

Sounds divider

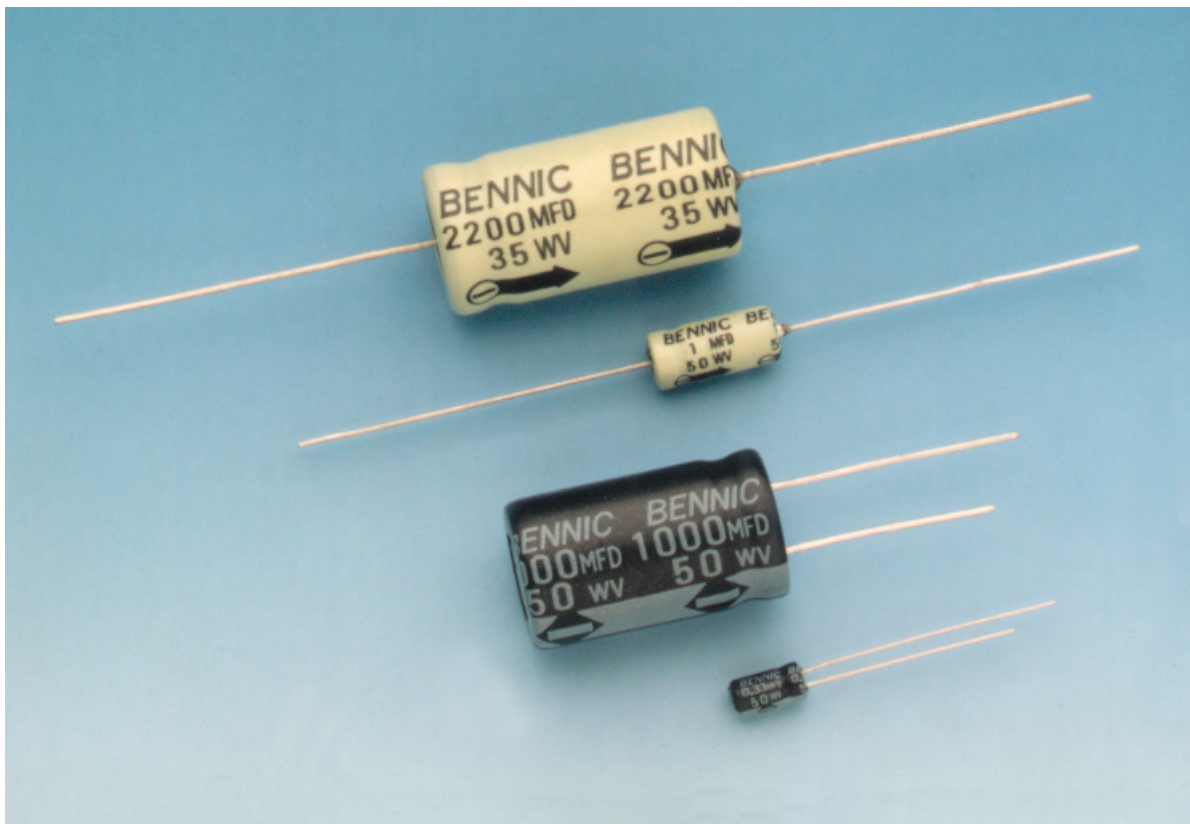


BENNIC COMPONENTS

| IATF 16949 | ISO 14001 | ISO 9001 | IMDS ID:38606 |



RELIABLE UNI-POLAR CAPACITORS



. V2016.07A

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I N D E X

SERIES	APPLICATION AND FEATURES	TYPE	TEMPERATURE (°C)	RATED WORKING VOLTAGE RANGE(V)	CAPACITANCE RANGE (μF)	PAGE
ALUMINIUM ELECTROLYTIC CAPACITORS - General information						2~5
SL	General Electronic Circuits	Axial	-40 ~ +85	6.3 ~ 160	1.0 ~ 22000	6~7
SL	General Electronic Circuits	Radial	-40 ~ +85	6.3 ~ 160	1.0 ~ 15000	8~9
MN MX	General Electronic circuits.for 85 °C (MN series)and 105 °C (MX series) Mini Size, Height 7mm	Radial	-40 ~ +85(MN series) -40 ~ +105(MX series)	4 ~ 63	1.0 ~ 220	10
LL LX	Low Leakang Current for 85 °C (LL series)and 105 °C (LX series)	Radial	-40 ~ +85(LL series) -40 ~ +105(LX series)	6.3 ~ 100	1.0 ~15000	11
ML	Low Leakage Current.Mini Size, Height 7mm	Radial	-40 ~ +85	4 ~ 63	1.0 ~100	12
LN	Low Noise, Low Leakage, High Reliability	Radial	-40 ~ +85	6.3 ~ 50	1.0 ~ 470	13
TM	General Circuit for 105 °C	Radial	-40 ~ +105	6.3 ~160	1.0 ~15000	14~15
TX	General Circuit for 105 °C 2000Hours, Better Ripple current and ESR than TM series	Radial	-40 ~ +105	6.3 ~160	1.0 ~ 10000	16~18
HA	High Ripple Current, Low ESR for Switching Power Supply, 2000Hours at105 °C	Radial	-55 ~ +105	6.3 ~160	4.7 ~ 6800	19~20
HX	High Ripple Current, Low ESR for Switching Power Supply. 5000Hours at105 °C	Radial	-55 ~ +105	10 ~160	0.47 ~ 4700	21~22
PB PX	Bi-Polar for TV Horizontal Deflection Current Correction Circuit. 85 °C (PBseries) and 105 °C (PX series)	Radial	-40 ~ +85(PB series) -25 ~ +105(PX series)	25~50	1~33	23
SD	General Electronic Circuits High C/V Product with Auxiliary Lead.	Radial	-40 ~ +85	10 ~160	100 ~ 22000	24~25
SI	Snap-in for P.C.B.85 °C	Radial	-40 ~ +85	10 ~160	56 ~ 56000	26~28
SX	Snap-in for P.C.B.105 °C	Radial	-40 ~ +105	10 ~160	68 ~ 68000	29~31
LG	High C/V Product, Lug Terminal.	Radial	-40 ~ +85	16 ~160	22 ~ 47000	32~35
SW	High C/V Product, Screw Terminal.	Radial	-25 ~ +85	10 ~160	22 ~ 56000	36~39



ALUMINIUM ELECTROLYTIC CAPACITORS - General information

CHART.A-HOW TO ORDER/READ OUR PART NUHBER

Digit	:	1	2		3	4		5	6	7	8	9	10	11		12
P / N	:	S	L		R	T	-	0	5	0	K	1	5	5	-	

Digit 1 ~ 2 : SERIES-SEE INDEX

Digit 3 : LEAD-OUT

"A " -MEANS " AXIAL " LEADS(SPOT TYPE)

" R " -MEANS " RADIAL " LEADS

Digit 4 : PACKING & FINISHED TYPE

" T " -MEANS TAPING REEL

" B " -MEANS TAPING BOX

" F " -MEANS. FORMING

" C " -MEANS CRIMING/CUTTING

" G " -MEANS BULK PACK

Digit 5 ~7 : VOLTAGE i.e.

006 = 6.3V 010 = 10V 016 = 16V 025 = 25V 035=35V 050=50V 063=63V

100=100V 160=160V

Digit 8 : TOLERANCE i.e.

J=±5% K=±10% M=± 20% L=±15% V=+10%/-20% T=-10%/+50%

Digit 9 ~ 11 : CAPACITANCE i.e.

Capacitance shown in picofarad (PF)

Example : $0.47 \mu F = 47 \times 10^4 PF = 474$ $22 \mu F = 22 \times 10^6 PF = 226$

$1 \mu F = 10 \times 10^5 PF = 105$ $330 \mu F = 33 \times 10^7 PF = 337$

Digit 12 : SUFFIX FOR ANY SPECIAL REQUEST.

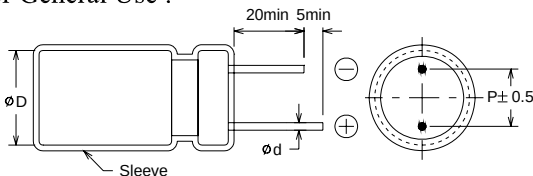
**** Sleeve Standard color : BLACK, DARK BLUE.**

Or all other color will be accepted only based M.O.Q. 500K per order for each item, otherwise unless you could accept non-compliance Sony SS-00259 (Still compliance with RoHS required).

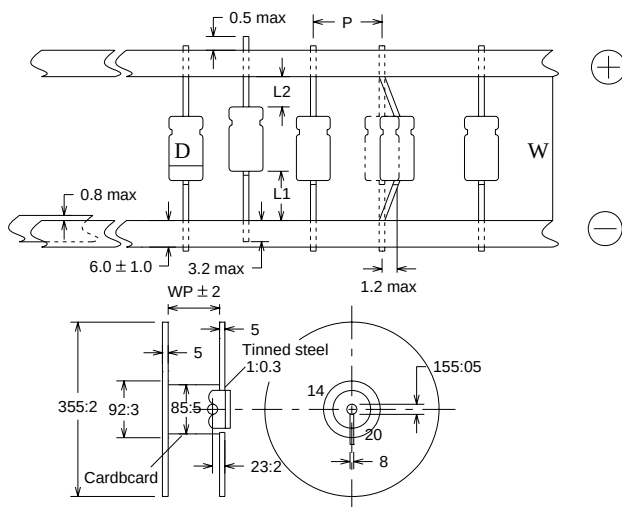
CHART.B-Lead Wire Process

Service data, lead wire cut/forming types please specify as referring to following details.

For General Use :



Axial Taping Reel :



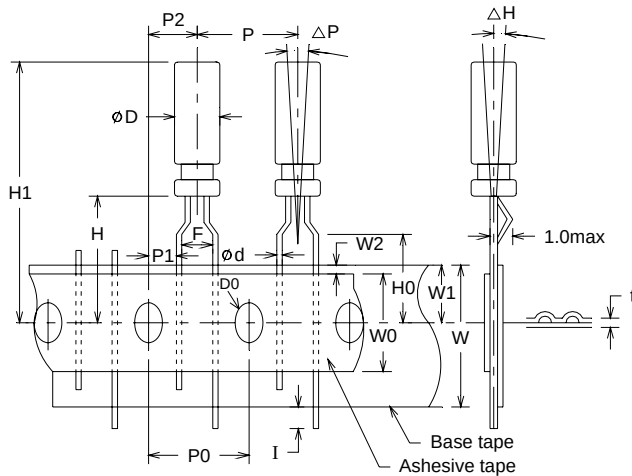
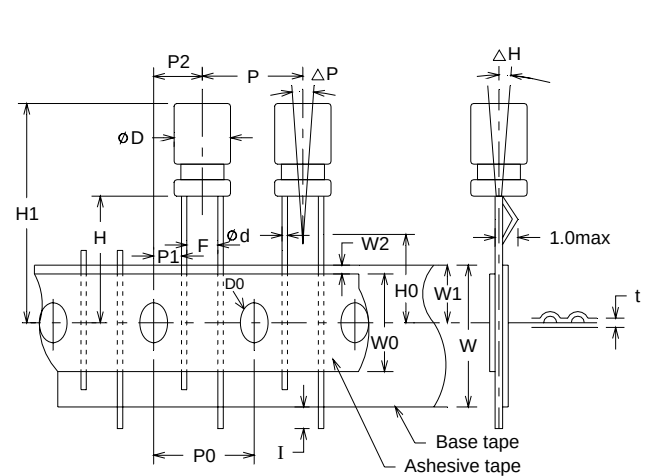
Dimension(mm)

