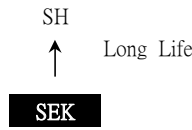


**SEK** Standard Series

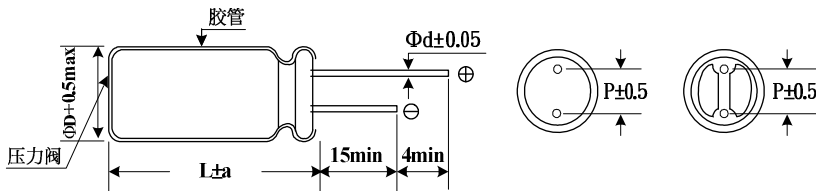
- Endurance: 105°C 1000hours
- Recommended Applications :For general purpose coupling,decoupling , by pass , and filtering circuit in entertainment electronics
- Corresponding product to RoHS



**SPECIFICATIONS**

Item	Characteristics									
	-40~+105°C	-40~+105°C	-25~+105°C							
Category Temperature Range	-40~+105°C	-40~+105°C	-25~+105°C							
Rated Voltage Range	6.3 ~ 100VDC	160 ~ 250VDC	350 ~ 450VDC							
Rated Capacitance Range	1 ~ 15000 µ F	1 ~ 470 µ F	1 ~ 180 µ F							
Capacitance Tolerance	± 20 % (120Hz , 20°C)									
Leakage Current (20°C)	I=0.01CVor3(µ A) whichever is greater. I=0.03CV+10(µ A) (After rated voltage applied for 2 minutes) I : Max. leakage current (µ A), C : Nominal capacitance (µ F), V :									
Dissipation Factor(MAX) (tan δ) (120Hz ,20°C)	WV	6.3	10	16	25	35	50	63~100	160~250	350~450
	tan δ	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.15	0.20
When nominal capacitance is over 1000 µ F,tan δ shall be added 0.02 to the listed value with increase of every 1000 µ F.										
Low Temperature Stability Impedance Ratio (MAX)	WV	6.3	10	16	25	35~100	160~250	315~350	400~450	
	Z(120Hz)	8	6	5	3	3	7	10	15	
	Z-25°C / Z+20°C	10	8	6	4	3	7	—	—	
Endurance	After applying rated voltage for 1000 hours at 105°C the capacitors shall meet the following requirements.									
	Capacitance change	Within ± 20% of initial value								
	D.F. (tan δ)	Not more than 200% of specified value								
Shelf Life	After leaving capacitors under no load at 105°C for 500 hours.the capacitors shall meet the same requirement as Endurance.									

**Dimensions [mm]**



Notes : 6.3~22 Φ,L≥11mm&8x5,8x7have vent

**L ≤ 9mm:**

ΦD	4	5	6	8
P	1.5	2.0	2.5	3.5
Φd	0.45	0.45	0.45	0.45(0.5)
a	1.0	1.0	1.0	1.0

Notes : ( ) :L=7&9mm

**L > 9mm:**

ΦD	5	6.3	8	10	13	16	18	22
P	2.0	2.5	3.5	5.0	7.5	7.5	10.0	10.0
Φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
a	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0

**Multiplier for Ripple Current**

**L ≤ 9mm:**

Freq. (Hz)	120	300	1K	10~100K
1~47 µ F	1.00	1.20	1.30	1.50
100~300 µ F	1.00	1.10	1.15	1.20

**L > 9mm:**

Freq. (Hz)	120	300	1K	10~100K
6.3 ~ 100V ≤ 68 µ F	1.00	1.20	1.30	1.45
6.3 ~ 100V 100 ~ 680 µ F	1.00	1.10	1.15	1.25
6.3 ~ 100V 1000 ~ 22000 µ F	1.00	1.05	1.10	1.15
160 ~ 450V all volume(µ F)	1.00	1.05	1.10	1.50

