# **ALUMINUM ELECTROLYTIC CAPACITORS**



- For SMD Low Impedance Anti-Solvent Feature
- Chip type, low impedance temperature range up to +105°C.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU).

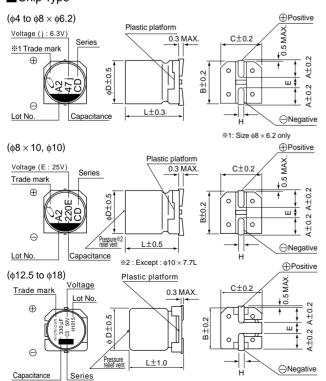




#### **Specifications**

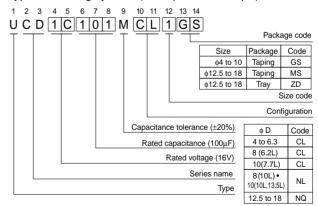
Item		Performance Characteristics													
Category Temperature Range	- 55 to +105°C	55 to +105°C													
Rated Voltage Range	6.3 to 100V	3 to 100V													
Rated Capacitance Range	1 to 3300μF	ο 3300μF													
Capacitance Tolerance	± 20% at 120Hz, 2	20% at 120Hz, 20°C													
Leakage Current	After 2 minutes' ap	fter 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μA), whichever is greater.													
								Meas	suremer	nt freque	ency : 120	Hz at 20°C	;		
Tangent of loss angle (tan δ)	Rated voltage (V)	)	6.3	10	16	25	3	35 5	50	63	80	100	]		
rangent of loss angle (tail o)	tan δ (MAX.)	0.26	0.19	0.16	0.14	0.	12 0	.10	0.08	0.08	0.07	]			
	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.														
									Measurement frequency : 120Hz						
	Rated voltage (V)	)	6.3	10	16	25	3	35 5	50	63	80	100			
Stability at Low Temperature	Impecance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	2	2	2	2	-		2	2	2	2			
		Z-40°C / Z+20°C	3	3	3	3	_		3	3	3	3			
		Z-55°C / Z+20°C	4	4	4	3		3	3	3	3	3	]		
	The specifications listed at right shall be met when the										citance val	ue			
Endurance	capacitors are resi	tan δ	tan δ 200% or					r less than the initial specified value r less than the initial specified value for 63V or more							
	or less, and for L ≦	≦ 10mm: 63V or more	e) at 105°	C.	Leakaç	Leakage current Less tha					an or equal to the initial specified value				
Shelf Life		apacitors under no lo leet the specified valu							ge treat	tment ba	ased on J	IS C 5101-	4 clause 4.1 at		
Resistance to soldering		e kept on a hot plate t °C. The capacitors sh									Within ± 10% of the initial capacitance value				
heat		d at right when they a							Less than or equal to the initial specified value  Less than or equal to the initial specified value						
Marking	Black print on the	case top.													

### Chip Type



• Dimension table in next page.

### Type numbering system (Example: 16V 100μF)



Ø D×L	4 × 5.8	5×5.8	6.3×5.8	6.3×7.7	8×6.2	8×10	10×7.7	10×10	(mm)
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	
В	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	
С	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	
Е	1.0	1.3	2.2	2.2	2.3	3.1	4.5	4.5	
L	5.8	5.8	5.8	7.7	6.2	10	7.7	10	
Н	0.5 to 0.8	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1					

ø D×L	10 × 13.5	12.5 × 13.5	16 × 16.5	18 × 16.5
Α	3.2	4.8	5.4	6.4
В	10.3	13.6	17.1	19.1
С	10.3	13.6	17.1	19.1
Е	4.5	4.0	6.3	6.3
L	13.5	13.5	16.5	16.5
Н	0.8 to 1.1	1.0 to 1.4	1.0 to 1.4	1.0 to 1.4