Ø D	4	5	6.3	8	10	13	16	18
Ø d	0.45	0.5	0.5	0.6	0.6	0.6	0.8	0.8
±0.5		0.45	0.45					
P ±0.5	1.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5

Ø D	w ±2.0	P±0.5	L1-L2
5, 6.3, 8	52,63,73	10	1.5max
10	52,63,73,93	15	1.5max

W	WP	Packing Carton
52	70 ± 2.0	85 x 360 x 360
63	82 ± 2.0	97 x 360 x 360
73	92 ± 2.0	107 x 360 x 360
93	112 ± 2.0	127 x 360 x 360

Ø D	Quantity (PCS)
5	1200
6.3	1000
8	800
10	600

**Radial Taping:****A.****B.****(A) Dimensions(mm)**

Symbol	CASE SIZE			Tolerance
	4 x 7 5 x 7 6.3 x 7	5 x 11 6.3 x 11	8 x 11 8 x 14	
Ød	0.45	0.45 or 0.5	0.6	±0.05
P	12.7			± 1.0
P0	12.7			±0.3
P1	3.85			±0.5
P2	6.35			± 1.0
F	5.0			+0.6 -0.2
Δh	2.0max			-
W	18.0			± 0.5
W0	12.5min			-
W1	9.0			±0.5
W2	3.0max			-
H	18.5			±0.75
H0	16.0			±0.5
H1	35.0max			-
D0	4.0			±0.3
t	0.7			±0.2
ΔP	1.3max			-

(B-1) Dimensions(mm)

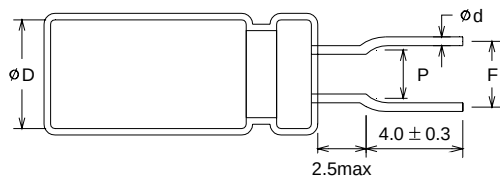
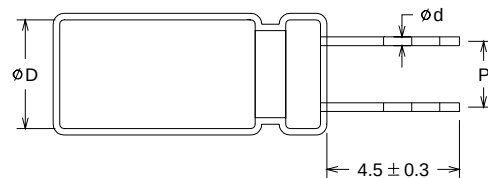
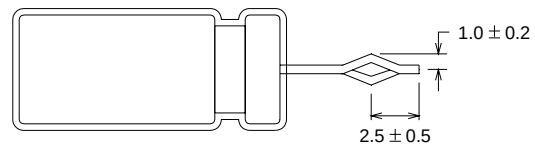
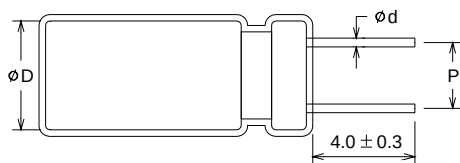
Symbol	CASE SIZE		Tolerance
	10 x 12 10 x 15 10 x 17	10 x 20	
Ød	0.6		±0.05
P	12.7		± 1.0
Po	12.7		±0.3
P1	3.85		± 0.5
P2	6.35		± 1.0
F	5.0		+0.6 -0.2
Δh	0		± 2.0
W	18.0		±0.5
W0	12.5min		-
W1	9.0		±0.5
W2	3.0max		-
H	18.5		±0.75
H1	35.0max		-
D0	4.0		±0.3
T	0.7		±0.2
ΔP	1.3max		-

**ALUMINIUM ELECTROLYTIC CAPACITORS - General information****(B-2) Dimensions(mm)**

Symbol	CASE	SIZE	Tolerance
	13 x 13	13 x 25	
	13 x 16		
	13 x 20		
Ød	0.6		±0.05
P	15.0		± 1.0
P0	15.0		± 0.2
P1	5.0		±0.5
P2	7.5		± 1.0
F	5.0		+0.6 -0.2
Δh	2.0max		-
W	18.0		±0.5
W0	12.5min		-
W1	9.0		±0.5
W2	3.0max		-
H	18.5		±0.75
H1	45.5max		-
D0	4.0		±0.3
t	0.7		± 0.2
ΔP	13max		-

(B-3) Dimensions(mm)

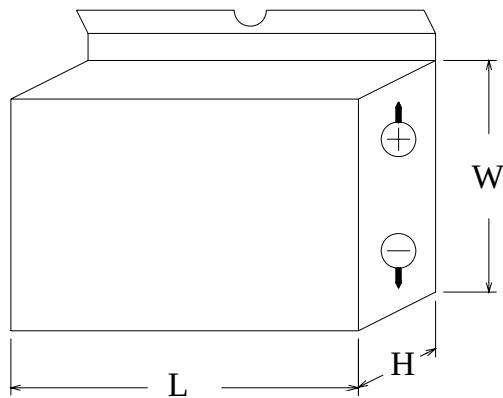
Symbol	CASE	SIZE	Tolerance
	16 x 16		
	16 x 20		
	16 x 26		
Ød	0.8		± 0.05
P	30.0		± 1.0
P0	15.0		±0.3
P1	3.75		±0.5
P2	7.5		± 1.3
F	7.5		+0.6 -0.2
Δh	2.0max		-
W	18.0		± 0.5
W0	12.5min		-
W1	9.0		±0.5
W2	3.0max		-
H	18.5		±0.75
HI	45.5max		-
D0	4.0		±0.3
t	0.7		± 0.2
ΔP	13max		-

Forming Cut :**Lead Cut, and Crimping :****Cut :**

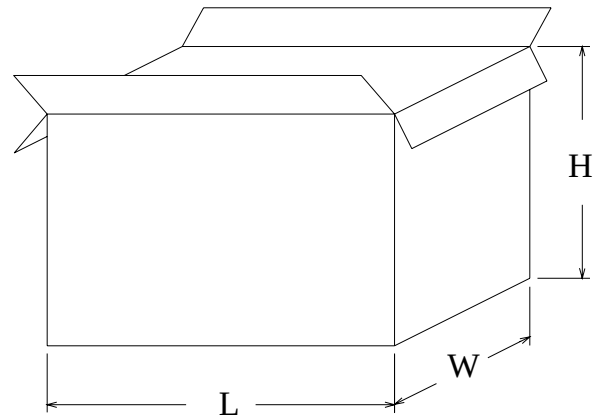
ØD ±1	4	5	6.3	8	10	13	16	18
ØD ±0.05	0.45	0.45 or 0.5	0.45 or 0.5	0.6	- 0.6	0.6	0.8	0.8
P ±0.5	1.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
F ±0.5	3.0 or 5.0	3.0 or 5.0	5.0	5.0	-	-	-	-

**Taiping Package**

Inner Box



Packing Carton



ØD (mm)	L ± 5 (mm)	W ± 5 (mm)	H ± 5 (mm)	Quantity (PCS)
4	340	275	50	3000
5	340	230	50	2000
6.3	340	275	50	2000
8	340	230	50	1000
10	340	230	50	600
13	315	275	65	450
16	315	275	65	300

ØD (mm)	L ± 5 (mm)	W ± 5 (mm)	H ± 5 (mm)	Quantity (pcs)
4	355	297	290	15000
5	355	252	290	10000
6.3	355	297	290	10000
8	355	252	290	5000
10	355	252	290	3000
13	355	297	290	1800
16	355	297	290	1200



SL Series

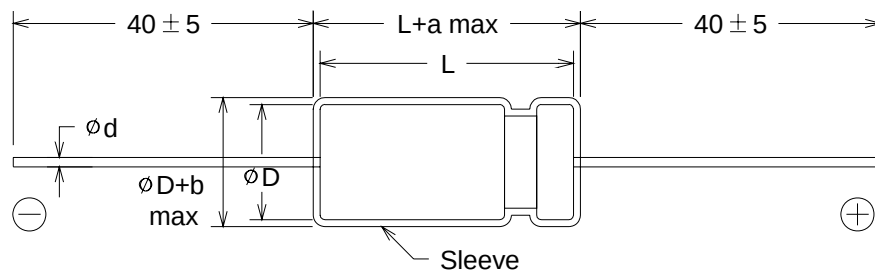
- Axial lead wire type.
- General Electronic Circuits

SPECIFICATION

ITEM	SPECIFICATION										
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)										
Rated Working Voltage	6.3 ~ 160WV										
Operation Temperature Range	-40 ~ +85 °C										
Surge Voltage (V) (20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	SV	8	13	20	32	44	63	79	125	200	
Leakage Current (μA) (20 °C)	I ≤ 0.01CV or 3μA										
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)										
Dissipation Factor (%) (120Hz,20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	DF	24	20	16	14	12	10	10	10	20	
	Add 2% per 1000 μF for more than 1000 μF										
Low Temperature Characteristics	Impedance Ratio at 120HZ										
	Comparison Z\WV		6.3	10	16	25	35	50	63	100	160
	-25 °C /20 °C		4	3	2	2	2	2	3	2	3
	-40 °C /20 °C		8	6	4	4	4	2	3	3	-
Load Life	After 2000 hours application of W.V.at+85 °C The capacitor shall meet the following limits										
	Capacitance Change			≤ ±25% of Initial Value							
	Dissipation Factor			≤ 200 %of Initial Specified Value							
	Leakage Current			≤ Initial Specified Value							
Shelf Life	After 500 hours to at 85 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.										

DIMENSIONS(unit:mm)

$\varnothing D$	5	6.3	8	10	13	16	18	22	25
$\varnothing d$	0.5	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.8
a	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0
b	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0



**ALUMINIUM ELECTROLYTIC CAPACITORS**

CASE SIZE (mm)

ØD x L

µF \ WV	6.3	10	16	25	35	50	63	100	160
0.47						5 x 13	6 x 13	6 x 13	
1.0						5 x 13	6 x 13	6 x 13	6 x 13
2.2						5 x 13	6 x 13	6 x 13	6.3 x 16
3.3						5 x 13	6 x 13	6 x 13	8 x 16
4.7						5 x 13	6 x 13	6 x 13	8 x 16
10				5 x 13	6 x 13	6 x 13	6 x 13	8 x 13	8 x 20
22			5 x 13	6 x 13	6 x 13	6 x 13	8 x 13	8 x 16	10 x 26
33		5 x 13	6 x 13	6 x 13	6 x 13	8 x 13	8 x 13	8 x 16	13 x 26
47		6 x 13	6 x 13	6 x 13	8 x 13	8 x 13	8 x 16	8 x 20	16 x 32
100	5 x 13	6 x 13	8 x 13	8 x 13	8 x 16	8 x 16	8 x 20	10 x 26	16 x 41.5
220	8 x 13	8 x 13	8 x 16	8 x 16	8 x 20	10 x 21	10 x 26	13 x 26	22 x 41
330	8 x 16	8 x 16	8 x 16	8 x 20	10 x 21	10 x 26	13 x 26	13 x 31	25 x 53
470	8 x 16	8 x 16	8 x 20	10 x 21	10 x 26	13 x 36	13 x 31	16 x 32	25 x 53
1000	10 x 21	10 x 21	10 x 26	13 x 26	13 x 31	16 x 32	16 x 32	22 x 41	
2200	13 x 26	13 x 26	13 x 31	16 x 32	16 x 32	18 x 40	22 x 41	25 x 53	
3300	13 x 26	13 x 31	16 x 32	16 x 40	18 x 40	22 x 41	22 x 52		
4700	16 x 32	16 x 32	16 x 40	18 x 40	22 x 41	22 x 52	25 x 53		
6800	16 x 32	16 x 40	18 x 40	22 x 41	22 x 52	25 x 53			
10000	16 x 32	18 x 40	22 x 41	22 x 52	25 x 53				
15000	22 x 41	22 x 41	22 x 52	25 x 53					
22000	22 x 52	22 x 52	25 x 53						

