

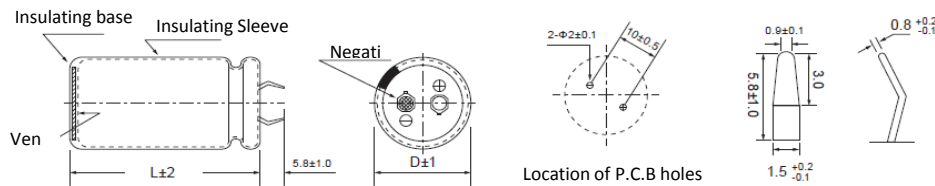
- Endurance: 105°C 3000hours
- Recommended Applications : Applying to switching power supply and other industry/ commercial field
- Corresponding product to RoHS

■ SPECIFICATIONS

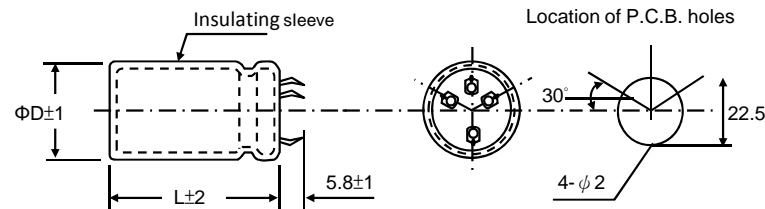
Item	Characteristics												
Category Temperature Range	-40~+105°C						-25~+105°C						
Rated Voltage Range	16 ~ 450VDC						500VDC						
Rated Capacitance Range	470 ~ 250000 μF						390 ~ 1500 μF						
Capacitance Tolerance	± 20 % (120Hz , 20°C)												
Leakage Current (20°C)	I = 0.02CV or 5 (mA) Whichever is smaller. (After rated voltage applied for 5minutes) I : Max. leakage current (μ A), C : Nominal capacitance (μ F), V : Rated voltage (V)												
Dissipation Factor(MAX) (tan δ) (120Hz ,20°C)	WV	16	25	35	50	63	80	100	160~450	500			
	Capacitance	—	—	—	—	≤27,000	>27,000	≤15,000	>15,000	—	—	—	
	tan δ	35 Φ	0.80	0.60	0.50	0.40	0.35	0.40	0.25	0.30	0.25	0.15	0.20
		40 Φ	0.90	0.70	0.60	0.45	0.35	0.40	0.25	0.30	0.25	0.15	0.20
		45 Φ	1.00	0.80	0.70	0.50	0.35	0.40	0.25	0.30	0.25	0.15	0.20
50 Φ		1.20	1.00	0.75	0.55	0.35	0.40	0.25	0.30	0.25	0.15	0.20	
Low Temperature Stability Impedance Ratio (MAX)	Measurement frequency : 120Hz												
	WV	16~100			160~250			350~450			500		
	Z-25°C / Z+20°C	4			6			8			8		
	Z-40°C / Z+20°C	15			—			—			—		
Endurance	After applying rated voltage with rated Ripple current for 3000hrs at 105°C,when the capacitors are restored to 20°C, the capacitor shall meet the following requirements.												
	Capacitance change						Within ± 20% of initial value						
	D.F. (tan δ)						Not more than 175% of specified value						
Shelf Life	After placed at 105°C without voltage applied for 1000 hours,the capacitor shall meet the same requirement as Endurance.												

