

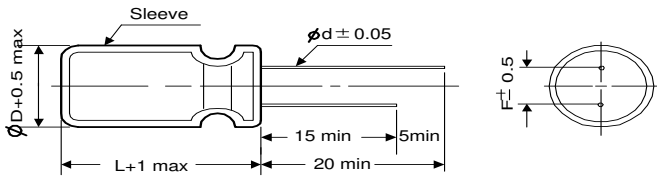
SM Series – Miniature Size Type

Most Suitable for high-density electronic equipment, such as: machines, car stereo etc.

Specifications

Item	Characteristic							
Capacitance Tolerance (120Hz 25°C)	±20%(M)							
Rated Working Voltage	6.3 ~ 63 VDC							
Operation temperature Range	-40~+85°C							
Leakage Current	I≤0.02CV+3uA max. I: leakage Current (uA) C: Rated Capacitance (uF) V: Working Voltage(V) (After 3 minutes application)							
Dissipation Factor (120Hz 25°C) (tan δ)	W.V.	6.3	10	16	25	35	50	63
	tan δ	0.24	0.20	0.17	0.15	0.12	0.10	0.10
Load Life	After 1000 hours application of W.V. At+85°C(the capacitor shall meet the following limits)							
	Capacitance Change	≤ ±20% of initial value						
	Dissipation Factor	≤ 200% of initial specified value						
	Leakage Current	≤ initial specified value						

■Dimensions



Ø D	4	5	
F	1.5	2.0	2.5
Ø d	0.45	0.5	0.5

(unit:mm)

■Size list

(Ø D xL mm)

uF	W.V.	6.3	10	16	25	35	50	63
	S.V.	8	13	20	32	44	63	79
0.1 ~ 2.2							4x7	4x7
3.3							4x7	5x7
4.7					4x7	4x7	4x7	5x7
10				4x7	4x7	4x7	5x7	
22	4x7	4x7	4x7	4x7	5x7	6x8		
33	4x7	4x7	4x7	5x7	6x8	6x8		
47	4x7	4x7	5x7	6x8				
100	5x7	6x8	8x9					
220	6x8	8x9	8x9					

■Equivalent Series Resistance

E.S.R..(Ω)25°C/120Hz

uF \ W.V.	6.3	10	16	25	35	50	63
0.1						457.86	1657.86
0.22						753.57	753.57
0.33						502.38	502.38
1						165.79	165.79
2.2						75.36	75.36
3.3						50.24	50.24
4.7				52.91	42.33	35.27	35.27
10			28.18	24.87	19.89	16.58	16.58
22	18.09	15.07	12.81	11.30	9.04	7.54	
33	12.06	10.05	8.54	7.54	6.03		
47	8.47	7.05	6.00	5.27			
100	3.98	3.32	2.82				
220	1.81	1.51	1.29				

■Maximum Ripple Current

mA(rms)85°C/120Hz

uF \ W.V.	6.3	10	16	25	35	50	63
0.1						3.5	3.5
0.22						5.8	5.8
0.33						6.2	6.2
1						11	11
2.2						16	16
3.3						20	23
4.7				19	22	27	31
10			26	32	36	45	
22	33	36	44	54	60	66	
33	46	50	62	66	71	78	
47	54	68	74	82			
100	91	100	110				
220	155	169	201				

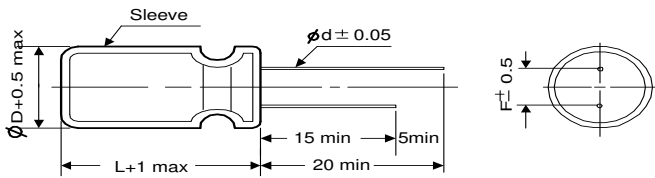
LL Series – Low Leakage Current Type

Leakage current is very low, Suitable for HI-FI pre-amplifiers and TV oscillation loop circuits.

■ Specifications

Item	Characteristic						
Capacitance Tolerance (120Hz 25°C)	±20%(M)						
Rated Working Voltage	10 ~ 63 VDC						
Operation temperature Range	-40~+85°C						
Leakage Current	I≤0.004CV or 0.4uA (Under 1KΩ resistor series and rated voltage applied after 1 minute I: leakage Current (uA) C: Rated Capacitance (uF) V: Working Voltage(V) Whichever is greater.)						
Dissipation Factor (120Hz 25°C) (tan δ)	W.V.	10	16	25	35	50	63
	Tan δ	0.20	0.17	0.15	0.12	0.10	0.10
Load Life	After 1000 hours application of W.V. At+85°C(the capacitor shall meet the following limits)						
	Capacitance Change	≤ ±20% of initial value					
	Dissipation Factor	≤ 200% of initial specified value					
	Leakage Current	≤ initial specified value					