MAXIMUM RIPPLE CURRENT (mA)

120Hz / 85 °C

µF \ WV	6.3	10	16	25	35	50	63	100	160
0.47						5		10	
1.0						10		18	13
2.2						23		28	23
3.3						28	31	34	33
4.7						34	37	40	39
10				40	45	50	55	60	60
22			60	65	70	85	90	120	120
33		65	70	80	90	110	120	150	170
47		80	85	100	120	130	160	190	230
100	110	130	160	170	210	220	260	340	430
220	220	210	260	280	340	410	480	560	680
330	250	300	320	380	460	560	650	750	940
470	330	350	430	510	610	730	840	970	1200
1000	600	640	770	900	1060	1260	1330	1540	
2200	1020	1090	1180	1480	1580	1920	2160	2430	
3300	1200	1390	1620	1710	2050	2340	2470		
4700	1500	1730	1840	2170	2470	2650	2710		
6800	1840	1930	2310	2580	2720	2910			
10000	2260	2350	2620	2940	3600				
15000	2450	2730	2860	3880					
22000	2550	2940	3630						



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

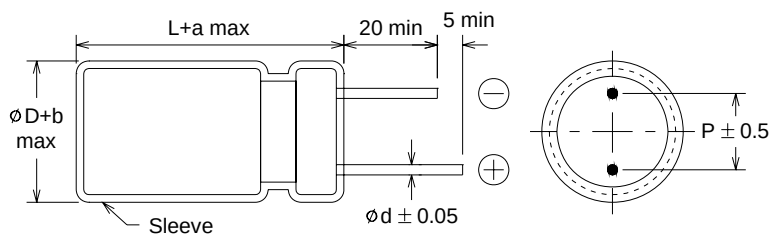
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- Used in General Electronic as Coupling , By-pass, Filter etc.
- General Electronic Circuits.

SL Series IN

ITEM	SPECIFICATION										
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)										
Rated Working Voltage	6.3 ~ 160WV										
Operation Temperature Range	-40 ~ +85 °C										
Surge Voltage (V) (20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	SV	8	13	20	32	44	63	79	125	200	
Leakage Current (μA) (20 °C)	I ≤ 0.01CV or 3μA										
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)										
Dissipation Factor (%) (120Hz,20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	DF	24	20	16	14	12	10	10	10	20	
	Add 2% per 1000 μF for more than 1000 μF										
Low Temperature Characteristics	Impedance Ratio at 120HZ										
	Comparison Z\WV		6.3	10	16	25	35	50	63	100	160
	-25 °C /20 °C		4	3	2	2	2	2	3	2	3
	-40 °C /20 °C		8	6	4	4	4	2	3	3	-
Load Life	After 2000 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	After 500 hours to at 85 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.										

DIMENSIONS(unit:mm)



ØD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Ød	0.5	0.5	0.6	0.6	0.6	0.8	0.8
a	1.0	1.0	1.0	1.0	2.0	2.0	2.0
b	0.5	0.5	0.5	0.5	1.0	1.0	1.0



CASE SIZE (mm)	ØD x L								
µF \ WV	6.3	10	16	25	35	50	63	100	160
0.1						5 x 11			
0.22						5 x 11			
0.33						5 x 11			
0.47						5 x 11	5 x 11	5 x 11	5 x 11
1.0						5 x 11	5 x 11	5 x 11	5 x 11
2.2						5 x 11	5 x 11	5 x 11	6.3 x 11
3.3						5 x 11	5 x 11	5 x 11	8 x 11
4.7					5 x 11	5 x 11	5 x 11	5 x 11	8 x 11
10					5 x 11	5 x 11	5 x 11	6.3 x 11	10 x 15
22			5 x 11	5 x 11	5 x 11	5 x 11	6.3 x 11	8 x 14	10 x 17
33		5 x 11	5 x 11	5 x 11	5 x 11	6.3 x 11	8 x 11	10 x 17	10 x 20
47		5 x 11	5 x 11	5 x 11	6.3 x 11	6.3 x 11	8 x 11	10 x 17	13 x 25
100	5 x 11	5 x 11	6.3 x 11	6.3 x 11	8 x 11	8 x 14	10 x 15	10 x 20	16 x 26
220	6.3 x 11	6.3 x 11	8 x 11	8 x 14	10 x 15	10 x 17	10 x 20	13 x 25	16 x 32
330	8 x 11	8 x 11	8 x 11	10 x 12.5	10 x 17	10 x 20	13 x 20	16 x 26	18 x 40
470	8 x 11	8 x 11	8 x 14	10 x 17	10 x 20	13 x 20	13 x 25	16 x 32	
1000	10 x 12.5	10 x 15	10 x 17	13 x 20	13 x 25	16 x 26	16 x 32		
2200	10 x 20	13 x 20	13 x 25	16 x 26	16 x 36	16 x 36			
3300	13 x 20	13 x 20	13 x 25	16 x 32	16 x 36				
4700	13 x 20	13 x 25	16 x 26	16 x 36					
6800	16 x 26	16 x 36	16 x 32						
10000	18 x 32	18 x 36							
15000	18 x 36								

MAXIMUM RIPPLE CURRENT (mA)						120Hz / 85 °C			
µF \ WV	6.3	10	16	25	35	50	63	100	160
0.1						1.3			
0.22						2.1			
0.33						4.4			
0.47						7	7	12	11
1.0						12	12	22	14
2.2						22	31	32	21
3.3						37	42	42	27
4.7					37	48	48	53	31
10					64	69	74	74	50
22			79	96	100	110	115	125	84
33		64	120	120	125	120	140-	155	120
47		96	140	140	140	140	170	190	140
100	145	195	195	195	230	265	285	365	230
220	260	270	305	330	370	420	470	580	385
330	325	355	375	415	465	535	585	735	570
470	410	430	470	610	590	690	790	940	
1000	625	675	725	895	945	1100	1150		
2200	940	970	1055	1255	1305	1355			
3300	1080	1150	1055	1255	1305				
4700	1235	1265	1425	1255					
6800	1340	1470	1670	1565					
10000	1465	1625							
15000	1725								



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

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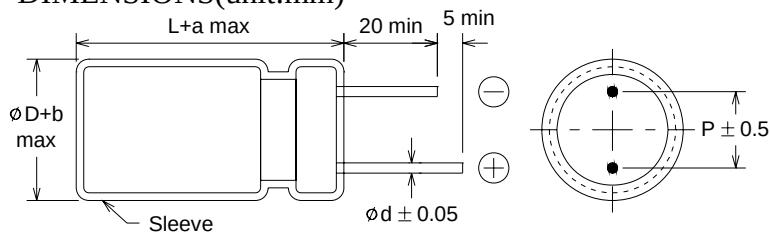
MN,MX Series

- Used in General Electronic as Coupling.
By-pass, Filter etc.
- The product is applied for 85 °C (MN Series) or 105 °C (MX Series).
- General Electronic Circuits.

SPECIFICATION

ITEM	SPECIFICATION									
Capacitance Tolerance (120Hz 20 °C)	$\pm 20\%(M)$									
Rated Working Voltage	4 ~ 63WV									
Operation Temperature Range	-40 ~ +85 °C (MN Series)					-40 ~ +105 °C (MX Series)				
Surge Voltage (V) (20 °C)	WV	4	6.3	10	16	25	35	50	63	
	SV	5	8	13	20	32	44	63	79	
Leakage Current (μA) (20 °C)	$I \leq 0.01CV$ or $3\mu A$									
	Whichever is greater after rated voltage applied for 3 minutes									
	I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)									
Dissipation Factor (%) (120Hz,20 °C)	WV	4	6.3	10	16	25	35	50	63	
	DF	35	24	20	16	14	12	10	8	
Low Temperature Characteristics	Impedance Ratio at 120HZ									
	Comparison Z\WV	4	6.3	10	16	25	35	50	63	
	-25 °C /20 °C	6	4	3	2	2	2	2	2	
	-40 °C /20 °C	12	8	6	4	4	4	4	4	
Load Life	After 1000 hours application of W.V.at+85 °C (MN Series) or 105 °C (MX Series) The capacitor shall meet the following limits									
	Capacitance Change	$\leq \pm 20\%$ of Initial Value								
	Dissipation Factor	$\leq 200 \%$ of Initial Specified Value								
	Leakage Current	$\leq$ Initial Specified Value								

DIMENSIONS(unit:mm)



ϕD	4	5	6.3	8
P	1.5	2.0	2.5	3.5
ϕd	0.45	0.45	0.45	0.6
a	1.0	1.0	1.0	1.0
b	0.5	0.5	0.5	0.5

MAXIMUM RIPPLE CURRENT(mA)

CASE SIZE (mm)									$\phi D \times L$								
$\mu F \setminus WV$	4	6.3	10	16	25	35	50	63	$\mu F \setminus WV$	4	6.3	10	16	25	35	50	63
0.1							4x7	4x7	0.1							1.0	1.3
0.22							4x7	4x7	0.22							2.3	2.9
0.33							4x7	4x7	0.33							3.5	4.4
0.47							4x7	4x7	0.47							5.0	7.9
1.0							4x7	4x7	1.0							10	11
2.2							4x7	4x7	2.2							15	17
3.3							4x7	4x7	3.3							18	21
4.7						4x7	4x7	5x7	4.7						24	23	26
10				4x7	4x7	5x7	6.3x7		10				29	32	36	38	
22			4x7	4x7	5x7	6.3x7			22			35	39	48	57		
33	4x7	4x7	4x7	5x7	6.3x7				33	33	40	43	55	63			
47	4x7	4x7	5x7	6.3x7					47	39	48	59	68				
100	5x7	5x7	6.3x7	6.3x7					100	65	78	87	98				
220	6.3x7	6.3x7	8x7						220	110	120	145					



ALUMINIUM ELECTROLYTIC CAPACITORS

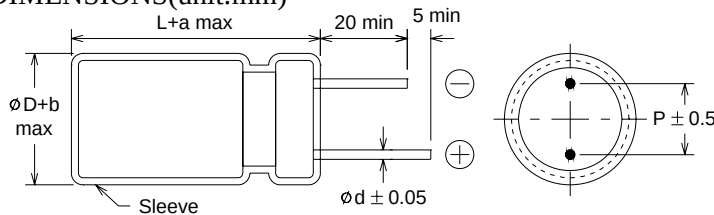
LL, LX Series

SPECIFICATION

- Used in Electronic circuits whichever lower.
Leakage current is requested. Such as Hi-Fi per-amp. TV oscillation, and etc.
- The product is applied for 85 °C (LL Series) or 105 °C (LX Series)
- Low Leakang Current

ITEM	SPECIFICATION										
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)										
Rated Working Voltage	6.3 ~ 100WV										
Operation Temperature Range	-40 ~ +85 °C(LL Series)					-40 ~ +105 °C (LX Series)					
Surge Voltage (V) (20 °C)	WV	6.3	10	16	25	35	50	63	80	100	
	SV	8	13	20	32	44	63	79	100	125	
Leakage Current (μA) (20 °C)	I ≤ 0.002CV or 4μA										
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)										
Dissipation Factor (%) (120Hz,20 °C)	WV	6.3	10	16	25	35	50	63	80	100	
	DF	24	20	16	14	12	10	10	8	7	
	Add 2% per 1000 μF for more than 1000 μF										
Low Temperature Characteristics	Impedance Ratio at 120HZ										
	Comparison Z/WV		6.3	10	16	25	35	50	63	80	100
	-25 °C /20 °C		4	3	2	2	2	2	2	1.5	1.5
	-40 °C /20 °C		8	6	4	4	3	3	3	2	2
Load Life	After 1000 hours application of W.V.at+85 °C (LL Series) or 105 °C (LX Series) 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	After 500 hours to at 85 °C (LL Series) or 105 °C (LX Series) without rated voltage applied. The capacitor shall meet the limited as same as load life.										