Voltage	
V	
Code	

	6.3	10	16	25	35	50	63	80	100
1	j	Α	С	Е	V	Н	J	K	2A



## Dimensions

	V	6	.3		1	10			16		2	25		35		50					
Cap. (µF)	Code	0	IJ		1	ΙA			1C		1	E		1	V		,	1H			
1	010					 	! !		I I	I I		 	1		l		4×5.8	2.70	60		
2.2	2R2								1	1		1					4 × 5.8	2.70	60		
3.3	3R3								i	İ		i i					4 × 5.8	2.70	60		
4.7	4R7									i		i i		4×5.8	1.35	90	4 × 5.8	2.70	60		
10	100							4 × 5.8	1 1 25	90	4 × 5.8	1.35	00	●4×5.8	1.35	90	● 5 × 5.8	1.50	90		
10	100							4 × 3.0	1 1.33	1 30	4 × 3.0	1 1.33	1 30	5 × 5.8	0.70	160	6.3 × 5.8	0.86	170		
15	150					! !		4 × 5.8	1.35	90	5 × 5.8	0.70	160					1			
22	220	4 × 5.8	1.35	90	4 × 5.8	1.35	90	● 4 × 5.8	1.35	90	5×5.8	1 0.70	1 160	5×5.8	1 0 70 <sup>1</sup>	160	6.3 × 5.8	0.86	170		
22	220	4 \ 3.0	1.55	1 30	4 × 3.0	1.55	1 30	5 × 5.8	0.70	160	3 \ 3.0	1 0.70	1 100	3 \ 3.0	1 0.70	100	0.5 \ 5.0	1 0.00	1 170		
27	270	4 × 5.8	1.35	90	5 × 5.8	0.70	160	5 × 5.8	0.70	160	6.3 × 5.8	0.36	240		l !			1	l I		
33	330	5 × 5.8	0.70	160	• 4 × 5.8	1.35	90	6.3 × 5.8	1 1 0.36	1 240	●5×5.8	0.70	160	160	160	6.3×5.8	າ 1 1036 <sup>1</sup>	240	6.3×7.7	0.66	195
33	330	0 × 0.0	0.70		5 × 5.8	0.70	160	0.0 × 0.0	, 0.00 		6.3 × 5.8	0.36	240	0.0 × 0.0	0.00 	2-10	● 8 × 6.2	0.63	200		
47	470	• 4 × 5.8	1.35	90	6.3×5.8	ı 1 0.36	240	● 5 × 5.8	0.70	160	6.3 × 5.8	1 1 0.36	240	6.3×5.8	   0.36	240	6.3×7.7	0.66	195		
	170	5 × 5.8	0.70	160	0.0 × 0.0	1		6.3 × 5.8	0.36	240	0.0 × 0.0	1	2-10	0.0 × 0.0	0.00	2-10	● 8 × 6.2	0.63	200		
56	560	5 × 5.8	0.70	160	6.3 × 5.8	0.36	240	6.3 × 5.8	0.36	240	6.3 × 5.8	0.36	240					1 1			
68	680	6.3 × 5.8	0.36	240	6.3 × 5.8	0.36	240	6.3 × 5.8	0.36	240	6.3 × 5.8	0.36	240	6.3×7.7	0.32	290		1 1			