■ Dimensions



Ø D	5	6	8	(unit:mm)
F	2.0	2.5	3.5	
Ø d	0.5	0.5	0.5	

■ Size list

(Ø D ×L mm)

uF	W.V.	10	16	25	35	50	63
	S.V.	13	20	32	44	63	79
0.1 ~ 2.2						5×11	5×11
3.3						5×11	5×11
4.7				5×11	5×11	5×11	6×11
10			5×11	5×11	6×11	6×11	8×11
22	5×11	5×11	5×11	6×11	8×11	10×16	
33	5×11	5×11	6×11	8×11	8×14	10×16	
47	5×11	5×11	6×14	8×14	8×14	10×20	
100	6×11	8×11	8×14	8×14	10×20	13×26	
220	8×11	8×14	8×14	10×20			
330	8×14	10×17	10×20				
470	8×14	10×20					
1000	10×20						

■ Equivalent Series Resistance

E.S.R..(Ω)25°C/120Hz

uF \ W.V.	10	16	25	35	50	63
0.1					1657.86	1657.86
0.22					753.57	753.57
0.33					502.38	502.38
0.47					352.74	352.74
1					165.79	165.79
2.2					75.36	75.36
3.3					50.24	50.24
4.7			52.91	42.33	35.27	35.27
10		28.18	24.87	19.89	16.58	16.58
33	10.05	8.54	7.54	6.03	7.54	7.54
47	7.05	6.00	5.29	4.23	3.53	3.53
100	3.32	2.82	2.49	1.79	1.66	1.66
220	1.51	1.28	1.13	0.90		
330	1.00	0.85	0.75			
470	0.71	0.60				
1000	0.33					

■ Maximum Ripple Current

mA(rms)85°C/120Hz

uF \ W.V.	10	16	25	35	50	63
0.1					4.7	4.7
0.22					7.0	7.0
0.33					8.5	8.5
0.47					10	10
1					15	15
2.2					22	22
3.3					27	27
4.7			26	29	39	39
10		36	53	53	65	65
33	69	75	101	101	120	120
47	82	108	146	146	198	198
100	148	175	209	256	368	368
220	260	349	443	487		
330	382	495	594			
470	530					
1000	789					

NR NA Series - Non polar Type

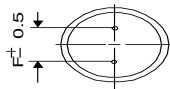
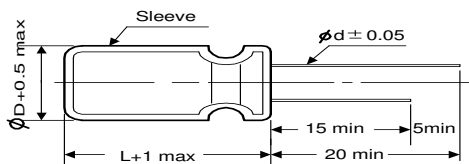
Suitable for use in circuits whose polarity is reversed, Such as signal coupling circuits and speakers, etc.

■ Specifications

Item	Characteristic											
Capacitance Tolerance (120Hz 25°C)	±20%(M)											
Rated Working Voltage	6.3 ~ 100VDC											
Operation temperature Range	-40~+85°C											
Leakage Current	I≤0.06CV+4uA (After 3 minutes application) I: leakage Current (uA) C: Rated Capacitance (uF) V: Working Voltage(V)											
Surge Voltage	W.V.	6.3	10	16	25	35	50	63	80	100		
	S.V.	8	13	20	32	44	63	79	100	125		
Dissipation Factor (120Hz 25°C) (tan δ)	W.V.	6.3	10	16	25	35	50	63	80	100		
	tan δ	0.24	0.20	0.17	0.17	0.15	0.12	0.11	0.1	0.1		
Low Temperature Stability	Impedance Ratio at 120Hz											
	Rated Voltage (V)		6.3	10	16	25	35~100					
	-25°C/+25°C		4	3	2	2	2					
	-40°C/+25°C		10	8	6	4	3					
Load Life	After 1000 hours application of W.V. At+85°C(the capacitor shall meet the following limits)											
	Capacitance Change		≤ ±20% of initial value									
	Dissipation Factor		≤ 200% of initial specified value									
	Leakage Current		≤ initial specified value									

■ NR Series Dimensions

(unit : mm)



ØD	5	6	8	10	13	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Ød	0.5	0.5	0.5	0.5	0.6	0.8	0.8

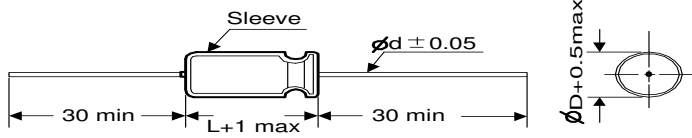
■ Size list (Radial type)

(Ø D xL mm)