DIMENSIONS(unit:mm)



øD	4	5	6.3	8
P	1.5	2.0	2.5	3.5
ød	0.45	0.45	0.45	0.6
a	1.0	1.0	1.0	1.0
b	0.5	0.5	0.5	0.5

MAXIMUM RIPPLE CURRENT(mA)

120Hz / 85°C (LL Series) 105°C (LX Series)

CASE SIZE (mm)	6.3	10	16	25	35	50	63	80	100
μFWV	6.3	10	16	25	35	50	63	80	100
0.1						5x11			
0.22						5x11			
0.33						5x11			
0.47						5x11			5x11
1.0						5x11			5x11
2.2						5x11			5x11
3.3						5x11			5x11
4.7				5x11	5x11	5x11	5x11		5x11
10			5x11	5x11	5x11	5x11	5x11	6.3x11	6.3x11
22		5x11	5x11	5x11	5x11	5x11	6.3x11	8x11	8x11
33	5x11	5x11	5x11	5x11	5x11	6.3x11	6.3x11	8x11	10x12.5
47	5x11	5x11	5x11	5x11	6.3x11	6.3x11	8x11	10x12.5	10x17
100	5x11	5x11	6.3x11	6.3x11	8x11	8x11	10x12.5	10x17	13x20
220	6.3x11	6.3x11	8x11	8x11	10x12.5	10x17	10x20	13x20	16x26
330	6.3x11	8x11	8x11	10x12.5	10x17	10x20	13x20	13x25	16x26
470	8x11	8x11	10x12.5	10x17	10x20	13x20	13x25	16x26	16x32
1000	10x12.5	10x17	10x20	13x20	13x25	16x26	16x32	18x36	
2200	13x20	13x20	13x25	16x26	16x32	18x36			
3300	13x20	13x25	16x26	16x32	18x36				
4700	16x26	16x26	16x32	18x36	18x40				
6800	16x26	16x32	18x36	18x40					
10000	16x32	18x36	18x40						
15000	18x36								

μFWV	6.3	10	16	25	35	50	63	W	100
0.1						5.5			
0.22						8.2			
0.33						10			
0.47						12			14
1.0						17			20
2.2						25			31
3.3						31			37
4.7				32	34	37	37		45
10			42	46	50	55	55	70	75
22		58	64	69	75	82	92	115	125
33	65	70	79	84	90	110	110	145	180
47	77	85	95	100	120	135	155	205	255
100	110	120	155	165	205	225	265	345	460
220	190	205	265	285	360	460	495	640	865
330	230	290	325	410	515	605	700	870	1066
470	315	345	460	570	660	840	925	1185	1385
1000	545	695	835	1035	1230	1545	1690	2130	
2200	1085	1175	1415	1810	1980	2385			
3300	1285	1520	1890	2170	2575				
4700	1870	2000	2370	2780	3050				
6800	2120	2465	2965	3230					
10000	2600	3085	3420						
15000	3230								



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

LN 12/39

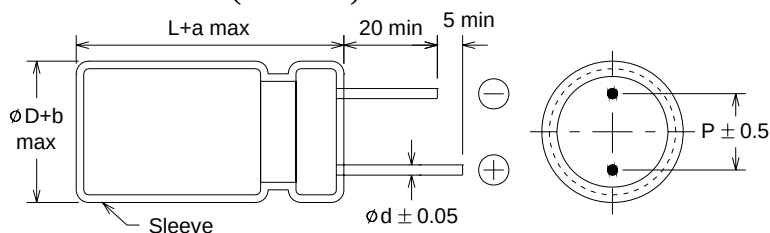
ML Series

- The usage as same as LL Series.
- The size as same as MN Series.
- Low Leakage Current Mini Size.

SPECIFICATION

ITEM	SPECIFICATION									
Capacitance Tolerance (120Hz 20 °C)	$\pm 20\%(M)$									
Rated Working Voltage	4 ~ 63WV									
Operation Temperature Range	-40 ~ +85 °C									
Surge Voltage (V) (20 °C)	WV	4	6.3	10	16	25	35	50	63	
	SV	5	8	13	20	32	44	63	79	
Leakage Current (μA) (20 °C)	$I \leq 0.002CV$ or $3\mu A$									
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)									
Dissipation Factor (%) (120Hz,20 °C)	WV	4	6.3	10	16	25	35	50	63	
	DF	35	24	20	16	14	12	10	8	
Low Temperature Characteristics	Impedance Ratio at 120HZ									
	Comparison Z\WV	4	6.3	10	16	25	35	50	63	
	-25 °C /20 °C	7	4	3	2	2	2	2	2	
	-40 °C /20 °C	5	8	6	4	4	3	3	3	
Load Life	After 1000 hours application of W.V.at+85 °C The capacitor shall meet the following limits									
	Capacitance Change	$\leq \pm 15\%$ of Initial Value								
	Dissipation Factor	$\leq 150 \%$ of Initial Specified Value								
	Leakage Current	$\leq$ Initial Specified Value								

DIMENSIONS(unit:mm)



ϕD	4	5	6.3
P	1.5	2.0	2.5
ϕd	0.45	0.45	0.45
a	1.0	1.0	1.0
b	0.5	0.5	0.5

MAXIMUM RIPPLE CURRENT(mA)

CASE SIZE (mm)									$\phi D \times L$									120Hz / 85°C								
$\mu F \setminus WV$	4	6.3	10	16	25	35	50	63	$\mu F \setminus WV$	4	6.3	10	16	25	35	50	63	$\mu F \setminus WV$	4	6.3	10	16	25	35	50	63
0.1							4x7	4x7	0.1							1.2	1.4	0.1								
0.22							4x7	4x7	0.22							2.7	3.1	0.22								
0.33							4x7	4x7	0.33							3.6	4.2	0.33								
0.47							4x7	4x7	0.47							5.1	6	0.47								
1.0							4x7	4x7	1.0							11	13	1.0								
2.2							4x7	4x7	2.2							18	21	2.2								
3.3							4x7	4x7	3.3							23	27	3.3								
4.7						4x7	5x7	6.3x7	4.7						23	27	32	4.7								
10			4x7	4x7	5x7	5x7	6.3x7		10			25	28	32	35	42		10								
22	4x7	4x7	5x7	5x7	6.3x7	6.3x7			22	30	34	38	43	48	53			22	30	34	38	43	48	53		
33	5x7	5x7	4x7	6.3x7	6.3x7				33	38	42	46	55	59				33	38	42	46	55	59			
47	5x7	5x7	5x7	6.3x7					47	44	50	57	65					47	44	50	57	65				
100	6.3x7	6.3x7	6.3x7						100	65	78	87						100	65	78	87					



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

TM 13/39

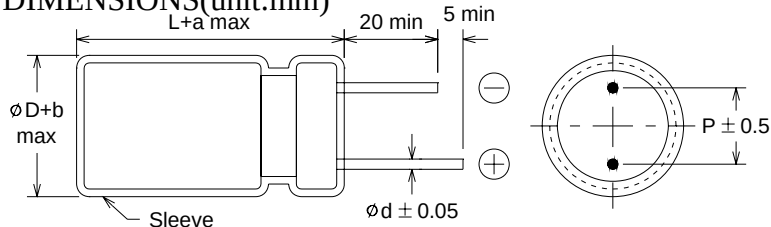
LN Series

- The usage as same as LL Series.
- It provides higher performance and reliability than LL Series in load life as DF is lower.
- Epoxy-resin is available due to customer's designation.
- Low Noise, Low Leakage.

SPECIFICATION

ITEM	SPECIFICATION						
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)						
Rated Working Voltage	6.3 ~ 50WV						
Operation Temperature Range	-40 ~ +85 °C						
Surge Voltage (V) (20 °C)	WV	6.3	10	16	25	35	50
	SV	8	13	20	32	44	63
Leakage Current (μA) (20 °C)	I ≤ 0.02CV or 4μA						
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)						
Dissipation Factor (%) (120Hz,20 °C)	WV	6.3	10	16	25	35	50
	DF	20	16	14	12	10	8
Low Temperature Characteristics	Impedance Ratio at 120HZ						
	Comparison Z\WV	6.3	10	16	25	35	50
	-25 °C /20 °C	4	3	2	2	2	2
	-40 °C /20 °C	8	6	4	4	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			≤ 150 %of Initial Specified Value			
	Leakage Current			≤ Initial Specified Value			
Shelf Life	After 500 hours to at 85 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.						

DIMENSIONS(unit:mm)



øD	4	5	6.3
P	1.5	2.0	2.5
ød	0.45	0.45	0.45
a	1.0	1.0	1.0
b	0.5	0.5	0.5

CASE SIZE (mm)

øD x L

μF \ WV	6.3	10	16	25	35	50
0.1						5x12.5
0.22						5x12.5
0.33						5x12.5
0.47						5x12.5
1.0						5x12.5
2.2						5x12.5
3.3						5x12.5
4.7				5x12.5	5x12.5	5x12.5
10			5x12.5	5x12.5	6.3x12.5	6.3x12.5
22		5x12.5	5x12.5	6.3x12.5	8x12.5	8x12.5
33	5x12.5	5x12.5	5x12.5	8x12.5	8x12.5	10x14.5
47	5x12.5	6.3x12.5	5x12.5	8x12.5	10x14.5	10x16.5
100	6.3x12.5	8x12.5	6.3x12.5	10x14.5	10x18.5	
220	8x12.5	10x14.5	10x16.5	10x21.5		
330	10x14.5	10x16.5	10x18.5			
470	10x16.5	10x18.5				

MAXIMUM RIPPLE CURRENT(mA)

120Hz / 85°C

μF \ WV	6.3	10	16	25	35	50
0.1						4.6
0.22						6.9
0.33						8.5
0.47						10
1.0						14
2.2						22
3.3						27
4.7				26	28	32
10			35	38	47	53
22		48	52	64	80	90
33	53	60	72	90	98	130
47	64	81	86	105	140	170
100	105	135	145	180	135	
220	180	235	275	340		
330	360	320	360			
470	340	400				



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

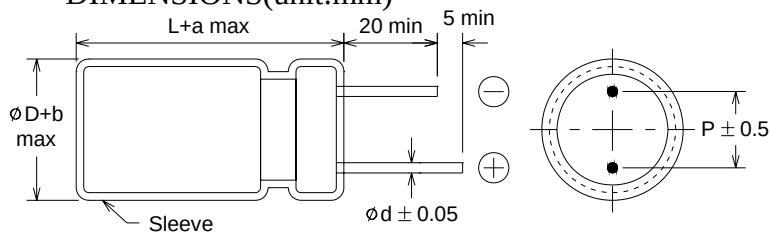
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TM Series

- Used in General Electronic as Coupling , By-pass, Filter etc.
- The product is applied for 105 °C.
- General Electronic Circuits.

ITEM	SPECIFICATION										
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)										
Rated Working Voltage	6.3 ~ 160WV										
Operation Temperature Range	-40 ~ +105 °C										
Surge Voltage (V) (20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	SV	8	13	20	32	44	63	79	125	200	
Leakage Current (μA) (20 °C)	I ≤ 0.01CV or 3μA										
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)										
Dissipation Factor (%) (120Hz,20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	DF	26	22	18	16	14	12	10	10	15	
	Add 2% per 1000 μF for more than 1000 μF										
Low Temperature Characteristics	Impedance Ratio at 120HZ										
	Comparison Z\WV		6.3	10	16	25	35	50	63	100	160
	-25 °C /20 °C		4	3	2	2	2	2	3	2	3
	-40 °C /20 °C		8	6	4	4	4	2	3	3	-
Load Life	After 2000 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	After 500 hours to at 105 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.										

