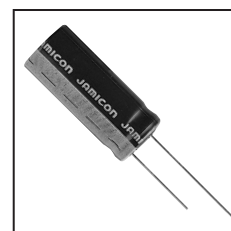


- High temperature 105°C and high reliability



● SPECIFICATION

Item	Characteristic														
Operation Temperature Range	-55 ~ +105°C					-40 ~ +105°C					-25 ~ +105°C				
Rated Working Voltage	6.3 ~ 100VDC					160 ~ 400VDC					450VDC				
Capacitance Tolerance (120Hz 20°C)	±20%(M)														
Leakage Current (20°C)	6.3~100 VDC $I \leq 0.01CV$ or $4 (\mu A)$					160~450 VDC $I \leq 0.03CV + 40 (\mu A)$ max									
	*Whichever is greater after 3 minutes I : Leakage Current(μA) C : Rated Capacitance(μF) V : Working Voltage(V)														
Surge Voltage (20°C)	W.V.	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
	S.V.	8	13	20	32	44	63	79	125	200	250	300	400	450	500
Dissipation Factor (tan δ) (120Hz 20°C)	Add 0.02 per 1000 μF for more than 1000 μF														
	W.V.	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
	tan δ	0.24	0.20	0.17	0.15	0.12	0.10	0.10	0.08	0.15	0.15	0.15	0.20	0.20	0.20
Low Temperature Stability	Impedance ratio at 120Hz														
	Rated Voltage (V)	6.3		10	16	25	35~100	160~250	350~400	450					
	-25°C / +20°C	4		3	2	2	2	3	6	15					
	-40°C / +20°C	10		8	6	4	3	4	10	—					
Load Life	After 2000 hours application of W.V. and +105°C ripple current value, the capacitor shall meet the following limits. (DC + ripple peak voltage \leq rate working voltage)														
	Capacitance Change	$\leq \pm 25\%$ of initial value for 6.3~16 W.V., $\leq \pm 20\%$ of initial value for 25~450 W.V.													
	Dissipation Factor	$\leq 200\%$ of initial specified value													
	Leakage current	\leq initial specified value													
Shelf Life	At +105°C no voltage application after 1000 hours the capacitor shall meet the limits for load life characteristics. (with voltage treatment)														

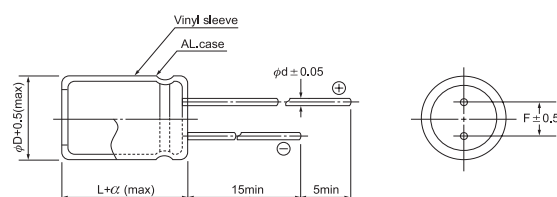
● DIMENSIONS (mm)

ϕD	5	6.3	8	10	12.5	16	18	20	22	25
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0	12.5
d	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8	1.0	1.0
α	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0

● RIPPLE CURRENT COEFFICIENTS

Temperature(°C)	65	85	105
Multiplier	1.75	1.40	1.00

Frequency(Hz)	60	120	1k	$\geq 10k$
W.V.	Multiplier			
6.3~25V	0.85	1.00	1.10	1.20
35~100V	0.80	1.00	1.15	1.25
160~250V	0.75	1.00	1.25	1.40
350~450V	0.70	1.00	1.30	1.80



● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)
Max ripple current : mA(rms) 105°C 120Hz

μF	V(Code)		6.3 (0J)		10 (1A)		16 (1C)	
	Code	Item	DxL	R.C.	DxL	R.C.	DxL	R.C.
47	470					→	5x11	90
100	101		5x11	110	5x11	120	5x11	130
220	221		5x11	160	5x11	180	6.3x11	220
330	331		6.3x11	220	6.3x11	250	6.3x11	270
							8x11.5	310
470	471		6.3x11	270	6.3x11	290	8x11.5	370
1000	102		8x11.5	460	10x12.5	560	10x12.5	600
							10x16	670
2200	222		10x16	810	10x16	880	12.5x20	1180
					10x20	970		
3300	332		10x20	1050	12.5x20	1280	12.5x25	1510
4700	472		12.5x20	1350	12.5x25	1590	16x25	1830
6800	682		12.5x25	1680	16x25	1940	16x25	2040
							16x31.5	2120
10000	103		16x25	2020	16x31.5	2210	16x35.5	2430
					16x35.5	2330	18x35.5	2590
15000	153		16x31.5	2200	16x35.5	2540	18x40	2960
			16x35.5	2320	18x35.5	2710	20x40	3040
22000	223		18x35.5	2660	18x40	3050	22x40	3390
			18x40	2810	20x40	3130	22x50	3740
33000	333		22x40	3230	22x50	3840	25x50	4200
			22x50	3560				
47000	473		22x50	3700	25x50	4260		
68000	683		22x50	3820				

All blank voltage on sleeve marking is the same voltage as" → "point to.