W.V. uF	6.3	10	16	25	35	50	63	80	100
0.1 ~ 0.47						5×11	5×11	5×11	5×11
1						5×11	5×11	5×11	5×11
2.2						5×11	5×11	5×11	6×11
3.3						5×11	5×11	6×11	8×11
4.7						5×11	6×11	6×11	8×11
10					5×11	6×11	8×11	10×14	10×16
22		5×11	5×11	5×11	6×11	8×11	8×14	10×20	13×20
33	5×11	5×11	5×11	6×11	8×11	8×14	8×14	13×20	13×26
47	5×11	5×11	5×11	6×11	8×14	8×14	8×17	13×26	16×25
100	5×11	5×11	6×11	8×11	8×14	10×17	10×20	16×25	16×32
220	6×11	6×11	8×11	8×14	10×17	10×20	13×20		
330	8×11	8×11	8×14	10×14	10×20	13×20			
470	8×14	8×14	8×17	10×20	13×20				
1000	8×14	10×17	10×20						
2200	10×20	13×20							

■NA Series Dimensions

(unit : mm)



$\varnothing D$	6.3	8	10	13	16
$\varnothing d$	0.6	0.6	0.6	0.6	0.8

■Size list (Axial type)

($\varnothing D \times L$ mm)

W.V.	6.3	10	16	25	35	50	63	80	100
0.1 ~ 0.47						6×16	6×16	6×16	6×16
1						6×16	6×16	6×16	6×16
2.2						6×16	6×16	6×16	6×16
3.3						6×16	6×16	6×16	8×16
4.7				6×16	6×16	6×16	6×16	6×16	8×16
10			6×16	6×16	6×16	8×16	8×16	10×21	10×26
22		6×16	6×16	8×16	8×16	10×21	10×21	10×26	13×27
33	6×16	6×16	8×16	8×16	10×21	10×26	10×26	13×27	13×32
47	6×16	6×16	8×16	8×21	10×26	13×24	13×27	13×32	16×32
100	8×16	8×16	10×21	10×26	13×27	16×29	16×32	16×32	16×39
220	10×21	10×21	10×26	13×27	13×32	16×39	16×39		
330	10×21	10×26	13×27	16×32	16×32	16×44			
470	10×26	13×27	13×32	16×39	16×39				
1000	13×32	16×39	16×39						
2200	16×39	16×44							

■Maximum Ripple Current

mA(rms)85°C/120Hz

W.V.	6.3	10	16	25	35	50	63	80	100
0.47						10	10	11	11
1						15	15	17	17
2.2						22	25	25	29
3.3						31	33	36	40
4.7				28	32	37	38	40	48
10			37	42	50	63	65	70	91
22		50	63	76	85	98	106	127	157
33	56	70	88	93	110	120	130	181	211
47	76	84	105	118	142	175	203	238	278
100	128	140	176	211	272	223	360	382	450
220	202	240	293	361	444	596	596		
330	268	331	416	538	600	766			
470	361	458	548	714	792				
1000	670	891	965						
2200	1160	1328							

■ Maximum Impedance

IMP.(Ω)25°C/120Hz

W.V. uF	6.3	10	16	25	35	50	63	80	100
0.1 ~ 0.47						3562	3562	3560	3560
1						1670	1670	1668	1668
2.2						758	758	757	757
3.3						506	505	504	504
4.7				355.60	355.00	354.60	354.50	353.40	353.40
10			167.20	167.20	166.90	166.70	166.70	166.40	166.40
22		77.00	76.60	76.30	76.00	75.80	75.80	75.80	75.60
33	51.20	51.00	50.90	50.90	50.70	50.60	50.60	50.60	50.50
47	36.10	36.00	35.80	35.70	35.60	35.50	35.50	35.50	35.40
100	17.10	17.10	16.90	16.80	16.72	16.69	16.66	16.69	16.66
220	7.76	7.69	7.65	7.63	7.60	7.58	7.58		
330	5.17	5.12	5.10	5.08	5.06	5.05			
470	3.63	3.60	3.58	3.57	3.56				
1000	1.71	1.70	1.69						
2200	0.78	0.77							

BH Series – Bi-polar Type (For Horizontal Deflection)

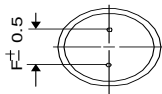
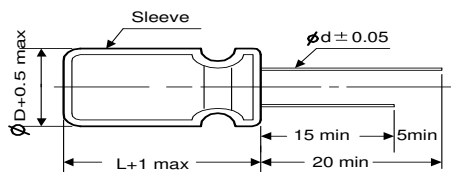
Suitable for equalizing of horizontal deflection of TV sets (or terminals).