DIMENSIONS(unit:mm)



ϕD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
a	1.0	1.0	1.0	1.0	2.0	2.0	2.0
b	0.5	0.5	0.5	0.5	1.0	1.0	1.0



CASE SIZE (mm) ØD x L

µF \ WV	6.3	10	16	25	35	50	63	100	160
0.1						5 x 11			
0.22						5 x 11			
0.33						5 x 11			
0.47						5 x 11		5 x 11	5 x 11
1						5 x 11		5 x 11	5 x 11
2.2						5 x 11		5 x 11	6.3 x 11
3.3						5 x 11		5 x 11	8 x 11
4.7						5 x 11	5 x 11	5 x 11	8 x 11
10						5 x 11	5 x 11	6.3 x 11	10 x 15
22				5 x 11	5 x 11	5 x 11	6.3 x 11	8 x 14	10 x 17
33			5 x 11	5 x 11	5 x 11	6.3 x 11	6.3 x 11	10 x 17	10 x 20
47		5 x 11	5 x 11	5 x 11	6.3 x 11	6.3 x 11	8 x 11	10 x 17	13 x 25
100	5 x 11	5 x 11	6.3 x 11	6.3 x 11	8 x 11	8 x 14	10 x 15	10 x 20	16 x 26
220	6.3 x 11	6.3 x 11	8 x 11	8 x 14	10 x 15	10 x 17	10 x 20	13 x 25	16 x 32
330	8 x 11	8 x 11	8 x 11	10 x 12.5	10 x 17	10 x 20	13 x 20	16 x 26	18 x 40
470	8 x 11	8 x 11	8 x 14	10 x 17	10 x 20	13 x 20	13 x 25	16 x 32	22 x 40
680	8 x 14	8 x 14	10 x 15	10 x 20	13 x 20	13 x 25	16 x 26	16 x 36	
1000	10 x 12.5	10 x 15	10 x 17	13 x 20	13 x 25	16 x 26	16 x 32		
1500	10 x 17	10 x 17	13 x 20	13 x 25	16 x 26	16 x 32	16 x 36		
2200	13 x 20	13 x 20	13 x 25	16 x 26	16 x 32	16 x 36			
3300	13 x 20	13 x 20	13 x 25	16 x 32	16 x 36				
4700	13 x 20	13 x 25	16 x 26	16 x 36					
6800	16 x 26	16 x 26	16 x 32						
10000	16 x 32	18 x 36							
15000	18 x 36								

MAXIMUM RIPPLE CURRENT (mA)

120Hz /105 °C

µF \ WV	6.3	10	16	25	35	50	63	100	160
0.1						1.7			
0.22						3.8			
0.33						5.8			
0.47						8		11	10
1						13		16	14
2.2						19		23	20
3.3						26		30	26
4.7						30	33	33	32
10						45	52	56	49
22				59	64	71	87	98	83
33			67	71	78	94	115	130	120
47		71	82	87	105	140	145	160	140
100	98	115	135	145	175	190	225	280	230
220	160	175	225	235	275	310	360	500	375
330	205	245	270	295	350	410	495	625	460
470	270	290	345	380	450	555	635	805	545
680	330	430	545	665	745	675	1015	965	
1000	420	460	605	695	805	985	1130		
1500	615	765	875	1040	1130	1370	1270		
2200	765	805	985	1130	1310	1520			
3300	915	1015	1240	1420	1610				
4700	1240	1310	1520	1710					
6800	1380	1560	1810						
10000	1630	1810							
15000	1940								



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

TX 16/39

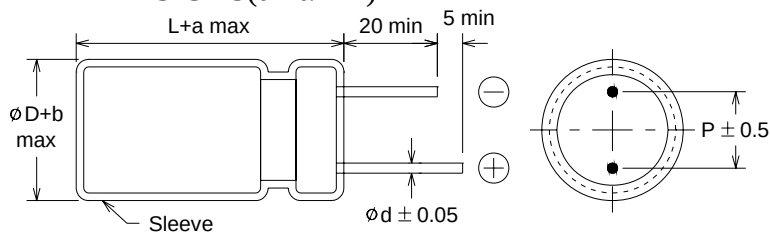
TX Series

SPECIFICATION

- High reliability at high temperature.
- Suitable for switching power for TV sets, monitor. Or terminals and communication equipment
- General Circuits for 105 °C 2000Hours.

ITEM	SPECIFICATION										
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)										
Rated Working Voltage	6.3 ~ 160WV										
Operation Temperature Range	-40 ~ +105 °C										
Surge Voltage (V) (20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	SV	8	13	20	32	44	63	79	125	200	
Leakage Current (μA) (20 °C)	I ≤ 0.01CV or 3μA										
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)										
Dissipation Factor (%) (120Hz,20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	DF	24	20	17	15	12	10	10	10	15	
	Add 2% per 1000 μF for more than 1000 μF										
Low Temperature Characteristics	Impedance Ratio at 120HZ										
	Comparison Z\WV		6.3	10	16	25	35	50	63	100	160
	-25 °C /20 °C		4	3	2	2	2	2	3	2	3
	-40 °C /20 °C		8	6	4	4	4	3	3	3	-
Load Life	After 2000 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	After 500 hours to at 105 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.										

DIMENSIONS(unit:mm)



ϕD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
a	1.0	1.0	1.0	1.0	2.0	2.0	2.0
b	0.5	0.5	0.5	0.5	1.0	1.0	1.0



CASE SIZE (mm)

ØD x L

µF \ WV	6.3	10	16	25	35	50	63	100	160
0.47						5 x 11	5 x 11	5 x 11	6.3 x 11
1						5 x 11	5 x 11	5 x 11	6.3 x 11
2.2						5 x 11	5 x 11	5 x 11	8 x 11
3.3						5 x 11	5 x 11	5 x 11	10 x 12.5
4.7						5 x 11	5 x 11	6.3 x 11	10 x 12.5
10						5 x 11	6.3 x 11	8 x 11	10 x 17
22				5 x 11	6.3 x 11	6.3 x 11	8 x 11	10 x 12.5	13 x 20
33			5 x 11	6.3 x 11	6.3 x 11	8 x 11	8 x 11	10 x 17	13 x 25
47		5 x 11	6.3 x 11	6.3 x 11	8 x 11	8 x 11	10 x 12.5	10 x 20	16 x 26
100	6.3 x 11	6.3 x 11	8 x 11	8 x 11	10 x 12.5	10 x 17	10 x 20	13 x 20	16 x 36
220	8 x 11	8 x 11	10 x 12.5	10 x 17	10 x 20	13 x 20	13 x 20	16 x 26	
330	10 x 12.5	10 x 12.5	10 x 17	10 x 20	13 x 20	13 x 20	13 x 25	16 x 32	
470	10 x 12.5	10 x 17	10 x 20	13 x 20	13 x 25	16 x 26	16 x 26	18 x 36	
1000	10 x 20	13 x 20	13 x 25	16 x 26	16 x 26	16 x 32	18 x 36		
2200	13 x 25	16 x 26	16 x 26	16 x 36	18 x 36				
3300	16 x 26	16 x 32	16 x 36	18 x 40					
4700	16 x 32	16 x 36	18 x 36						
6800	16 x 36	18 x 40							
10000	18 x 40								

MAXIMUM RIPPLE CURRENT (mA)

120Hz /105 °C

µF \ WV	6.3	10	16	25	35	50	63	100	160
0.47						9	9	11	11
1						13	13	16	11
2.2						19	21	23	17
3.3						23	25	28	27
4.7						28	31	37	32
10						40	52	64	48
22				51	62	68	90	110	87
33			58	71	76	98	105	150	120
47		63	79	90	110	120	155	190	155
100	93	100	135	145	180	215	260	305	230
220	95	180	230	270	315	380	420	545	
330	105	250	305	355	425	460	565	710	
470	230	325	395	465	545	660	740	900	
1000	470	575	690	815	875	1030	1230		
2200	800	960	1065	1250	1375				
3300	1045	1210	1365	1580					
4700	1290	1430	1605						
6800	1540	1680							
10000	2055								



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

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EQUIVALENT SERIES RESISTANCE (E.S.R) (Ω)

120Hz/20 °C

$\mu\text{F} \setminus \text{WV}$	6.3	10	16	25	35	50	63	100	160
0.47						282.32	282.32	282.32	423.49
1						132.69	132.69	132.69	199.04
2.2						60.316	60.316	60.316	90.474
3.3						40.211	40.211	40.211	60.316
4.7						28.233	28.233	28.233	42.249
10						13.269	13.269	13.269	19.904
22				9.047	7.237	6.031	6.031	6.031	9.047
33			6.835	6.031	4.825	4.021	4.021	4.021	6.031
47		5.646	4.799	4.234	3.387	2.823	2.823	2.823	4.234
100	3.184	2.653	2.255	1.990	1.592	1.326	1.326	1.326	1.990
220	1.447	1.206	1.025	0.904	0.723	0.603	0.603	0.603	
330	0.965	0.804	0.683	0.603	0.482	0.402	0.402	0.402	
470	0.677	0.564	0.479	0.423	0.338	0.282	0.282	0.282	
1000	0.318	0.265	0.225	0.199	0.159	0.132	0.132		
2200	0.168	0.144	0.126	0.114	0.096				
3300	0.120	0.104	0.092	0.084					
4700	0.090	0.079	0.070						
6800	0.066	0.058							
10000	0.055								



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

HA

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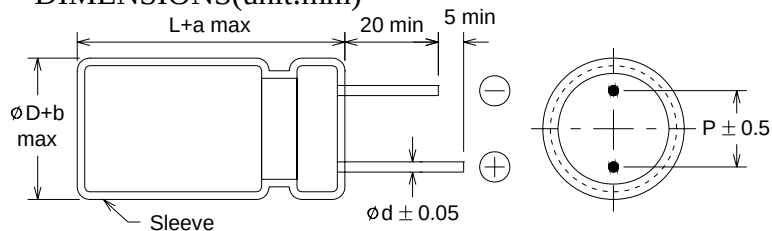
HA Series

SPECIFICATION

- Used in switching power supply circuits.
- It provides high ripple current, low ESR.
wide temperature range, long life for 2000 hours.
- High Ripple Current, low ESR

ITEM	SPECIFICATION										
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)										
Rated Working Voltage	6.3 ~ 160WV										
Operation Temperature Range	-55 ~ +105 °C										
Surge Voltage (V) (20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	SV	8	13	20	32	44	63	79	125	200	
Leakage Current (μA) (20 °C)	I ≤ 0.002CV or 3μA										
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)										
Dissipation Factor (%) (120Hz,20 °C)	WV	6.3	10	16	25	35	50	63	100	160	
	DF	20	15	12	10	9	8	8	8	15	
	Add 2% per 1000 μF for more than 1000 μF										
Low Temperature Characteristics	Impedance Ratio at 120HZ										
	Comparison Z\WV		6.3	10	16	25	35	50	63	100	160
	-25 °C /20 °C		4	3	2	2	2	2	2	2	3
	-55 °C /20 °C		6	4	3	3	3	3	3	3	-
Load Life	After 2000 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	After 500 hours to at 105 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.										

