18.0	18.0	18.0	18.0
Adhesive Tape Width	W ₀	min.	12.5	12.5	12.5	12.5	12.5
Feeding Hole Alignment	W ₁	±0.5	9.0	9.0	9.0	9.0	9.0
Adhesive Tape Margin	W ₂	max.	2.0	2.0	2.0	2.0	2.0
Length from Seating Plane	H	±0.5	18.5	18.5	18.5	18.5	18.5
Feeding Hole Dia.	ØD ₀	±0.2	4.0	4.0	4.0	4.0	4.0
Total Tape Thickness	t	±0.2	0.7	0.7	0.7	0.7	0.7
Cut Lead Height	A	max.	11.0	11.0	11.0	11.0	11.0
Taping Code	Ammo	⊕ leader	PA	PH	PL	PA	PA

● PACKAGING Q'ty(pcs.)/Box

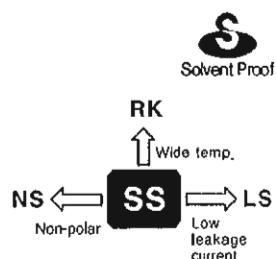
Unit : mm

Ammo					
Size	Case Height	L	H	W	Q'ty
3	5	332	230	42	3000
4	5, 7				2500
5	5, 7	332	230	49	2000
	9, 11				
6.3	5, 7	332	230	42	1500
	9, 11				
8	5	332	230	42	1000
	9, 11.5				
10	9, 12.5, 16	332	190	51	500
	20, 25				
12.5	16, 20, 25	342	240	62	400
16	16, 20, 25	342	240	62	250
	31.5, 35.5				
18	16, 20, 25	342	240	62	200
	31.5, 35.5				

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

SS Standard, Height 7mmL Series

- Super miniature series with 7mmL height
- Sulted for use in compact audio equipment
- Load life of 2000 hours at 85°C
- Complied to the RoHS directive



Item	Characteristics								
Operating temperature range	-40 ~ +85°C								
Leakage current max.	I = 0.01CV or 4μA whichever is greater (after 1 minute)								
Capacitance tolerance	±20% at 120Hz, 20°C								
Dissipation factor max. (at 120Hz, 20°C)	WV	4	6.3	10	16	25	35, 40	50	63
	tanδ	0.35	0.24	0.20	0.16	0.14	0.12	0.10	0.10
Low temperature characteristics (Impedance ratio at 120Hz)	WV	4	6.3	10	16, 25	35 ~ 63			
	Z-25°C/Z+20°C	6	4	3	2	2			
	Z-40°C/Z+20°C	12	8	6	4	3			
Load life (after application of the rated voltage for 2000 hours at 85°C)	Leakage current				Less than specified value				
	Capacitance change				Within ±20% of initial value				
	tanδ				Less than 200% of specified value				
Shelf life (at 85°C)	After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value. The measurement shall be performed at 20°C by the KS C 6503 clause 5.1.								

● DRAWING (See page 93)

Unit : mm

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV	4	6.3	10	16	25	35	40	50	63						
0.1								4×7	4.4	4×7	4.4				
0.15								4×7	5.4	4×7	5.4				
0.22								4×7	6.6	4×7	6.6				
0.33								4×7	8.0	4×7	8.0				
0.47								4×7	10	4×7	10				
0.68								4×7	12	4×7	12				
1.0								4×7	14	4×7	14				
1.5								4×7	17	4×7	17				
2.2								4×7	21	4×7	21				
3.3								4×7	25	4×7	25				
4.7								4×7	30	4×7	30				
6.8						4×7	33	4×7	33	4×7	37	5×7	42		
10					4×7	37	4×7	40	4×7	40	5×7	51	5×7	51	
15				4×7	43	4×7	46	5×7	57	5×7	57	6.3×7	72	6.3×7	72
22			4×7	46	4×7	52	5×7	64	5×7	69	6.3×7	80	6.3×7	88	
33	4×7	43	4×7	52	4×7	57	5×7	73	5×7	78	6.3×7	98	6.3×7	98	
47	4×7	51	4×7	62	5×7	78	5×7	87	6.3×7	108					
68	5×7	71	5×7	86	5×7	94	6.3×7	122							
100	5×7	86	5×7	104	6.3×7	132	6.3×7	148							
150	6.3×7	122	6.3×7	148	6.3×7	162									
220	6.3×7	148	6.3×7	179											

● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

Frequency	60Hz	120Hz	1kHz	10kHz	50kHz	100kHz
~ 47	0.75	1.00	1.55	2.00	2.00	2.00
68 ~ 680	0.80	1.00	1.35	1.50	1.62	1.75