■ Specifications

Item	Characteristic
Capacitance Tolerance (120Hz 25°C)	±20%(M)
Rated Working Voltage	25 ~ 50VDC
Operation temperature Range	-40~+85°C
Leakage Current	100uA (After 5 minutes application) in both directions
Dissipation Factor (120Hz 25°C) (tan δ)	tan δ ≤ 0.08
Temperature Characteristics	Capacitance change shall be within ±10% of the value at 25°C over operating temperature range.
Load Life	The following specifications shall be satisfied when the capacitors are restored DC 12V at +25°C and specified ripple current applied for 1000 hours at +70°C
	Capacitance Change ≤ ±20% of initial value
	Dissipation Factor ≤ 200% of initial specified value
	Leakage Current ≤ initial specified value

■ Dimensions

(unit : mm)



ØD	10	13	16	18	22
F	5.0	5.0	7.5	7.5	10
Ød	0.6	0.6	0.8	0.8	1.0

■ Size list

W.V.	CAP.(uF)	D x L (mm)	Ripple Current (15.75KHz 70°C)	E.S.R.(Ω) (120Hz 25°C)
25	2.2	10x21	2.8	30.14
	3.3	13x26	4.5	20.10
	4.7	13x26	5.5	14.11
	6.8	16x32	7.5	9.75
	8.2	16x32	8.5	8.09
	10	16x35	10.00	6.63
	12	18x35	11.5	5.53
	18	22x40	13.0	3.68
35	2.2	13x26	3.5	30.14
	3.3	16x25	4.8	20.10
	4.7	16x32	6.5	14.11
	6.8	16x35	8.0	9.75
	8.2	18x35	9.5	8.09
	10	18x35	10.0	6.63
	12	22x40	12.0	5.53
	18	25x40	18.0	4.75
50	2.2	16x25	3.5	30.14
	3.3	16x32	4.8	20.10
	4.7	16x32	6.5	14.11
	6.8	16x35	8.0	9.75
	8.2	18x35	9.5	8.09
	10	18x35	10.0	6.63
	12	22x40	12.0	5.53
	18	25x40	18.0	4.75

BC Series – Bi-polar Type (For crossover networks)

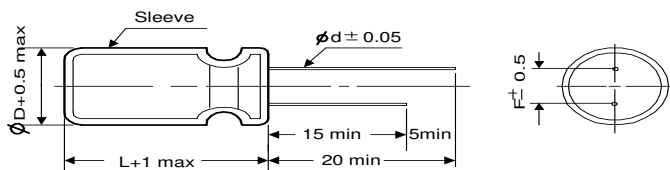
Specially designed for use in audio crossover networks for the finest 2,3 or 4-way highfidelity.

■ Specifications

Item	Characteristic
Capacitance Tolerance (120Hz 25°C)	±20%(M)
Rated Working Voltage	25 ~ 50VDC
Operation temperature Range	-40~+85°C
Leakage Current	$I \leq 0.03CV + 4(\mu A)$ (After 5 minutes application) I: leakage Current (μA) C: Rated Capacitance (μF) V: Working Voltage(V)
Dissipation Factor (1KHz 25°C) ($\tan \delta$)	$\tan \delta \leq 0.08$
Load Life	The following specifications shall be satisfied when the capacitors are restored to 25°C after rated DC Voltage applied for 1000 hours at 85°C. During this test the rated DC voltage shall be reversed on the capacitor every 250 hours
	Capacitance Change \leq ±20% of initial value
	Dissipation Factor \leq 200% of initial specified value
	Leakage Current \leq initial specified value

■ Dimensions

(unit : mm)



ØD	8	10	13	16	18	22
F	3.5	5.0	5.0	7.5	7.5	12.5
Ød	0.5	0.5	0.6	0.8	0.8	1.0

■ Size list

W.V. (S.V.)	CAP.(μF)	D x L (mm)	Ripple Current (15.75KHz 70°C)	E.S.R.(Ω) (120Hz 25°C)
25	1	10x21	125	60.29
	3.3	13x26	175	40.19
	4.7	13x26	230	28.22
	6.8	13x26	290	19.50
50	1	10x21	120	132.63
	1.5	10x21	160	88.42
	2.2	10x21	210	60.29
	3.3	13x26	290	40.19
	4.7	13x26	380	28.22
	6.8	13x26	480	19.50
	10	13x31	650	13.26
	15	13x31	880	8.84
	22	13x31	1200	6.03
	33	13x31	1600	4.02
	47	16x32	2100	2.82
	68	16x35	2700	1.95
	100	16x35	3600	1.33

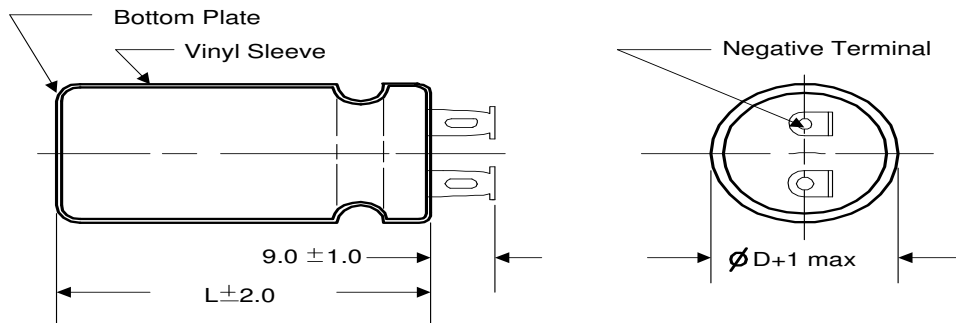
LS Series - Large Size Type

Suitable for filter of consumer electronic equipment, TV sets, power supplies etc.