DIMENSIONS(unit:mm)



ϕD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
a	1.0	1.0	1.0	1.0	2.0	2.0	2.0
b	0.5	0.5	0.5	0.5	1.0	1.0	1.0

**ALUMINIUM ELECTROLYTIC CAPACITORS**

CASE SIZE (mm)								ØD x L	
µF \ WV	6.3	10	16	25	35	50	63	100	160
3.3								8 x 11	10 x 12.5
4.7								8 x 11	10 x 15
10								10 x 12.5	10 x 20
22							8 x 11	10 x 17	13 x 20
33						8 x 11	8 x 11	10 x 20	13 x 25
47					8 x 11	8 x 11	10 x 12.5	13 x 20	13 x 36
100			8 x 11	8 x 11	10 x 12.5	10 x 17	10 x 17	13 x 30	16 x 32
220	8 x 11	8 x 11	10 x 12.5	10 x 17	10 x 17	13 x 20	13 x 20		
330	8 x 11	10 x 12.5	10 x 17	10 x 20	13 x 20	13 x 20	13 x 25		
470	10 x 12.5	10 x 17	10 x 17	13 x 20	13 x 20	13 x 25	13 x 36		
1000	10 x 17	13 x 20	13 x 20	13 x 25	13 x 36	13 x 40			
2200	13 x 20	13 x 25	13 x 36	13 x 40					
3300	13 x 25	13 x 30							
4700	13 x 30	13 x 40							
6800	13 x 40								

MAXIMUM RIPPLE CURRENT (mA)								100Hz /105 °C	
µF \ WV	6.3	10	16	25	35	50	63	100	160
3.3								125	70
4.7								140	155
10								175	160
22							220	300	290
33						245	270	395	360
47					270	295	380	550	480
100			330	370	470	590	645	960	835
220	345	400	580	755	805	1090	1190		
330	425	580	825	995	1230	1335	1610		
470	600	805	985	1375	1470	1755	2205		
1000	695	1465	1790	2215	2715	3170			
2200	1715	2130	2840	3315					
3300	2225	2865							
4700	2775	3500							
6800	3565								

EQUIVALENT SERIES RESISTANCE (E.S.R) (Ω)								120Hz/20 °C	
µF \ WV	6.3	10	16	25	35	50	63	100	160
3.3								32.16	60.32
4.7								22.58	42.34
10								10.61	19.90
22							4.825	4.825	9.047
33						3.216	3.216	3.216	6.032
47					2.540	2.258	2.268	2.258	4.234
100			1.592	1.326	1.914	1.061	1.061	1.061	1.990
220	1.206	0.904	0.723	0.603	0.542	0.482	0.482		
330	0.804	0.603	0.482	0.402	0.361	0.321	0.321		
470	0.564	0.423	0.338	0.282	0.254	0.225	0.225		
1000	0.265	0.199	0.159	0.132	0.119	0.106			
2200	0.144	0.114	0.096	0.084					
3300	0.104	0.084							
4700	0.079	0.064							
6800	0.062								



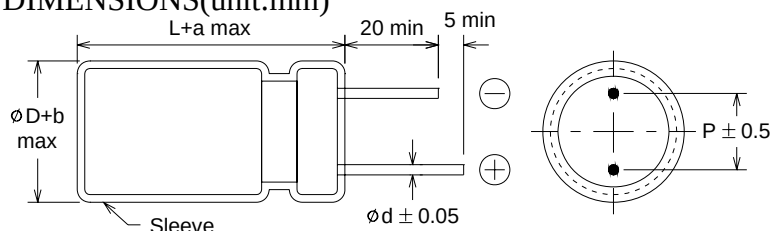
HX Series

- Used in General Electronic as circuits Coupling , By-pass, Filter etc.
- The product is applied for 105 °C.
- High Ripple Current, low ESR

SPECIFICATION

ITEM	SPECIFICATION									
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)									
Rated Working Voltage	10 ~ 160WV									
Operation Temperature Range	-55 ~ +105 °C									
Surge Voltage (V) (20 °C)	WV	10	16	25	35	50	63	100	160	
	SV	13	20	32	44	63	79	125	200	
Leakage Current (μA) (20 °C)	I ≤ 0.01CV									
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)									
Dissipation Factor (%) (120Hz,20 °C)	WV	10	16	25	35	50	63	100	160	
	DF	30	25	22	18	15	15	15	20	
	Add 2% per 1000 μF for more than 1000 μF									
Low Temperature Characteristics	Impedance Ratio at 120HZ									
	Comparison Z\WV		10	16	25	35	50	63	100	160
	-25 °C /20 °C		3	2	2	2	2	5	2	5
	-55 °C /20 °C		9	6	6	5	2	5	2	5
Load Life	After 5000 hours application of W.V. at +105 °C The capacitor shall meet the following limits									
	Capacitance Change			≤ ±30% of Initial Value						
	Dissipation Factor			≤ 300 % of Initial Specified Value						
	Leakage Current			≤ Initial Specified Value						
Shelf Life	After 500 hours to at 105 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.									

DIMENSIONS(unit:mm)



∅D	8	10	13	16	18
P	3.5	5.0	5.0	7.5	7.5
∅d	0.5	0.6	0.6	0.8	0.8
a	1.0	1.0	2.0	2.0	2.0
b	0.5	0.5	1.0	1.0	1.0



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

HX

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CASE SIZE (mm) ØD x L

µF \ WV	10	16	25	35	50	63	100	160
0.47							8 x 11	
1							8 x 11	
2.2							8 x 11	8 x 11
3.3							8 x 11	10 x 12.5
4.7					8 x 11	8 x 11	8 x 11	10 x 12.5
10					8 x 11	8 x 11	8 x 11	10 x 17
22					8 x 11	8 x 11	10 x 12.5	13 x 20
33				8 x 11	10 x 12.5	10 x 12.5	10 x 15	13 x 25
47			8 x 11	8 x 11	10 x 12.5	10 x 12.5	10 x 20	16 x 26
100	8 x 11	8 x 11	10 x 12.5	10 x 12.5	10 x 15	10 x 20	13 x 20	16 x 36
220	10 x 12.5	10 x 12.5	10 x 15	10 x 20	13 x 20	13 x 20	16 x 26	
330	10 x 15	10 x 17	10 x 20	13 x 20	13 x 20	13 x 20	16 x 32	
470	10 x 17	10 x 20	13 x 20	13 x 20	16 x 26	16 x 26	18 x 36	
1000	13 x 20	13 x 25	16 x 26	16 x 26	16 x 32	16 x 32		
2200	16 x 26	16 x 26	16 x 36	18 x 36				
3300	16 x 32	16 x 36	18 x 40					
4700	16 x 36	18 x 36						

MAXIMUM RIPPLE CURRENT (mA)

100Hz /105 °C

µF \ WV	10	16	25	35	50	63	100	160
0.47							35	
1							52	
2.2							77	67
3.3							93	96
4.7					110	120	110	115
10					160	180	160	190
22					240	270	285	360
33				285	350	395	385	485
47			290	340	420	470	525	665
100	365	400	505	560	675	855	890	1120
220	645	705	825	1040	1320	1475	1665	
330	870	1005	1150	1475	1620	1810	2235	
470	1095	1290	1590	1760	2435	2725	3000	
1000	1405	1700	2070	2290	2750	3460		
2200	2470	2775	3270	3785				
3300	3225	3665	4310					
4700	3950	4525						

EQUIVALENT SERIES RESISTANCE (E.S.R) (Ω)

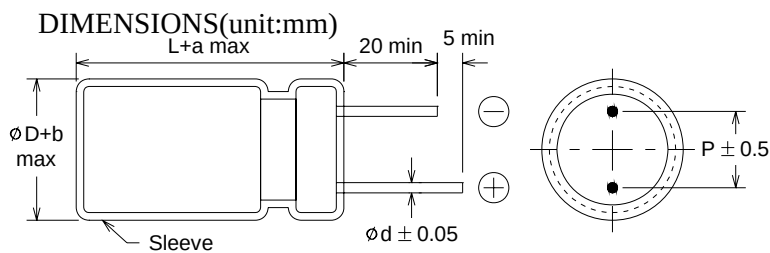
100Hz/20 °C

µF \ WV	10	16	25	35	50	63	100	160
0.47							508.19	
1							238.85	
2.2							108.56	144.75
3.3							72.379	96.506
4.7					50.819	50.819	50.819	67.759
10					23.885	23.885	23.885	31.837
22					10.856	10.856	10.856	14.475
33				8.685	7.237	7.237	7.237	9.650
47			7.453	6.098	5.081	5.081	5.081	6.775
100	4.777	3.980	3.503	2.866	2.388	2.388	2.388	3.184
220	2.171	1.809	1.592	1.302	1.085	1.085	1.085	
330	1.447	1.206	1.061	0.868	0.723	0.723	0.723	
470	1.016	0.846	0.745	0.609	0.508	0.508	0.508	
1000	0.477	0.398	0.350	0.286	0.238	0.238		
2200	0.246	0.209	0.188	0.159				
3300	0.173	0.149	0.135					
4700	0.128	0.111						

**ALUMINIUM ELECTROLYTIC CAPACITORS****PB,PX Series****SPECIFICATION**

- Used in video as horizontal deflection current correction.
- It provides high frequency, high-ripple, high reliability.
- The product is applied for 85 °C (PB Series) or 105 °C (PX Series).
- Bi-Polar for TV Horizontal Deflection.

ITEM	SPECIFICATION			
Capacitance Tolerance (1KHz 20 °C)	± 10%(K)			
Rated Working Voltage	25 ~ 50WV			
Operation Temperature Range	-40 ~ +85 °C(PB Series)		-40 ~ +105 °C (PX Series)	
Surge Voltage (V) (20 °C)	WV	25	35	50
	SV	32	44	63
Leakage Current (μA) (20 °C)	I ≤ 100			
	After rated voltage applied for 3 minutes I: Leakage Current (μA)			
Dissipation Factor (%) (1KHz, 20 °C)	WV	25	35	50
	DF	5	5	5
Load Life	After 1000 hours application of W.V.at+85 °C (PB Series) or 105 °C (PX Series) The capacitor shall meet the following limits			
	Capacitance Change		≤ ±10% of Initial Value	
	Dissipation Factor		≤ 200 %of Initial Specified Value	
	Leakage Current		≤ Initial Specified Value	
Shelf Life	After 500 hours to at 85 °C (PB Series) or 105 °C (PX Series)without rated voltage applied. The capacitor shall meet the limited as same as load life.			