■ Dimensions [mm]

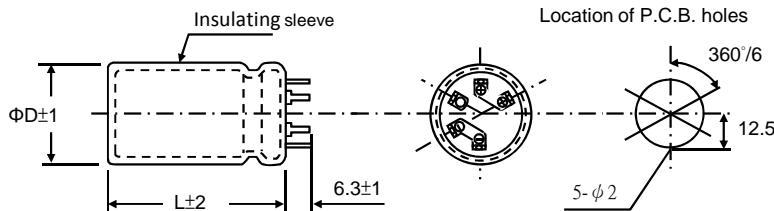
Code 11~13 : S1A(35Φ)



Code 11~13 : L4A(35~45Φ)



Code 11~13 : L5A(50Φ)



■ Multiplier for Ripple Current

Freq. (Hz)	60	120	400	1K	10K
≤100V	0.80	1.00	1.10	1.20	1.20
>100V	0.80	1.00	1.10	1.30	1.40

STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	tan δ	Ripple current (A/rms105°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	tan δ	Ripple current (A/rms105°C) (120Hz)
16 (20)	68000	35x60	0.80	6.85	50 (63)	18000	35x60	0.40	5.44
		40x51	0.90	7.39			40x61	0.45	6.03
	82000	35x80	0.80	8.16		22000	35x80	0.40	6.83
		40x61	0.90	7.70			40x61	0.45	5.64
	100000	35x80	0.80	8.15		27000	35x80	0.40	6.30
		40x71	0.90	8.67			40x71	0.45	6.68
		45x50	1.00	7.59			45x60	0.50	6.30
	120000	35x100	0.80	8.84		33000	35x100	0.40	7.33
		40x81	0.90	9.11			40x81	0.45	6.4
		45x60	1.00	8.54			45x70	0.50	7.44
		50x50	1.20	9.23			50x60	0.55	8.67
	150000	40x101	0.90	10.07		39000	40x101	0.45	7.26
		45x70	1.00	9.18			45x80	0.50	6.62
		50x60	1.20	10.19			50x70	0.55	9.31
	180000	45x80	1.00	10.06		47000	45x90	0.50	7.66
		50x580	1.20	11.47			50x80	0.55	9.52
220000	45x100	1.00	10.84	56000	45x100	0.50	8.76		
	50x90	1.20	12.01		50x90	0.55	9.94		
250000	50x100	1.20	12.67	68000	50x100	0.55	10.91		
25 (32)	39000	35x60	0.60	6.26	63 (79)	12000	35x60	0.35	4.74
		40x51	0.70	6.09			40x51	0.35	4.78
	47000	35x60	0.60	6.57		15000	35x70	0.35	5.2
		40x51	0.70	6.59			40x51	0.35	4.90
	56000	35x80	0.60	7.78		18000	35x80	0.35	6.05
		40x61	0.70	7.22			40x61	0.35	5.79
		45x50	0.80	6.65			45x50	0.35	5.70
	68000	35x90	0.60	8.62		22000	50x50	0.35	6.07
		40x81	0.70	9.00			35x90	0.35	7.06
		45x60	0.80	7.91			40x81	0.35	7.24
		50x50	1.00	8.57			45x60	0.35	6.80
	82000	35x100	0.60	8.94		27000	50x60	0.35	7.23
		40x81	0.70	8.99			40x91	0.35	8.07
		45x70	0.80	8.43			45x70	0.35	7.68
		50x50	1.00	8.71			50x60	0.35	7.64
	100000	40x101	0.70	9.87		33000	40x101	0.40	7.91
		45x80	0.80	9.86			45x80	0.40	7.61
		50x60	1.00	9.95			50x80	0.40	8.08
120000	45x100	0.80	10x74	39000	45x100	0.40	8.66		
	50x80	1.00	11.28		50x90	0.40	8.76		
180000	50x100	1.00	12.47	47000	50x100	0.40	9.51		
35 (44)	27000	35x60	0.50	5.71	80 (100)	8200	35x60	0.25	4.64
		40x51	0.60	5.70			40x51	0.25	4.67
	33000	35x70	0.50	6.46		10000	35x70	0.25	5.48
		40x61	0.60	6.80			40x61	0.25	5.57
	39000	35x80	0.50	6.78		12000	45x50	0.25	5.48
		40x71	0.60	7.27			35x80	0.25	6.11
	47000	45x50	0.70	6.20		15000	40x71	0.25	6.24
		35x100	0.50	8.23			45x60	0.25	6.21
		40x81	0.60	8.09			50x50	0.25	6.13
		45x60	0.70	7.03			35x100	0.25	6.91
	56000	50x50	0.75	8.53		18000	40x81	0.25	6.76
		40x91	0.60	8.88			45x70	0.25	6.77
		45x70	0.70	8.56			50x60	0.25	6.74
	68000	50x60	0.75	9.31		22000	40x101	0.30	7.11
		40x101	0.60	9.28			45x80	0.30	6.83
		45x80	0.70	9.56			50x80	0.30	7.25
		50x80	0.75	11.14			45x100	0.30	7.92
	82000	45x100	0.70	11.07		27000	50x90	0.30	8.02
50x90		0.75	11.33	50x100	0.30		8.82		
100000	50x100	0.75	11.92	100 (125)	4700	35x60	0.25	4.10	
50 (63)	15000	35x60	0.40		5.17	5600	40x51	0.25	4.13
		40x51	0.45	4.91	35x70	0.25	4.62		

STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	tan δ	Ripple current (A/rms105°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	tan δ	Ripple current (A/rms105°C) (120Hz)
100 (125)	5600	40x61	0.25	4.69	180 (225)	5600	50x90	0.15	6.02
	6800	35x80	0.25	5.40		6800	50x100	0.15	6.26
		40x61	0.25	5.17	200 (250)	1800	35x60	0.15	3.27
		45x50	0.25	5.09		40x51	0.15	3.06	
		8200	35x90	0.25		5.56	2200	35x80	0.15
	40x81		0.25	6.18		40x61	0.15	3.65	
	45x60		0.25	5.80	45x50	0.15	3.60		
	50x60		0.25	6.65	2700	35x80	0.15	4.56	
	10000	35x100	0.25	6.45	40x81	0.15	4.58		
		40x81	0.25	6.83	45x60	0.15	4.3		
		45x70	0.25	6.84	3300	35x90	0.15	4.93	
		50x60	0.25	7.08	40x71	0.15	4.78		
		40x101	0.25	7.63	45x70	0.15	5.08		
	12000	45x80	0.25	7.33	50x50	0.15	5.23		
		50x70	0.25	7.66	3900	35x100	0.15	6.06	
		45x100	0.25	8.30	40x81	0.15	5.51		
15000	50x60	0.25	8.34	45x80	0.15	5.85			
	50x100	0.25	9.24	50x60	0.15	5.92			
160 (200)	2200	35x60	0.15	3.36	40x101	0.15	6.42		
		40x51	0.15	3.39	4700	45x90	0.15	6.50	
	2700	35x70	0.15	3.83	50x80	0.15	7.07		
		40x61	0.15	3.89	45x100	0.15	7.44		
		45x50	0.15	3.83	50x90	0.15	7.83		
	3300	35x80	0.15	4.32	6800	50x100	0.15	9.04	
		40x71	0.15	4.41	250 (300)	1500	35x70	0.15	3.2
		45x60	0.15	4.39		1800	35x80	0.15	3.72
		50x50	0.15	4.33		40x61	0.15	3.56	
	3900	35x90	0.15	4.95		45x50	0.15	3.50	
		40x81	0.15	5.08		35x80	0.15	3.97	
		45x70	0.15	5.09		2200	40x81	0.15	4.29
		50x60	0.15	5.07		45x60	0.15	4.03	
	4700	35x100	0.15	5.23		50x50	0.15	4.42	
		40x91	0.15	5.39		35x100	0.15	4.86	
		45x80	0.15	5.43		2700	40x81	0.15	4.76
		50x70	0.15	5.44		45x70	0.15	4.77	
	5600	40x101	0.15	5.61		50x60	0.15	5.10	
		45x90	0.15	5.68		40x101	0.15	5.59	
		50x80	0.15	5.72		3300	45x80	0.15	5.38
6800	45x100	0.15	5.90	50x70		0.15	5.81		
	50x90	0.15	5.97	3900		45x90	0.15	6.16	
	50x100	0.15	6.11	50x80	0.15	6.21			
180 (225)	1800	35x60	0.15	3.27	4700	45x100	0.15	6.82	
		40x51	0.15	3.30	350 (400)	820	35x60	0.15	2.76
	2200	35x70	0.15	3.87	40x51	0.15	2.78		
		40x61	0.15	3.93	1000	35x70	0.15	2.05	
		45x50	0.15	3.88	40x61	0.15	2.08		
	2700	35x80	0.15	4.39	45x50	0.15	2.05		
		40x71	0.15	4.49	50x50	0.15	3.58		
		45x60	0.15	4.46	35x80	0.15	3.26		
		50x50	0.15	4.41	2200	40x71	0.15	3.32	
	3300	35x90	0.15	4.74	1200	45x60	0.15	3.32	
		40x81	0.15	4.87	50x50	0.15	3.70		
		45x70	0.15	4.88	35x100	0.15	4.57		
		50x60	0.15	4.86	1500	40x81	0.15	3.81	
		35x100	0.15	5.20	45x70	0.15	3.82		
	3900	40x91	0.15	5.35	50x60	0.15	4.19		
		45x80	0.15	5.40	1800	40x101	0.15	5.24	
		50x70	0.15	5.41	45x80	0.15	5.04		
		40x101	0.15	5.65	50x80	0.15	5.84		
	4700	45x90	0.15	5.72	2200	45x100	0.15	6.15	
		50x80	0.15	5.76	50x100	0.15	6.72		
5600		45x100	0.15	5.95					