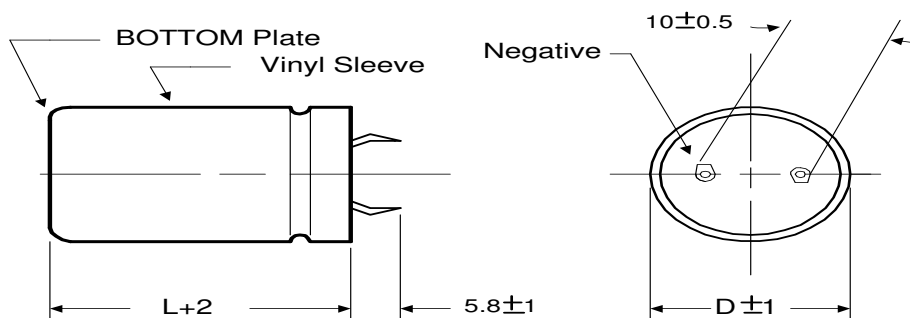
■ Specifications

Item	Characteristic										
Capacitance Tolerance (120Hz 25°C)	±20%(M)										
Rated Working Voltage	10 ~ 450VDC										
Operation temperature Range	-40~+85°C										
Leakage Current (25°C)	I≤0.03CV or 3 (mA) (After 5 minutes application) I: leakage Current (uA) C: Rated Capacitance (uF) V: Working Voltage(V)										
Dissipation Factor (120Hz 25°C) (tan δ)	Rated Voltage (V)	10	16	25	35	50~63	80~100	160~250	315~450		
	tan δ	CV≤100,000	0.40	0.35	0.30	0.25	0.25	0.20	0.20	0.25	
		CV>100,000	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.25	
Low Temperature Stability	Impedance Ratio at 120Hz										
	Rated Voltage (V)	10 ~ 100			160~250			315~450			
	-25°C/+25°C	4			6			8			
	-40°C/+25°C	15									
Load Life	After 1000 hours application of W.V. At+85°C(the capacitor shall meet the following limits)										
	Capacitance Change	≤ ±20% of initial value									
	Dissipation Factor	≤ 200% of initial specified value									
	Leakage Current	≤ initial specified value									
Shelf life	At 85°C no voltage applied after 1000 hours the capacitor shall meet the following limits.										
	Capacitance Change	≤ ±20% of initial value									
	Dissipation Factor	≤ 200% of initial specified value									
	Leakage Current	≤ 200% of initial specified value									

1. LUG TYPE TERMINAL



2. SNAP-IN TYPE TERMINAL



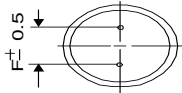
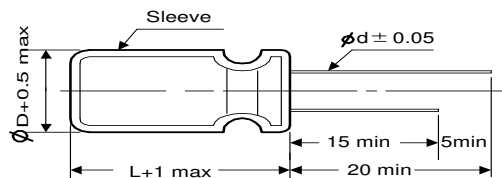
TR TA Series – 105°C General Type

Suitable for consumer electronic or telecommunication equipment and industry products etc.

■ Specifications

Item	Characteristic													
Capacitance Tolerance (120Hz 25°C)	±20%(M)													
Rated Working Voltage	6.3 ~ 100VDC						160 ~ 250VDC							
Operation temperature Range	-20~+105°C													
Leakage Current (25°C)	I≤0.03CV or 4 (uA)						I=0.03CV+10(uA) max							
Dissipation Factor (120Hz 25°C) (tan δ)	I: leakage Current (uA) C: Rated Capacitance (uF) V: Working Voltage(V) (After 5 minutes application)													
	Add 0.02 per 1000uF for more than 1000uF													
	W.V.	6.3	10	16	25	35	50	63	80	100	160	200	250	
tan δ	0.22	0.20	0.17	0.15	0.12	0.10	0.10	0.09	0.08	0.15	0.12	0.10		
Low Temperature Stability	Impedance Ratio at 120Hz													
	Rated Voltage (V)	6.3		10		16		25		35~100		160~250		
	-25°C/+25°C	4		3		3		2		2		4		
	-40°C/+25°C	8		6		6		4		4				
Load Life	After 1000 hours application of W.V. At 105°C (the capacitor shall meet the following limits)													
	Capacitance Change	≤ ±25% of initial value for 6.3~16W.V. ≤ ±20% of initial value for 25~250W.V.												
	Dissipation Factor	≤ 200% of initial specified value												
	Leakage Current	≤ initial specified value												
Shelf life	At 105°C no voltage applied after 1000 hours the capacitor shall meet the following limits.													
	Capacitance Change	≤ ±25% of initial value for 6.3~16W.V. ≤ ±20% of initial value for 25~250W.V.												
	Dissipation Factor	≤ 200% of initial specified value												
	Leakage Current	≤ 200% of initial specified value												