μF	V(Code)		25 (1E)		35 (1V)		50 (1H)	
	Code	Item	DxL	R.C.	DxL	R.C.	DxL	R.C.
0.1	0R1					→	5x11	5
0.22	R22					→	5x11	8
0.33	R33					→	5x11	10
0.47	R47					→	5x11	12
1	010					→	5x11	17
2.2	2R2					→	5x11	25
3.3	3R3					→	5x11	31
4.7	4R7					→	5x11	36
10	100		5x11	43	5x11	49	5x11	55
22	220		5x11	65	5x11	70	5x11	80
33	330		5x11	80	5x11	90	5x11	95
47	470		5x11	95	5x11	110	6.3x11	130
68	680		5x11	110	6.3x11	140	6.3x11	160
			6.3x11	160				
220	221		6.3x11	230	8x11.5	300	10x12.5	370
			8x11.5	270				
330	331		8x11.5	330	10x12.5	410	10x16	500
470	471		10x12.5	440	10x16	550	10x20	660
1000	102		10x16	710	12.5x20	1000	12.5x25	1210
			10x20	790				
2200	222		12.5x25	1370	16x25	1640	16x31.5	1850
							16x35.5	1950
3300	332		16x25	1730	16x31.5	1960	18x35.5	2360
					16x35.5	2070		
4700	472		16x31.5	1990	16x35.5	2260		
					18x35.5	2410		
6800	682		16x35.5	2330	18x40	2780	22x50	3490
			18x35.5	2480				
10000	103		18x40	2820	22x50	3540	25x50	3930
			20x40	2890				
15000	153		22x50	3620	22x50	3750		
22000	223		25x50	4080				

● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)
 Max ripple current : mA(rms) 105°C 120Hz

μF	Code	V(Code) Item	63 (1J)		100 (2A)	
			DxL	R.C.	DxL	R.C.
0.1	0R1				5x11	6
0.22	R22			→	5x11	9
0.33	R33			→	5x11	11
0.47	R47			→	5x11	13
1	010			→	5x11	19
2.2	2R2			→	5x11	28
3.3	3R3			→	5x11	34
4.7	4R7			→	5x11	41
10	100		5x11	55	5x11	60
					6.3x11	65
22	220		5x11	80	6.3x11	100
33	330		6.3x11	110	8x11.5	140
					8x14	190
47	470		6.3x11	130	10x12.5	190
					10x12.5	230
68	680		8x11.5	180	10x12.5	230
100	101		8x11.5	220	10x16	310
			10x12.5	250	10x20	340
220	221		10x16	410	12.5x20	570
					12.5x25	630
330	331		10x20	550	12.5x25	780
470	471		12.5x20	750	16x25	950
1000	102		16x25	1310	18x35.5	1630
					18x40	1720
2200	222		18x35.5	2080	22x50	2730
4700	472		22x50	3220		
6800	682		25x50	3740		

All blank voltage on sleeve marking is the same voltage as " → "point to.

μF	Code	V(Code) Item	160 (2C)		200 (2D)		250 (2E)	
			DxL	R.C.	DxL	R.C.	DxL	R.C.
0.47	R47		6.3x11	12	6.3x11	13	6.3x11	14
1	010		6.3x11	18	6.3x11	19	6.3x11	21
2.2	2R2		6.3x11	26	6.3x11	28	6.3x11	31
3.3	3R3		6.3x11	32	6.3x11	34	6.3x11	37
							8x11.5	44
4.7	4R7		6.3x11	38	6.3x11	41	8x11.5	50
					8x11.5	48		
10	100		8x11.5	65	8x11.5	70	10x12.5	85
					10x12.5	80	10x16	95
22	220		10x12.5	110	10x16	130	10x20	150
			10x16	120	10x20	140	12.5x20	170
33	330		10x16	150	10x20	170	10x25	210
			10x20	160	12.5x20	200	12.5x20	210
47	470		10x20	190	12.5x20	240	12.5x20	260
			12.5x20	220			12.5x25	280
68	680		12.5x20	260	12.5x25	310	16x25	350
100	101		12.5x25	350	16x25	390	16x25	420
							16x31.5	440
220	221		16x31.5	560	16x35.5	640	18x35.5	740
			16x35.5	590	18x40	720		
330	331		18x35.5	770	18x40	880	20x40	980
			18x40	820				
470	471		18x40	970	22x40	1130	22x50	1360
			22x40	1050				
1000	102		25x50	1820				

● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)
 Max ripple current : mA(rms) 105°C 120Hz

μF	Code	V(Code) Item	350 (2V)		400 (2G)		450 (2W)	
			DxL	R.C.	DxL	R.C.	DxL	R.C.
0.47	R47		8x11.5	14	8x11.5	15	10x12.5	15
1	010		8x11.5	21	8x11.5	21	10x12.5	22
2.2	2R2		8x11.5	31	8x11.5	32	8x11.5	29
					10x12.5	35	10x20	39
3.3	3R3		8x11.5	37	8x11.5	39	10x16	44
			10x12.5	42	8x11.5	43	12.5x20	55
4.7	4R7		8x11.5	45	8x11.5	46	10x16	50
			10x12.5	50	10x16	55	12.5x20	65
10	100		10x16	80	10x16	85	10x20	85
			10x20	90	12.5x20	100	16x25	110
22	220		12.5x20	150	12.5x25	170	12.5x25	160
			12.5x25	170			16x31.5	170
33	330		12.5x20	180	16x25	220	16x31.5	200
			16x25	210	16x31.5	220	18x35.5	230
47	470		16x25	250	16x25	270	16x35.5	260
			16x35.5	270	18x35.5	300		
68	680		16x31.5	310	16x31.5	320	18x35.5	330
100	101		16x35.5	430	18x35.5	440	18x40	420
			18x40	450	20x40	480		
220	221		22x50	820	25x50	880	25x50	800
330	331		25x50	1080				