ØD	10	13	16	18	20	220	25
P	5.0	5.0	7.5	10.0	10.0	10.0	12.5
Ød	0.6	0.6	0.8	0.8	0.8	0.8	0.8
a	1.0	2.0	2.0	2.0	2.0	2.0	2.0
b	0.5	1.0	1.0	1.0	1.0	1.0	1.0

CASE SIZE (mm)				MAXIMUM RIPPLE CURRENT(A)				EQUIVALENT SERIES RESISTANCE			
ØD x L				15.75KHz/85°C(PB Series) or 105°C (PX Series)				(E.S.R) (Ω) 1KHz/20 °C			
μF \ WV	25	35	50	μF \ WV	25	35	50	μF \ WV	25	35	50
1			10 x 20	1			1.6	1			7.961
1.2		10 x 20	13 x 20	1.2		1.8	2.1	1.2		6.634	6.634
1.5		10 x 20	13 x 20	1.5		2.1	2.4	1.5		5.307	5.307
1.8	10 x 20	13 x 20	13 x 20	1.8	2.2	2.6	2.6	1.8	4.423	4.423	3.618
2.2	13 x 20	13 x 20	13 x 20	2.2	2.9	2.9	2.9	2.2	3.618	3.618	3.618
2.7	13 x 20	13 x 20	13 x 25	2.7	3.2	3.2	3.5	2.7	2.948	2.948	2.948
3.3	13 x 20	13 x 25	16 x 26	3.3	3.6	3.9	4.5	3.3	2.412	2.412	2.412
3.9	13 x 20	13 x 25	16 x 26	3.9	3.9	4.2	4.8	3.9	2.041	2.041	2.041
4.7	13 x 25	16 x 26	16 x 26	4.7	4.7	5.3	5.3	4.7	1.693	1.693	1.693
5.6	16 x 26	16 x 26	16 x 32	5.6	5.9	5.9	6.4	5.6	1.421	1.421	1.421
6.8	16 x 26	16 x 32	16 x 36	6.8	6.5	7.0	8.0	6.8	1.170	1.170	1.170
8.2	16 x 26	16 x 32	18 x 36	8.2	7.1	7.7	8.7	8.2	0.970	0.970	0.970
10	16 x 32	16 x 36	18 x 40	10	8.6	9.0	10	10	0.796	0.796	0.796
12	16 x 36	18 x 36	20 x 40	12	10	10	11	12	0.663	0.663	0.663
15	18 x 36	18 x 40	22 x 40	15	11	12	13	15	0.530	0.530	0.530
18	18 x 40	20 x 40	25 x 40	18	13	14	16	18	0.442	0.442	0.442
22	20 x 40	22 x 40	25 x 40	22	15	16	18	22	0.361	0.361	0.361
27	20 x 40	25 x 40		27	18	19		27	0.294	0.294	
33	25 x 40			33	22			33	0.241		



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

SD

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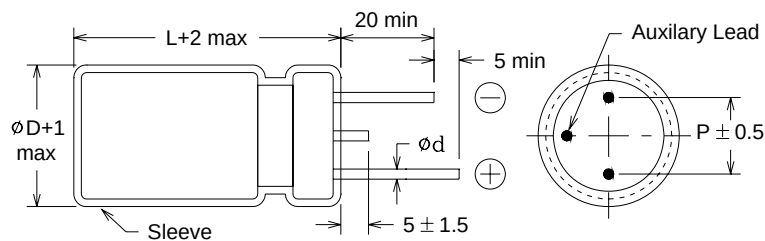
SD Series

- High C/V products used filter.
- It provides higher ripple current and easily PCB mounting as an auxiliary lead included.
- General Electronic Circuits High C/V

SPECIFICATION

ITEM	SPECIFICATION										
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)										
Rated Working Voltage	10 ~ 160WV										
Operation Temperature Range	-40 ~ +85 °C										
Surge Voltage (V) (20 °C)	WV	10	16	25	35	50	63	80	100	160	
	SV	13	20	32	44	63	79	100	125	200	
Leakage Current (μA) (20 °C)	I ≤ 0.02CV or 3μA										
	Whichever is greater after rated voltage applied for 3 minutes I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)										
Dissipation Factor (%) (120Hz,20 °C)	WV	10	16	25	35	50	63	80	100	160	
	DF	50	35	35	30	25	25	20	20	25	
Low Temperature Characteristics	Impedance Ratio at 120HZ										
	Comparison Z\WV		10	16	25	35	50	63	80	100	160
	-25 °C /20 °C		5	4	4	3	3	3	3	3	3
	-40 °C /20 °C		18	15	15	10	10	10	10	10	6
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	After 500 hours to at 85 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.										

DIMENSIONS(unit:mm)



ϕD	22	25	30
P	10	12.5	15
ϕd	1.0	1.0	1.0

**ALUMINIUM ELECTROLYTIC CAPACITORS**

CASE SIZE (mm)								ØD x L	
µF \ WV	10	16	25	35	50	63	80	100	160
100									
220									22 x 30
330									22 x 40
470								22 x 25	25 x 40
680							22 x 25	22 x 30	30 x 50
1000						22 x 25	22 x 30	22 x 40	
2200				22 x 25	22 x 30	22 x 40	25 x 40	30 x 50	
3300		22 x 25	22 x 25	22 x 30	22 x 40	25 x 40	25 x 50		
4700		22 x 25	22 x 30	22 x 40	25 x 40	25 x 50	30 x 50		
6800	22 x 25	22 x 30	22 x 40	25 x 40	25 x 50	30 x 50			
10000	22 x 30	22 x 40	25 x 40	22 x 50	30 x 50				
1500	22 x 40	25 x 40	30 x 50						
2200	22 x 50	30 x 50							

MAXIMUM RIPPLE CURRENT (mA)								120Hz / 85 °C	
µF \ WV	10	16	25	35	50	63	80	100	160
100									
220									615
330								835	855
470								855	1095
680							870	1080	1610
1000						1050	1135	1485	
2200				680	960	1910	2050	2895	
3300		1445	1560	1845	2340	2510	2770		
4700		1725	2010	2495	3000	3305	3660		
6800	1940	2240	2740	3225	3975	4405			
10000	2540	3075	3575	4315	5345				
1500	3525	4050	5350						
2200	5060	5995							



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

SI

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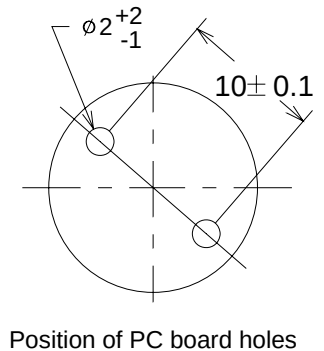
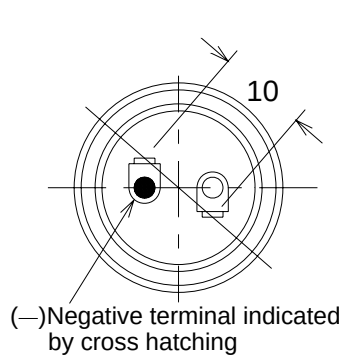
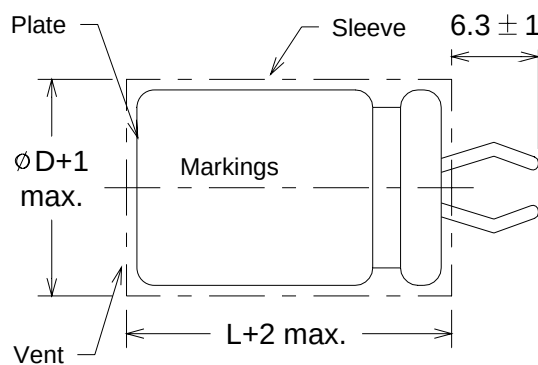
SI Series

- Used in Audio, OA equipment, Power supply as a filter, which needs a higher ripple current.
- With a snap-in terminal which can be mounted easily and prevent vibration damage.
- Snap-in for P.C.B. 85 °C

SPECIFICATION

ITEM	SPECIFICATION									
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)									
Rated Working Voltage	10 ~ 160WV									
Operation Temperature Range	-40 ~ +85 °C									
Surge Voltage (V) (20 °C)	WV	10	16	25	35	50	63	80	100	160
	SV	13	20	32	44	63	79	100	125	200
Leakage Current (μA) (20 °C)	I ≤ 0.02CV or 3mA									
	Whichever is greater after 5 minutes rated voltage applied I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)									
Dissipation Factor (%) (120Hz,20 °C)	Dissipation Factor at 20 °C , 120Hz shall not exceed the values showed in the table of standard rating									
Load Life	After 2000 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	After 500 hours to at 85 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.									

DIMENSIONS(unit:mm)



Coefficient of Frequency for Ripple Current

Frequency (Hz)	50	60	120	400	1K	2.4K	5K	10K and over
Coefficient	0.80	0.85	1.00	1.14	1.23	1.30	1.36	1.40

Coefficient of Temperature for Ripple Current

Temperature (°C)	85	80	75	70	65	60	55	50	45	40 or less
Coefficient	1.00	1.22	1.40	1.57	1.72	1.85	1.98	2.10	2.21	2.32

**ALUMINIUM ELECTROLYTIC CAPACITORS**

10 VDC								16 VDC					
NOMI- NAL CAPACI- TANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIP- ATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm) $\varnothing$ D x L				ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIP- ATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm) $\varnothing$ D x L		
8200								0.080	2.45	50	22 x 25		
10000								0.066	2.60	50	22 x 30		
12000	0.055	2.45	50	22 x 25				0.055	2.90	50	22 x 35	25 x 25	
15000	0.044	2.80	50	22 x 30				0.044	3.30	50	22 x 40	25 x 30	30 x 25
18000	0.036	3.15	50	22 x 35	25 x 25			0.036	3.70	50	22 x 45	25 x 35	30 x 30
22000	0.030	3.50	50	22 x 40	25 x 30	30 x 25		0.030	4.15	50	22 x 50	25 x 45	30 x 30
27000	0.024	4.00	50	22 x 45	25 x 35	30 x 30		0.024	4.65	50		25 x 45	30 x 35
33000	0.020	4.45	50	22 x 50	25 x 40	30 x 30	35 x 25	0.020	5.25	50			30 x 40
39000	0.017	4.90	50		25 x 45	30 x 35	35 x 30	0.017	5.80	50			30 x 45
47000	0.016	5.50	50		25 x 50	30 x 40	35 x 30	0.014	6.45	50			35 x 40
56000	0.014	6.05	50			30 x 45	35 x 35	0.011					

25 VDC								35 VDC					
NOMI- NAL CAPACI- TANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIP- ATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm) $\varnothing$ D x L				ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIP- ATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm) $\varnothing$ D x L		
3900								0.119	2.10	35	22 x 25		
4700								0.098	2.30	35	22 x 30	25 x 25	
5600	0.094	2.20	40	22 x 25				0.082	2.60	35	22 x 35	25 x 35	30 x 35
6800	0.078	2.45	40	22 x 30	25 x 25			0.068	2.90	35	22 x 40	25 x 30	30 x 25
8200	0.064	2.75	40	22 x 35	25 x 30			0.056	3.20	35	22 x 45	25 x 35	30 x 30
10000	0.053	3.10	40	22 x 40	25 x 30	30 x 25		0.046	3.60	35	22 x 50	25 x 40	30 x 30
12000	0.044	3.40	40	22 x 45	25 x 35	30 x 30	35 x 25	0.038	4.00	35		25 x 45	30 x 35
15000	0.035	3.90	40		25 x 40	30 x 35	35 x 30	0.030	4.60	35			30 x 40
18000	0.029	4.30	40		25 x 45	30 x 35	35 x 30	0.025	5.10	35			30 x 45
22000	0.024	4.85	40			30 x 45	35 x 35	0.021	5.70	35			35 x 45
27000	0.019	5.45	40			30 x 50	35 x 40	0.017	6.45	35			35 x 50
33000	0.016	6.15	40				35 x 45						