■ TR Series Dimensions



(unit : mm)

ØD	5	6.3	8	10	13	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Ød	0.5	0.5	0.5	0.5	0.6	0.8	0.8

■ Size list (Radial type)

(Ø D xL mm)

uF	W.V.	6.3	10	16	25	35	50	63	80	100	160	200	250
	S.V.	8	13	20	32	44	63	79	100	125	200	250	300
0.1 ~ 0.47							5×11	5×11	5×11	5×11	6×11	6×11	6×11
1							5×11	5×11	5×11	5×11	6×11	6×11	8×11
2.2							5×11	5×11	5×11	5×11	6×11	8×11	8×14
3.3							5×11	5×11	5×11	6×11	8×14	8×14	10×13
4.7							5×11	5×11	5×11	6×11	8×14	10×13	10×16
10							5×11	6×11	6×11	6×11	8×11	10×16	10×21
22							5×11	6×11	8×11	8×14	10×16	10×21	13×21
33			5×11	5×11	5×11	5×11	6×11	8×11	8×14	10×16	13×21	10×21	13×26
47			5×11	5×11	5×11	6×11	6×11	8×11	10×16	10×18	16×25	16×32	16×32
100			5×11	5×11	6×11	8×11	8×11	10×16	10×21	13×21	16×32	18×35	18×35
220			6×11	6×11	8×11	8×11	10×17	10×20	13×26	13×26	18×26		
330			6×11	8×11	8×11	10×17	10×20	13×21	16×25	16×32			
470			8×11	8×11	8×14	10×17	13×21	16×25	16×32	18×35			
1000			8×14	10×17	13×21	16×26	16×36	18×36	18×39				
2200			10×17	13×21	13×21	16×26	18×36						

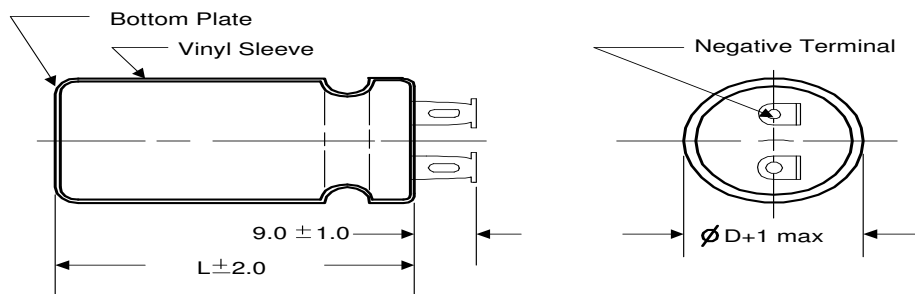
TS Series - 105°C Large Size Type

Suitable for filter of industrial machines, such as automatic machines and computers.

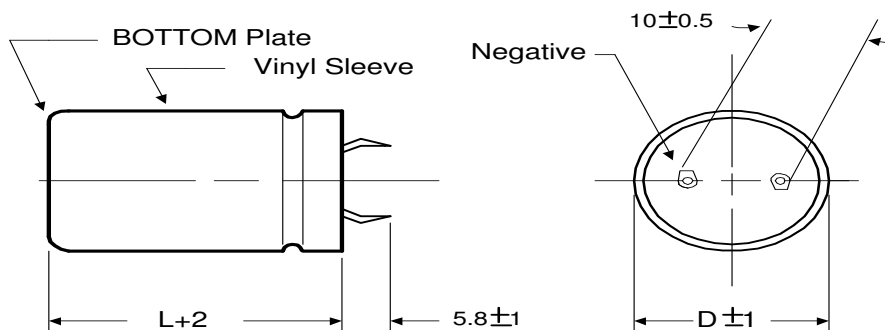
■ Specifications

Item	Characteristic										
Capacitance Tolerance (120Hz 25°C)	±20%(M)										
Rated Working Voltage	16 ~ 250VDC										
Operation temperature Range	-40~+105°C										
Leakage Current (25°C)	I≤0.02CV or 3 (mA) (After 5 minutes application) I: leakage Current (uA) C: Rated Capacitance (uF) V: Working Voltage(V)										
Dissipation Factor (120Hz 25°C) (tan δ)	W.V.	16	25	35	50	63	80	100	160	200	250
	tan δ	0.40	0.35	0.30	0.25	0.25	0.20	0.20	0.15	0.15	0.15
Low Temperature Stability	Impedance Ratio at 120Hz										
	Rated Voltage (V)	16	25	35	50	63	80	100	160 ~ 250		
	-25°C/+25°C	6	6	6	4	3	3	3	4		
	-40°C/+25°C	15	15	10	8	6	6	6			
Load Life	After 1000 hours application of W.V. At +105°C (the capacitor shall meet the following limits)										
	Capacitance Change	≤ ±20% of initial value									
	Dissipation Factor	≤ 200% of initial specified value									
	Leakage Current	≤ initial specified value									
Shelf life	At 105°C no voltage applied after 1000 hours the capacitor shall meet the following limits.										
	Capacitance Change	≤ ±20% of initial value									
	Dissipation Factor	≤ 200% of initial specified value									
	Leakage Current	≤ 200% of initial specified value									
Others	Satisfies Characteristic W of JIS 5141										

