

FEATURES

1. Rated Working Voltage Range 6.3 to 100 VDC/160 to 450VDC at Operation Temperature Range -40 to +105℃
2. This series is for communication equipments, switching power supply, industrial measuring instruments, Automotive electric products, etc

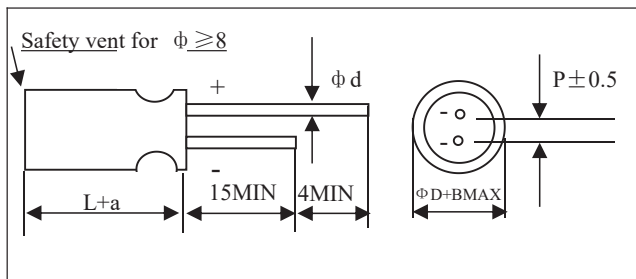
SPECIFICATIONS

Item	Performance Characteristics																							
Operating Temperature Range	-40 to +105℃																							
Rated Working voltage Range	10 to 100V DC				160 to 450V DC																			
Nominal Capacitance Range	0.1- 10000(uF)																							
Capacitance Tolerance	±20%（120Hz, +20℃）																							
Leakage Current	I≤0.01CV or 3(uA)Whichever is greater				I≤0.03CV+40(uA)																			
	after 2 minutes application of rated working voltage at +20℃																							
Dissipation Factor tan δ	<table><tr><td>Working voltage(V)</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td>tan δ (max.)</td><td>0.24</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.08</td></tr></table>								Working voltage(V)	10	16	25	35	50	63	100	tan δ (max.)	0.24	0.20	0.16	0.14	0.12	0.10	0.08
Working voltage(V)	10	16	25	35	50	63	100																	
tan δ (max.)	0.24	0.20	0.16	0.14	0.12	0.10	0.08																	
(120Hz+20℃)	<table><tr><td>Working voltage(V)</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td></tr><tr><td>tan δ (max.)</td><td>0.15</td><td>0.15</td><td>0.15</td><td>0.15</td><td>0.15</td><td>0.15</td></tr></table>								Working voltage(V)	160	200	250	350	400	450	tan δ (max.)	0.15	0.15	0.15	0.15	0.15	0.15		
Working voltage(V)	160	200	250	350	400	450																		
tan δ (max.)	0.15	0.15	0.15	0.15	0.15	0.15																		
	For capacitance value >1000uF add 0.02per another 1000uF																							
Ripple Current	Refer to standard products table (120Hz,+105℃) Correction factor for frequency																							
	Voltage (V)	CAP(uF) Freq(Hz)	50Hz	120Hz	300Hz	1kHz	10kHz~																	
	6.3~100	0.1~47	0.75	1.00	1.35	1.57	2.00																	
		100~470	0.80	1.00	1.23	1.34	1.50																	
		1000~33000	0.85	1.00	1.10	1.13	1.15																	
	160~450	0.47~220	0.80	1.00	1.25	1.40	1.60																	
		330~1000	0.90	1.00	1.10	1.13	1.15																	
Multiplier for Ripple Current vs. Temperature																								
	Temperature℃	45	60	70	85	105																		
	Multiplier	2. 10	1. 90	1. 40	1. 25	1. 00																		
Low Temperature Characteristics	Impedance ratio max. at 120Hz																							
	Working voltage(V)	6.3	10	16	25	35	50	63	100															
	Z-25℃/Z+20℃	5	4	3	2	2	2	2	2															
	Z-40℃/Z+20℃	12	10	8	5	4	3	3	3															
	Working voltage(V)	160	200	250	350	400	450																	
	Z-40℃/Z+20℃	3	3	4	4	6	15																	
	For capacitance value >1000uF Add0.5 per another 1000uF for Z-25℃/Z+20℃ Add1.0 per another 1000uF for Z-40℃/Z+20℃																							

High temperature Loading	Test conditions Duration : 3000 hours Ambient temperature : +105℃ Applied voltage : DC voltage with maximum permissible ripple current specified at +105℃ (Sum of the DC voltage and superimposed pea AC voltage for maximum permissible ripple current should be equal to rated DC working voltage) Post test requirements at +20℃ Leakage current : ≤ Initial specified value Capacitance change : ≤ ±20% of initial measured value tan δ : ≤ 200% of initial specified value
Shelf life	Test conditions Duration : 1000 hours Ambient temperature : +105℃ Applied voltage : (None) Post test requirements at +20℃ Same Limits for high temperature loading
Others	JIS C-5141 JIS C-5102

CASE SIZE TABLE

Unit:mm



D Φ	5	6.3	8	8	10	13	16	18	22
P	2.0	2.5	3.5	3.5	5	5	7.5	7.5	10
d Φ ± 0.05	0.5			0.6			0.8		

aMAX	(L < 20) 1.5
	(L ≥ 20) 2.0

BMAX	(D < 20) 0.5
	(D ≥ 20) 1.0

DIMENSIONS

ΦD×L(mm)