100	101	● 5 × 5.8	0.70		6.3 × 5.8	. 0.36	240	6.3×5.8	0.36	240	6.3×7.7	0.32	290	●6.3×7.7	0.32	290	8 × 10	0.32			
		6.3 × 5.8			0.0 % 0.0	1		0.0 % 0.0	1	1	● 8 × 6.2	0.26	300	8 × 10	0.16	600	●10×7.7				
150	151	6.3 × 5.8	0.36	240	6.3 × 5.8	0.36	240	6.3×7.7	0.32	290	8×10	0.16	600	8 × 10	0.16	600	10 × 10	0.16	700		
		0.000				1			1		●10×7.7	0.18	600	● 10 × 7.7	0.18	600		1	1		
220	221	6.3×5.8	0.36	240	6.3×7.7	0.32	290	6.3×7.7	0.32	290	8 × 10	0.16	600	8×10	0.16	600	10×10	0.16	700		
					● 8 × 6.2	0.26	300	●8×6.2	0.26	300	●10×7.7	0.18	600	●10×7.7	0.18	600		1	1		
330	331	6.3×7.7	0.32	290	8 × 10	0.16	600	8 × 10	0.16	600	8×10	1 1 0.16	l 600	10×10	1 0.08 <sup>1</sup>	850	●10 × 13.5	0.14	800		
		● 8 × 6.2	0.26	300	●10×7.7	0.18	600	●10×7.7	0.18	600					 		12.5 × 13.5	0.12	900		
390	391		 			! <del>!</del>			I <del></del>	 		! <del>!</del>	<u> </u>		 		12.5 × 13.5	0.12	900		
470	471	8 × 10	0.16	600	8 × 10	0.16 	600	8 × 10	0.16 		10×10	I I 0.08	850	●10 × 13.5			16 × 16.5	10.073	1610		
		●10 × 7.7	0.18	600	●10×7.7	0.18	600	●10×7.7	0.18	600		1		12.5 × 13.5	0.08	1100		1			
680	681	8 × 10	0.16	600	10 × 10	0.08	850	10 × 10	0.08	850	10 × 13.5	0.08	950	12.5 × 13.5	0.08	1100	16 × 16.5	0.073	1610		
		●10 × 7.7	0.18	600			ı		l I			j I						1 1	1		
1000	102	8 × 10	0.16	600	10 × 10	0.08	850	10 × 13.5	0.08	950	12.5 × 13.5	0.08	1100	16 × 16.5	0.035	1800		<u> </u>			
1500	152	10 × 10	0.08	850	10 × 13.5	0.08	950	12.5 × 13.5	0.08	1100		1						<u> </u>			
2200	222	10 × 13.5	0.08	950	12.5 × 13.5	0.08	1100		<u> </u>	<u> </u>	16 × 16.5	0.035	1800				Case size $\phi D \times L$	Impedance	Rated		
3300	332	12.5 × 13.5	0.08	1100		! !			I L	l L		 			l		(mm)		ripple		