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■ **STANDARD RATINGS**

Rated Voltage (Surge Voltage) (V)	Cap (μF)	Case size Φ DxL(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)	Rated Voltage (Surge Voltage) (V)	Cap (μF)	Case size Φ DxL(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)
4 (5)	22	4x5	0.35	20	10 (13)	68	6.3x5	0.2	54
	33	4x5	0.35	25		100	5x11	0.22	110
		4x7	0.35	30			5x7	0.20	85
	47	4x7	0.35	35			6.3x5	0.20	80
		5x5	0.35	30			6.3x7	0.2	100
	100	5x7	0.35	55			150	5x11	0.22
		6.3x5	0.35	50		220	6.3x7	0.2	135
	220	6.3x5	0.35	70			6.3x11	0.22	180
6.3x7		0.35	95	330		6.3x11	0.22	205	
330	8x5	0.35	110	470		6.3x11	0.22	245	
6.3 (8)	10	4x5	0.24			18	8x11	0.22	305
	22	4x5	0.24	28		680	8x11	0.22	335
		4x7	0.24	37			10x12.5	0.22	420
	33	4x5	0.24	33			1000	8x15	0.22
		5x7	0.24	42		10x12.5		0.22	490
		47	4x5	0.24		35	1500	10x20	0.22
	4x7		0.24	46	2200	10x20	0.22	800	
	5x5		0.24	45		10x25	0.22	950	
	5x7		0.24	55	3300	13x20	0.22	1050	
	5x11		0.26	60		13x25	0.22	1190	
	68	5x11	0.26	75	4700	16x25	0.22	1370	
	100	5x5	0.24	55	6800	16x36	0.22	1760	
		100	5x7	0.24	75	10000	18x36	0.22	2150
			5x11	0.26	100				
	6.3x5		0.24	70	2.2	4x7	0.17	7	
	6.3x7	0.24	90	3.3	4x7	0.17	13		
150	5x11	0.26	120	4.7	4x5	0.17	20		
	5x11	0.26	140		4x7	0.17	19		
220	6.3x5	0.24	90	10	4x5	0.17	23		
	6.3x7	0.24	130		4x7	0.17	29		
	6.3x11	0.26	165		5x11	0.18	25		
	6.3x11	0.26	160	15	5x11	0.18	40		
330	8x5	0.24	115	22	4x5	0.17	29		
	8x7	0.24	140		4x7	0.17	36		
470	6.3x11	0.26	220		5x5	0.17	37		
	8x5	0.24	100		5x7	0.17	44		
680	8x11	0.26	255		33	5x11	0.18	55	
	1000	8x11	0.26	370		4x7	0.17	50	
10x12.5		0.26	470	5x5		0.17	44		
1500	10x15	0.26	600	47		5x7	0.17	57	
	10x20	0.26	740			5x11	0.18	70	
2200	13x20	0.26	1100		6.3x5	0.17	49		
3300	13x25	0.26	1100	68	5x5	0.17	54		
	13x25	0.26	1250		5x7	0.17	75		
4700	16x25	0.26	1560		100	5x11	0.18	85	
	18x32	0.26	2100			6.3x5	0.17	58	
6800	18x32	0.26	2100			6.3x7	0.17	77	
				5x7	0.17	84			
10 (13)	10	4x5	0.20	20	150	5x7	0.17	94	
	22	4x7	0.20	31		5x11	0.18	110	
		5x5	0.20	33	6.3x5	0.17	85		
		5x7	0.20	38	6.3x7	0.17	110		
		5x11	0.22	45	6.3x7	0.17	120		
	33	4x5	0.20	34	220	6.3x11	0.18	175	
		4x7	0.20	39		6.3x11	0.18	180	
		5x5	0.20	41	330	8x7	0.17	140	
		5x7	0.20	47		8x9	0.17	140	
		5x11	0.22	60		8x9	0.17	155	
	47	4x7	0.20	50	470	8x11	0.18	285	
		5x5	0.20	46		8x9	0.17	165	
		5x7	0.20	60	680	8x11	0.18	310	
		5x11	0.22	75		10x12.5	0.18	455	
		6.3x7	0.20	60					
	68	5x11	0.22	80					