WV(SV)		10V(13)		16V(20)		25V(32)		35V(44)	
Cap.(uF)	Code	1A		1C		1E		1V	
4.7	475					5×11	28	5×11	32
10	106			5×11	42	5×11	45	5×11	46
22	226	5×11	52	5×11	65	5×11	66	5×11	75
33	336	5×11	76	5×11	82	5×11	81	5×11	92
47	476	5×11	89	5×11	95	5×11	95	5×11	100
68	686	5×11	100	5×11	120	6.3×11	130	8×11	160
100	107	5×11	142	5×11	156	5×11	160	6.3×11	190
						6.3×11	162	8×12	198
220	227	6.3×11	215	6.3×11	240	6.3×12	264	8×14	320
				8×11	260	8×12	294	10×12.5	336
330	337	6.3×11	278	8×12	320	10×12.5	372	10×17	482
470	477	6.3×12	295	8×12	378	8×14	435	10×17	540
		8×12	302	10×12.5	390	10×12.5	435	10×20	583
680	687	8×12	330	10×15	450	10×17	600	10×20	820
1000	108	8×14	533	10×17	619	10×20	748	13×21	910
		10×12.5	583	10×20	630				
2200	228	10×20	920	13×21	1001	13×25	1135	16×26	1345
3300	338	13×21	1092	13×25	1225	16×26	1430	16×35	1725
4700	478	13×25	1302	16×26	1610	16×30	1720	18×36	1920
6800	688	16×26	1680	16×35	1862	18×36	2060	22×40	2150
10000	109	16×35	1910	18×36	2080	22×40	2150	22×50	2650
15000	159	18×36	2110	22×40	2430	22×50	2750	25×50	3100
22000	229	22×40	2650	22×50	3000	25×50	3250		
33000	339	22×50	3250	25×50	3450			Case size	Allowable ripple

Allowable Ripple (mA rms) at 105℃ 120HZ

DIMENSIONS

ΦD×L(mm)

WV(SV) Cap.(uF) Code		50V(63)		63V(79)		100V(125)		160V(200)		200V(250)	
		1H		1J		2A		2C		2D	
0.1	104	5×11	12	5×11	12	5×11	15				
0.22	224	5×11	12	5×11	12	5×11	15				
0.33	334	5×11	12	5×11	12	5×11	15				
0.47	474	5×11	12	5×11	12	5×11	15	6.3×11	12	6.3×11	12
1	105	5×11	16	5×11	18	5×11	21	6.3×11	22	6.3×11	24
2.2	225	5×11	26	5×11	28	5×11	30	6.3×11	32	6.3×11	37
3.3	335	5×11	32	5×11	33	5×11	36	6.3×11	38	8×12	45
4.7	475	5×11	37	5×11	40	5×11	49	6.3×11	56	8×12	64
6.8	685	5×11	45							8×12	75
10	106	5×11	55	5×11	61	6.3×11	68	10×12.5	85	10×12.5	108
22	226	5×11	89	6.3×11	105	8×12	120	10×20	160	10×20	140
33	336	6.3×11	116	6.3×11	124	8×14	147	10×20	180	13×21	200
47	476	6.3×11	148	8×12	165	10×15	190	13×21	220	13×21	230
100	107	8×12	257	10×12.5	265	10×20	280	13×25	320	16×30	360
220	227	10×17	390	10×20	420	13×25	530	16×35	600	18×36	750
330	337	10×20	500	13×21	600	16×26	700	18×40	750	22×40	850
470	477	13×21	650	13×25	720	16×30	875	22×40	1000	22×50	1050
1000	108	16×26	1100	16×30	1200	18×40	1250	22×50	1350		
2200	228	18×40	1600	18×40	1650	22×50	1750				
3300	338	18×40	1760	22×40	1950	22×50	2070				
4700	478	22×40	2100	22×50	2450						
6800	688	22×50	2500	22×50	2800						
10000	109	22×50	2850							Case size	Allowable ripple

Allowable Ripple (mA rms) at 105℃ 120HZ

WV(SV) Cap.(uF) Code		250V(300)		350V(400)		400V(450)		450V(500)	
		2E		2V		2G		2W	
0.47	474	6.3×11	22						
1	105	6.3×11	26	6.3×11	28	8×12	30	8×12	33
2.2	225	8×12	35	8×12	48	8×12	52	8×12	58
						10×12.5	56	10×12.5	62
3.3	335	8×12	51	10×12.5	62	8×12	60	8×14	75
						10×12.5	68	10×15	85
4.7	475	8×12	68	10×12.5	84	8×12	85	10×15	103
						10×15	90	10×20	112
10	106	10×15	116	10×20	146	10×17	145	10×20	175
						10×20	160	13×21	189
22	226	13×21	230	13×25	268	13×21	250	13×25	320
						13×25	276	16×26	342
33	336	13×25	280	16×26	385	16×26	390	16×26	436
						16×30	412	16×30	466
47	476	13×25	369	16×35	512	16×26	490	16×30	550
						16×35	526	18×30	587
68	686	16×26	445	16×30	550	16×35	570	18×30	706
						18×30	589		
82	826	16×26	515	18×26	585	18×26	660	18×26	745
				18×30	635	18×30	685	18×30	745
				18×35	685	18×35	742	18×40	881
100	107	16×30	654	18×30	936	18×30	740	18×36	862
						22×40	973	22×40	1088
220	227	22×40	1455	22×50	1630	25×50	1803		
330	337	22×50	1782						
470	477	25×50	2283					Case size	Allowable ripple

Allowable Ripple (mA rms) at 105℃ 120HZ