V	6	3		×	30		100			
Code	1	1J 1K					2	2A		
3R3		 	 	5 × 5.8	5.00	25		l I		
4R7	5 × 5.8	3.00	50	6.3 × 5.8	3.00	40		I		
100	6050	1 4 50	I I 00	6.3×7.7	2.40	60		I		
100	0.3 × 5.8	1.50	1 80	● 8 × 6.2	2.40	60				
220	6.3×7.7	1.20	120	0 10	1	1 120	010	1 1 20	1 120	
220	● 8 × 6.2	1.20	120	0 × 10 ·	1.30	130	6 × 10	1.30	130	
330	8 × 10	0.65	250	8 × 10	1.30	130	10×10	0.70	200	
470	8 × 10	0.65	250	10×10	0.70	200	12.5 × 13.5	0.32	500	
680	10×10	0.35	400	12.5 × 13.5	0.32	500	12.5 × 13.5	0.32	500	
101	10×10	0.35	400	12.5 × 13.5	0.32	500	16 × 16.5	0.17	793	
151	12.5 × 13.5	0.16	800	12.5 × 13.5	0.32	500	16 × 16.5	0.17	793	
221	12.5 × 13.5	0.16	800		l I		18 × 16.5	0.15	917	
331		l I	l I	16 × 16.5	0.17	793	18 × 16.5	0.15	917	
471	16 × 16.5	0.082	1410	18 × 16.5	0.15	917	Case size	l	Rated	
681	18 × 16.5	0.08	1690		 	1	φD×L (mm)	impedance	ripple	
	Code 3R3 4R7 100 220 330 470 680 101 151 221 331 471	Code 1  3R3  4R7 5×5.8  100 6.3×5.8  220 - 6.3×7.7	Code 1J  3R3	Code 1 J 3R3	Code     1J       3R3       5 × 5.8       4R7     5 × 5.8       100     6.3 × 5.8       1.50       80       6.3 × 7.7       6.3 × 7.7       • 8 × 6.2       1.20       120     • 8 × 6.2       1.20       120       8 × 10       0.65       250     8 × 10       470     8 × 10       10 × 10       0.35       101     10 × 10       102 × 13.5       151     12.5 × 13.5       121     12.5 × 13.5       121     12.5 × 13.5       121     16 × 16.5       471     16 × 16.5       16 × 16.5     1410       18 × 16.5	Code         1J         1K           3R3           5 × 5.8   5.00           4R7         5 × 5.8   3.00   50   6.3 × 5.8   3.00           100         6.3 × 5.8   1.50   80   6.3 × 7.7   2.40   6.8 × 6.2   2.40           220         - 6.3 × 7.7   1.20   120   120   8 × 6.2   2.40           330         8 × 10   0.65   250   8 × 10   1.30           470         8 × 10   0.65   250   8 × 10   1.30           470         8 × 10   0.35   400   12.5 × 13.5   0.32           101         10 × 10   0.35   400   12.5 × 13.5   0.32           151         12.5 × 13.5   0.16   800   12.5 × 13.5   0.32           221         12.5 × 13.5   0.16   800   16 × 16.5   0.17           471         16 × 16.5   0.082   1410   18 × 16.5   0.15	Code         1J         1K           3R3           5×5.8   5.00   25           4R7         5×5.8   3.00   50   6.3×5.8   3.00   40           100         6.3×5.8   1.50   80   6.3×7.7   2.40   60           220         -6.3×7.7   1.20   120   8×6.2   2.40   60           330         8×6.2   1.20   120   8×10   1.30   130           470         8×10   0.65   250   8×10   1.30   130           470         8×10   0.35   400   12.5×13.5   0.32   500           101         10×10   0.35   400   12.5×13.5   0.32   500           151         12.5×13.5   0.16   800   12.5×13.5   0.32   500           221         12.5×13.5   0.16   800   16×16.5   0.17   793           471         16×16.5   0.082   1410   18×16.5   0.15   917	Code         1J         1K         2           3R3           5×5.8   5.00   25           5×5.8   5.00   25           4R7         5×5.8   3.00   50   6.3×5.8   3.00   40           6.3×7.7   2.40   60           60   60           220           6.3×7.7   1.20   120   120   8×6.2   2.40   60           8×6.2   1.20   120   130   130   130   130           8×10   1.30   130   10×10           330         8×10   0.65   250   8×10   1.30   130   10×10           10×10   10×10   10×10   10×10   10×10           10×10   1	Code         1J         1K         2A           3R3         5×5.8         5.00         25           4R7         5×5.8         3.00         50         6.3×5.8         3.00         40           100         6.3×5.8         1.50         80         6.3×7.7         2.40         60           220         6.3×7.7         1.20         120         8×10         1.30         130         8×10         1.30           330         8×10         0.65         250         8×10         1.30         130         10×10         0.70           470         8×10         0.65         250         10×10         0.70         200         12.5×13.5         0.32           680         10×10         0.35         400         12.5×13.5         0.32         500         16×16.5         0.17           151         12.5×13.5         0.16         800         12.5×13.5         0.32         500         16×16.5         0.17           221         12.5×13.5         0.16         800         16×16.5         0.17         793         18×16.5         0.15           471         16×16.5         0.082         1410         18×16.5         0.15         Imped	

Max. Impedance (Ω) at 20°C 100kHz, Rated ripple current (mArms) at 105°C 100kHz

●: In this case, ⑥ will be put at 12th digit of type numbering system.

• Frequency coefficient of rated ripple current

Frequency	50Hz	120Hz	300Hz	1kHz	10kHz or more
Coefficient	0.35	0.50	0.64	0.83	1.00

- Taping specifications are given in page 23.
- Recommended land size, soldering by refrow are given in page 18, 19.
- Please refer to page 3 for the minimum order quantity.