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■ **STANDARD RATINGS**

Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size ΦDxL(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size ΦDxL(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)		
16 (20)	1000	8x20	0.18	600	35 (44)	33	6.3x7	0.12	70		
		10x15	0.18	590			47	5x11	0.14	95	
	1500	10x20	0.18	680		68		6.3x7	0.12	81	
		2200	13x20	0.18			990	100	6.3x11	0.14	125
	3300		13x25	0.18		1140	150		6.3x11	0.14	150
		4700	16x25	0.18		1330		220	8x11	0.14	200
	6800		16x32	0.18		1580	330		8x11	0.14	230
10000		18x36	0.18	2150		10x12.5		0.14	315		
25 (32)	4.7	4x5	0.15	16		470	10x15	10x15	0.14	415	
		4x7	0.15	24				680	10x20	0.14	680
	10	4x5	0.15	20		1000	13x20		0.14	850	
		4x7	0.15	33			1500	13x25	0.14	935	
		5x5	0.15	27		2200		16x25	0.14	1230	
		5x7	0.15	35			3300	16x36	0.14	1470	
		5x11	0.16	30	4700	18x36		0.14	1580		
	15	5x11	6.3x7	0.15	35	50 (63)	1.0	4x5	0.10	9	
			5x11	0.16	45			2.2	4x5	0.10	13
			22	4x7	4x7		0.15		43	3.3	4x7
	5x7	0.15			51		4.7	4x5	0.10		17
	5x11	0.16			60			4.7	4x7	0.10	24
	33	6.3x5	6.3x5	0.15	42		10		4x5	0.10	17
			6.3x7	0.15	53			10	4x7	0.10	29
			33	5x5	5x5		0.15		45	15	5x5
	5x7	0.15			55		22	5x7	0.10		31
	5x11	0.16			75			33	4x7	0.10	37
	68	6.3x5	6.3x5	0.15	53		47		5x7	0.10	45
			6.3x7	0.15	65			100	5x11	0.12	50
			68	5x5	5x5		0.15		55	22	6.3x5
	5x7	0.15			67		33	6.3x7	0.10		45
	5x11	0.16			90	47		5x11	0.12	60	
	100	6.3x5	6.3x5	0.15	65		150	5x11	0.12	75	
			6.3x7	0.15	79	220		6.3x5	0.1	55	
			100	8x5	8x5		0.15	90	330	6.3x7	0.10
	8x7	0.15			120	470	5x11	0.12		95	
	150	8x11			8x11		0.16	200	680	6.3x11	0.12
			8x11	0.16	200	1000	8x11	0.12		159	
			220	8x15	8x15		0.16	265	1500	8x11	0.12
	8x15	0.16			320	2200	10x12.5	0.12		289	
	330	8x15			8x15		0.16	365	3300	10x12.5	0.12
			10x15	0.16	650	4700	10x20	0.12		535	
			470	10x20	10x20		0.16	680	680	10x20	0.12
	13x20	0.16			880	1000	13x20	0.12		730	
	680	13x20			13x20		0.16	880	1500	13x25	0.12
			13x25	0.16	1030	2200	13x25	0.12		930	
			1000	16x25	16x25		0.16	1230	3300	16x25	0.12
	16x32	0.16			1420	4700	16x36	0.12		1360	
	1500	18x36			18x36		0.16	1850	63 (79)	18x36	0.12
			2200	4.7	4x5	0.12	18	10		5x7	0.08
					3300	4x7	4x7		0.12	24	15
	4700	5x7					0.12	24	22	6.3x7	
		6800	10	4x7		0.12	34	33		5x11	0.1
				15	5x5	0.12	30		47	6.3x11	0.1
	22		5x7		0.12	36	100	6.3x11		0.1	110
		33	5x11	0.14	40	150		8x11	0.1	155	
			4700	5x11	5x11		0.14	50	220	8x15	0.1
6800	5x7				0.12	48	3300	10x12.5		0.1	260
	10000	22		5x11	0.14	65		4700	10x15	0.10	330
33			6.3x5	0.12	48	63 (79)	10x15		0.10	400	
		4700	6.3x7	0.12	57		10000	10x20	0.1	460	
6800	33		5x11	0.14	85						