1. LUG TYPE TERMINAL



2. SNAP-IN TYPE TERMINAL

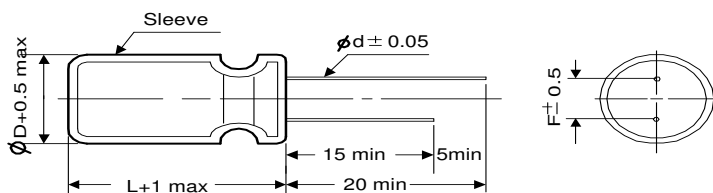


TRC Series – Low E.S.R. Type (For Switching Regulator Use)
 Suitable for output of switching power supplies.

■ Specifications

Item	Characteristic					
Capacitance Tolerance (120Hz 25°C)	±20%(M)					
Rated Working Voltage	10 ~ 50VDC					
Operation temperature Range	-55~+105°C					
Leakage Current (25°C)	I≤0.002CV or 2 (uA) (After 5 minutes application) I: leakage Current (uA) C: Rated Capacitance (uF) V: Working Voltage(V)					
Dissipation Factor (120Hz 25°C) (tan δ)	W.V.	10	16	25	35	50
	tan δ	0.15	0.12	0.10	0.10	0.10
Temperature Characteristics	ITEM	W.V.	°C		-55°C	+105°C
	Capacitance change From 25°C value (120Hz)	10			-25%	+20%
		16 ~ 50			-30%	
	Impedance ratio At 120 Hz	W.V.	°C		-55°C +25°C	+105°C/+25°C
		10			5	≤ initial value at 25°C
		16			4	
25 ~ 50			3			
Leakage Current	10 ~ 50				≤5 times the initial specifier value	
Load Life	After 1000 hours application of W.V. At +105°C (the capacitor shall meet the following limits)					
	Capacitance Change	≤ ±15% of initial value				
	Dissipation Factor	≤ 150% of initial specified value				
	Leakage Current	≤ initial specified value				
Shelf life	At 105°C no voltage applied after 1000 hours the capacitor shall meet the following limits.					
	Capacitance Change	≤ ±15% of initial value				
	Dissipation Factor	≤ 150% of initial specified value				
	Leakage Current	≤ 200% of initial specified value				

■ Dimensions



(unit : mm)

ØD	8	10	12.5
F	3.5	5.0	5.0
Ød	0.6	0.6	0.8

■ Size List

uF	W.V.	10	16	25	35	50
	S.V.	13	20	32	44	63
10					8×11	8×11
22				8×11	10×13	10×16
33			8×11	10×13	10×16	10×16
47	8×11	10×13	10×16	10×16	10×16	10×21
68	10×16	10×16	10×16	10×21	13×26	
100	10×16	10×16	10×21	13×26	13×26	
220	10×21	10×21	13×26	13×41	13×41	
330	13×21	10×26	13×41	13×41		
470	13×26	10×41	13×41			
680	13×41	10×41				
1000	13×41					

■ Maximum Impedance IMP.(Ω)25°C/100KHz

W.V	10	16	25	35	50
uF					
10				1.20	2.10
22			0.90	1.20	1.85
33		0.90	0.90	1.00	1.00
47	0.90	0.90	0.80	0.70	0.70
68	0.85	0.85	0.50	0.50	0.50
100	0.70	0.50	0.40	0.30	0.26
220	0.38	0.30	0.16	0.16	0.15
330	0.25	0.12	0.12	0.12	
470	0.12	0.08	0.06		
680	0.08	0.06			
1000	0.06				

■Equivalent Series Resistance

E.S.R.(Ω)25°C/120Hz/1KHz

uF \ W.V.	10		16		25		35		50	
	120Hz	1KHz	120Hz	1KHz	120Hz	1KHz	120Hz	1KHz	120Hz	1KHz
10							7.00	2.00	10.00	4.50
22					5.00	2.00	2.50	1.50	2.50	4.00
33			4.00	2.00	2.80	1.70	2.80	1.80	2.30	1.80
47	3.50	1.90	2.80	1.40	2.80	1.20	2.20	1.00	2.00	1.00
68	3.00	1.70	2.80	1.20	1.50	0.85	1.30	0.80	1.30	0.75
100	1.80	1.00	1.50	0.80	1.20	0.60	0.80	0.40	0.76	0.42
220	1.00	0.58	0.61	0.35	0.40	0.27	0.40	0.25	0.40	0.25
330	0.48	0.28	0.28	0.17	0.28	0.20	0.26	0.20		
470	0.24	0.16	0.24	0.14	0.16	0.10				
680	0.20	0.14	0.14	0.09						
1000	0.12	0.76								