■ STANDARD RATINGS

Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	$\tan \delta$	Ripple current (A/rms105°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μ F)	Case size Φ DxL(mm)	$\tan \delta$	Ripple current (A/rms105°C) (120Hz)
400 (450)	680	35x60	0.15	2.37	450 (500)	1000	45x70	0.15	3.65
		40x51	0.15	2.39			50x70	0.15	4.22
	820	35x70	0.15	2.79		1200	40x101	0.15	4.41
		40x61	0.15	2.83			45x80	0.15	4.24
		45x50	0.15	2.79			50x80	0.15	4.90
		50x50	0.15	3.42		1500	45x90	0.15	4.65
		35x80	0.15	3.27			50x90	0.15	6.12
	1000	40x61	0.15	3.13		1800	45x100	0.15	5.24
		45x60	0.15	3.32			50x100	0.15	6.04
		50x60	0.15	4.07			500(550)	390	35x60
		35x100	0.15	3.96	40x51	0.20			1.61
	1200	40x81	0.15	3.88	470	35x70		0.20	1.88
		45x70	0.15	3.88		40x61		0.20	1.91
		50x60	0.15	4.45		45x50		0.20	1.88
	1500	40x101	0.15	4.79	560	35x80		0.20	2.18
		45x80	0.15	4.60		40x71		0.20	2.23
		50x80	0.15	5.62		45x60		0.20	2.22
	45x100	0.15	5.57	50x50		0.20		2.32	
	1800	50x100	0.15	6.8	35x100	0.20		2.66	
		450 (500)	470	35x60	0.15	2.03	680	40x81	0.20
560	35x70		0.15	2.37	45x70	0.20		2.61	
	40x51		0.15	2.23	50x60	0.20		2.75	
	680		35x80	0.15	2.78	820	40x101	0.20	2.88
40x61			0.15	2.66	45x80		0.20	3.04	
45x50			0.15	2.62	50x70		0.20	3.22	
50x50			0.15	3.03	1000	45x90	0.20	3.53	
35x90	0.15		3.22	50x80		0.20	3.77		
820	40x71		0.15	3.11	1200	45x100	0.20	4.06	
	45x60		0.15	3.10		50x90	0.20	4.35	
	50x60	0.15	3.59	1500	50x100	0.20	4.74		
1000	40x91	0.15	3.84						