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Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size Φ DxL(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)	Rated Voltage (SurageVoltage) (V)	Cap (μF)	Case size Φ DxL(mm)	tan δ	Ripple current (mA/rms105°C) (120Hz)
63 (79)	330	10x20	0.1	520	250 (300)	4.7	8x11	0.15	41
	470	13x20	0.1	700		6.8	8x11	0.15	57
	680	13x25	0.1	840		10	10x12.5	0.15	78
	1000	16x25	0.1	1020		15	10x15	0.15	120
	1500	16x32	0.1	1300		22	10x20	0.15	155
	2200	18x36	0.1	1455		33	13x20	0.15	170
100 (125)	10	5x11	0.1	55		47	13x25	0.15	330
		6.3x11	0.1	65		68	13x25	0.15	340
	15	6.3x11	0.1	72		100	16x25	0.15	415
	22	8x11	0.1	115		150	16x32	0.15	435
	33	8x11	0.1	120		220	18x36	0.15	600
	47	10x12.5	0.1	180		350 (400)	1	6.3x11	0.2
	68	10x15	0.1	241	2.2		8x11	0.2	35
	100	10x20	0.1	385	3.3		8x11	0.2	37
	150	13x20	0.1	414	4.7		8x11	0.2	47
	220	13x25	0.1	590	10		10x15	0.2	95
	330	13x25	0.1	600	15		10x20	0.2	140
	470	16x25	0.1	740	22		13x20	0.2	165
680	16x36	0.1	1200	33	13x25		0.2	220	
1000	18x40	0.1	1340	47	16x25		0.2	340	
160 (200)	1	5x11	0.15	17	100		18x32	0.2	430
	2.2	6.3x11	0.15	25	150		18x40	0.2	480
	3.3	6.3x11	0.15	30	400 (450)		1	6.3x11	0.2
	4.7	6.3x11	0.15	34		2.2	6.3x11	0.2	20
	6.8	8x11	0.15	50		3.3	8x11	0.2	38
	10	8x11	0.15	56		4.7	8x11	0.2	40
	15	10x12.5	0.15	80		6.8	8x15	0.2	50
	22	10x15	0.15	130		10	10x15	0.2	65
	33	10x20	0.15	180		15	10x20	0.2	100
	47	10x20	0.15	230		22	13x20	0.2	150
	68	13x20	0.15	270		33	13x25	0.2	190
	100	13x25	0.15	330			16x20	0.2	195
150	16x25	0.15	410	47		16x25	0.2	280	
220	16x32	0.15	550			18x20	0.2	275	
330	18x36	0.15	770	68	16x32	0.2	320		
470	18x40	0.15	800		18x25	0.2	305		
200 (250)	1	5x11	0.15	19	100	18x32	0.2	430	
	2.2	6.3x11	0.15	22	120	18x32	0.2	440	
	3.3	6.3x11	0.15	32	150	18x36	0.2	450	
	4.7	8x11	0.15	40		18x40	0.2	460	
	6.8	8x11	0.15	56	180	18x45	0.2	480	
	10	10x12.5	0.15	69		450 (500)	1	6.3x11	0.2
	15	10x15	0.15	110	2.2		8x11	0.2	20
	22	10x15	0.15	140			10x12.5	0.2	35
	33	10x20	0.15	190	3.3		10x12.5	0.2	49
	47	13x20	0.15	240	4.7		10x12.5	0.2	55
	68	13x25	0.15	330	6.8		10x15	0.2	65
	100	16x25	0.15	410	10		10x20	0.2	75
150	16x32	0.15	430	15	13x20		0.2	125	
220	16x36	0.15	520	22	13x25		0.2	160	
	18x32	0.15	520	33	16x25		0.2	210	
330	18x36	0.15	705	47	16x32		0.2	270	
250 (300)	1	6.3x11	0.15	19	68		18x32	0.2	305
	2.2	6.3x11	0.15	23	100	18x36	0.2	380	
	3.3	8x11	0.15	33					