■Maximum Ripple Current A(rms)85°C/100KHz

uF \ W.V.	10	16	25	35	50
10				0.13	0.10
22			0.15	0.26	0.26
33		0.19	0.24	0.26	0.26
47	0.26	0.26	0.28	0.31	0.34
68	0.28	0.34	0.40	0.45	0.50
100	0.33	0.45	0.47	1.00	0.69
220	0.48	0.71	1.02	1.10	1.28
330	0.73	1.31	1.40	1.55	
470	1.42	1.60	1.90		
680	2.00	2.44			
1000	2.87				

■Ripple Current Coefficients

■Temperature multiplying factor

Temperature(°C)	65	75	85	95	105
Multiplier	1.42	1.20	1.00	0.69	0.53

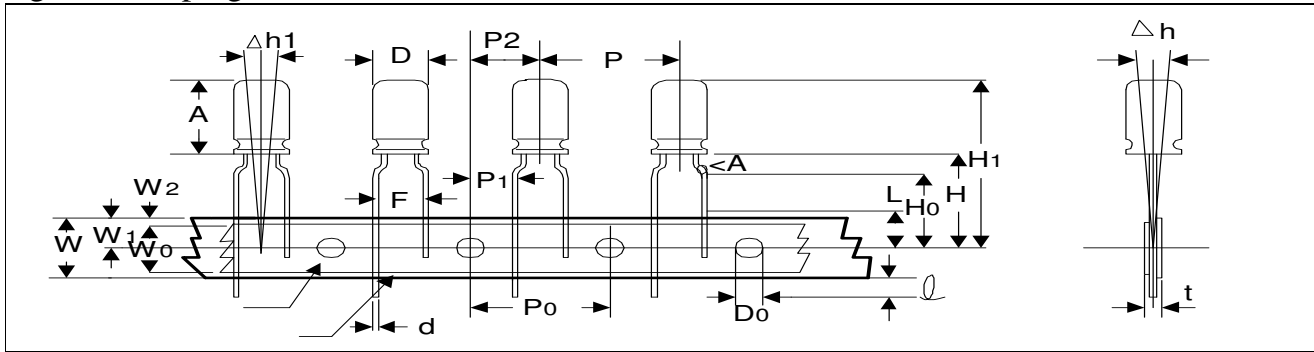
■Frequency multiplying factor

W.V. \ Frequency Multiplier	60	120	140	1K	10K	100K
10 ~ 16V	0.67	0.79	0.86	0.98	1.00	1.00
25 ~ 35V	0.46	0.61	0.75	0.88	0.97	1.00
50V	0.32	0.47	0.64	0.83	0.94	1.00

■Lead Taping Radial Zigzag Type

Lead taping is designed for automatic insertion equipment. Capacitor with can size 8mm×11mm or smaller Are available to be in taping type.

■Diagram of Taping Dimensions (unit : mm)



■Specifications Information (unit : mm)

ITEM	Symbol	CASE SIZE			Tolerance
		4x7	4x7	4x7	
Lead wire diameter	d	0.45	0.5	0.6	±0.05
Body height	A	8.5	12.5		max.
Pitch of body	P	12.7			±0.1
Feed hole pitch	P0	12.7			±0.2
Hole center to lead distance	P1	3.85			±0.7
Feed hole center to body center distance	P2	6.35			±1.0
Lead to lead distance	F	5.0			+0.8-0.2
Base tape width	W	18.0			±0.5
Adhesive tape width	W0	12.5			min.
Hole position	W1	9.0			+0.75-0.5
Hole-down tape position	W2	3.0			max.
Height of body from tape center	H	17.5	18.5	20.0	±0.75
Lead wire clinch height	H0	16.0			±0.5
Component height	H1	27.5	32.5		max.
Feed hole diameter	D0	4.0			±0.3
Lead wire protrusion	Q	2.0			max.
Length of snapped lead	L	11.0			max.
Total tape thickness	t	0.7			±0.3
Body alignment	Δh	0			±2.0
Body alignment	Δh1	0			±1.0
Lead wire clinch angle	<A	17°			±5°

■Package information

INNER BOX					
Ø D (m/m)	W±5 mm	L±5 mm	H±3 mm	PCS	
4	340	230	55	2000	
5	340	230	55	2000	
6	340	230	55	1600	
8	340	230	55	1000	
PACKING CARTON					
Ø D Mm	A±5 mm	B±5 mm	C±5 mm	Inner mm	PCS
4	360	605	240	10	20000
5	360	605	240	10	20000
6	360	605	240	10	16000
8	360	605	240	10	10000