50 VDC								63 VDC					
NOMI- NAL CAPACI- TANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIP- ATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm) $\varnothing$ D x L				ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIP- ATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm) $\varnothing$ D x L		
1800								0.184	1.80	25	22 x 25		
2200	0.180	1.80	30	22 x 25				0.150	2.00	25	22 x 30	25 x 25	
2700	0.147	1.95	30	22 x 30				0.122	2.30	25	22 x 35	25 x 30	
3300	0.120	2.20	30	22 x 35	25 X 25			0.100	2.55	25	22 x 40	25 x 30	30 x 25
3900	0.102	2.40	30	22 x 35	25 x 30			0.085	2.80	25	22 x 45	25 x 35	30 x 30
4700	0.084	2.70	30	22 x 40	25 x 35	35 x 25		0.070	3.15	25	22 x 50	25 x 40	30 x 30
5600	0.071	3.00	30	22 x 45	25 x 35	30 x 30	35 x 35	0.059	3.50	25		25 x 45	30 x 35
6800	0.058	3.35	30		25 x 40	30 x 35	35 x 30	0.048	3.90	25		25 x 50	30 x 40
8200	0.048	3.70	30		25 x 50	30 x 40	35 x 30	0.040	4.35	25			30 x 45
10000	0.039	4.20	30			30 x 45	35 x 35	0.033	4.90	25			35 x 40
12000	0.033	4.65	30			30 x 50	35 x 40	0.027	5.45	25			35 x 50
15000	0.026	5.30	30				35 x 45						
18000	0.022	5.90	30				35 x 50						

**ALUMINIUM ELECTROLYTIC CAPACITORS**

80 VDC								100 VDC							
NOMI- NAL CAPACI- TANCE (μF)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIP- ATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm)				ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIP- ATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm)				
				Ø D x L							Ø D x L				
820								0.323	1.75	20	22 x 25				
1000								0.265	1.95	20	22 x 30	25 x 25			
1200	0.221	1.70	20	22 x 25				0.221	2.15	20	22 x 35	25 x 30			
1500	0.176	1.95	20	22 x 30	25 x 25			0.176	2.45	20	22 x 40	25 x 30	30 x 25		
1800	0.147	2.15	20	22 x 35	25 x 30			0.147	2.75	20	22 x 45	25 x 35	30 x 30		
2200	0.120	2.45	20	22 x 40	25 x 30	30 x 25		0.120	3.05	20	22 x 50	25 x 40	30 x 30	35 x 25	
2700	0.098	2.75	20	22 x 45	25 x 35	30 x 30		0.098	3.45	20		25 x 45	30 x 35	35 x 30	
3300	0.080	3.10	20	22 x 50	25 x 40	30 x 30	35 x 25	0.080	3.90	20		25 x 50	30 x 40	35 x 30	
3900	0.068	3.40	20		25 x 45	30 x 35	35 x 30	0.068	4.30	20			30 x 45	35 x 35	
4700	0.056	3.80	20		25 x 50	30 x 40	35 x 30	0.056	4.75	20				35 x 40	
5600	0.047	4.20	20			30 x 45	35 x 35	0.047	5.30	20				35 x 50	
6800	0.039	4.70	20			30 x 50	35 x 40								
8200	0.032	5.25	20				30 x 50								

160 VDC							
NOMINAL CAPACITANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS(mm) $\varnothing$ D x L			
270							
330	0.603	1.35	15	22 x 25			
390	0.510	1.50	15	22 x 30			
470	0.423	1.70	15	22 x 35	25 x 25		
560	0.355	1.90	15	22 x 35	25 x 30		
680	0.292	2.15	15	22 x 40	25 x 35	30 x 25	
820	0.242	2.40	15	22 x 50	25 x 35	30 x 30	
1000	0.199	2.75	15		25 x 40	30 x 35	35 x 25
1200	0.165	3.05	15		25 x 50	30 x 40	35 x 30
1500	0.132	3.50	15			30 x 45	35 x 35
1800	0.110	3.95	15			30 x 50	35 x 40
2000	0.090	4.50	15				35 x 45



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

SX

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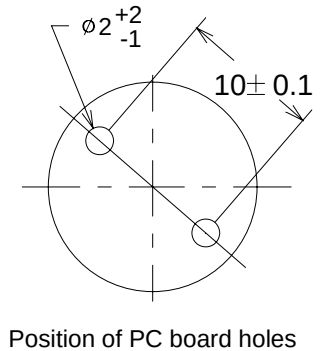
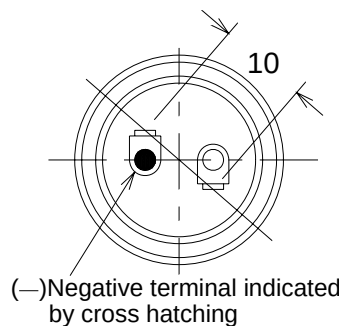
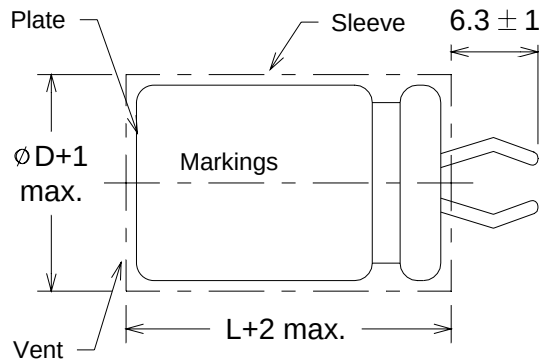
SX Series

- The usages as same SI Series.
- Used in Vudio, OA equipment, Power supply as a filter, which have a higher ripple current temperature (105 °C).
- Snap-in for P.C.B. 105 °C

SPECIFICATION

ITEM	SPECIFICATION									
Capacitance Tolerance (120Hz 20 °C)	± 20%(M)									
Rated Working Voltage	10 ~ 160WV									
Operation Temperature Range	-40 ~ +105 °C									
Surge Voltage (V) (20 °C)	WV	10	16	25	35	50	63	80	100	160
	SV	13	20	32	44	63	79	100	125	200
Leakage Current (μA) (20 °C)	I ≤ 0.02CV or 3mA									
	Whichever is greater after 5 minutes rated voltage applied I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)									
Dissipation Factor (%) (120Hz,20 °C)	Dissipation Factor at 20 °C , 120Hz shall not exceed the values showed in the table of standard rating									
Load Life	After 2000 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	After 500 hours to at 105 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.									

DIMENSIONS(unit:mm)



Coefficient of Frequency for Ripple Current

Frequency (Hz)	50	60	120	400	1K	2.4K	5K	10K and over
Coefficient	0.80	0.85	1.00	1.14	1.23	1.30	1.36	1.40

Coefficient of Temperature for Ripple Current

Temperature (°C)	105	100	95	90	85	80	75	70	65	60 or less
Coefficient	1.00	1.22	1.40	1.57	1.72	1.85	1.98	2.10	2.21	2.32



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

SX

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10 VDC							16 VDC							25 VDC								
NOM- INAL CAP- ACIT- ANCE (μF)	ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm)				ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm)				ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm)				
				Ø D x L							Ø D x L							Ø D x L				
3900															0.136	1.40	40	22x25				
4700															0.112	1.55	40	22x30				
5600															0.094	1.75	40	22x30	25x25			
6800								0.097	1.60	50	22x25				0.078	1.95	40	22x35	25x30			
8200								0.080	1.80	50	22x30	25x25			0.064	2.20	40	22x40	25x35	30x25		
10000	0.066	1.60	50	22x25				0.066	2.05	50	22x35	25x30			0.053	2.50	40	22x45	25x40	30x30		
12000	0.055	1.80	50	22x30	25x25			0.055	2.30	50	22x40	25x30	30x25		0.044	2.80	40	22x50	25x45	30x35	35x25	
15000	0.044	2.05	50	22x35	25x30			0.044	2.65	50	22x45	25x35	30x30		0.035	3.20	40		25x50	30x40	35x30	
18000	0.044	2.30	50	22x40	25x30	30x25		0.036	3.00	50	22x50	25x40	30x30	35x25	0.036	3.60	40			30x45	35x35	
22000	0.036	2.65	50	22x45	25x35	30x30		0.030	3.40	50		25x45	30x35	35x30	0.030	4.05	40			30x50	35x40	
27000	0.029	3.00	50		25x40	30x30	35x25	0.029	3.85	50			30x40	35x35	0.029	4.65	40					35x45
33000	0.024	3.40	50		25x45	30x35	35x30	0.024	4.35	50			30x50	35x40								
39000	0.023	3.75	50		25x50	30x45	35x30	0.023	4.85	50				35x45								
47000	0.019	4.20	60			30x45	35x35	0.019	5.45	50				35x50								
56000	0.018	4.70	60				35x40															
68000	0.015	5.30	60				35x50															

**ALUMINIUM ELECTROLYTIC CAPACITORS**

35 VDC								50 VDC								63 VDC							
NOM- INAL CAP- ACIT- ANCE (μF)	ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm) Ø D x L				ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm) Ø D x L				ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm) Ø D x L					
1200															0.276	1.15	25	22x25					
1500								0.265	1.20	30	22x25				0.221	1.35	25	22x30	25x25				
1800								0.221	1.35	30	22x30				0.184	1.50	25	22x35	25x30				
2200								0.180	1.50	30	22x30	25x25			0.150	1.70	25	22x40	25x30	30x25			
2700	0.172	1.25	35	22x25				0.147	1.75	30	22x35	25x30			0.122	1.95	25	22x45	25x35	30x30			
3300	0.140	1.40	35	22x30				0.120	1.95	30	22x40	25x30	30x25		0.100	2.20	25		25x40	30x30	35x25		
3900	0.119	1.60	35	22x30				0.102	2.20	30	22x45	25x35	30x30		0.085	2.45	25		25x45	30x35	35x30		
4700	0.098	1.80	35	22x35	25x25			0.084	2.45	30	22x50	25x40	30x30	35x25	0.070	2.75	25		25x50	30x40	35x30		
5600	0.082	2.00	35	22x40	25x30	30x25		0.071	2.75	30		25x45	30x35	35x30	0.059	3.10	25			30x45	35x35		
6800	0.068	2.30	35	22x45	25x35	30x30		0.058	3.10	30			30x40	35x30	0.048	3.45	25			30x50	35x40		
8200	0.056	2.60	35	22x50	25x40	30x30	35x25	0.048	3.50	30			30x45	35x35	0.040	3.85	25				35x45		
10000	0.053	2.95	35		25x45	30x35	35x30	0.046	4.00	30				35x40									
12000	0.044	3.30	35		25x50	30x40	35x30	0.038	4.45	30				35x50									
15000	0.035	3.75	35			30x45	35x35																
18000	0.029	4.20	35-				35x40																
22000	0.024	4.80	35				35x50																

80 VDC								100 VDC								160 VDC							
NOM- INAL CAP- ACIT- ANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm)				ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm)				ESR AT 120Hz 20 °C (Ω)	RIP- PLE CUR- RENT AT 120Hz 105°C (A)	DIS- SIP- ATI- ON FAC- TOR AT 120Hz 20°C (%)	DIMENSIONS(mm)					
				$\varnothing$ D x L							$\varnothing$ D x L							$\varnothing$ D x L					
270															0.737	0.95	15	22x25					
330															0.603	1.10	15	22x30					
390															0.510	1.20	15	22x30	25x25				
470															0.423	1.35	15	22x35	25x30				
560								0.473	1.05	20	22x25				0.355	1.50	15	22x40	25x30	30x25			
680								0.390	1.15	20	22x30				0.292	1.65	15	22x45	25x35	30x30			
820	0.323	1.05	20	22x25				0.323	1.30	20	22x30	25x25			0.242	1.90	15	22x50	25x40	30x30	35x25		
1000	0.265	1.20	20	22x30				0.265	1.50	20	22x35	25x30			0.199	2.10	15		25x45	30x35	35x30		
1200	0.221	1.30	20	22x35	25x25			0.221	1.70	20	22x40	25x35	30x25		0.165	2.40	15			30x40	35x35		
1500	0.176	1.50	20	22x40	25x30	30x25		0.176	1.90	20	22x45	25x40	30x30	35x25	0.132	2.75	15			30x50	35x40		
1800	0.147	1.70	20	22x45	25x35	30x30		0.147	2.15	20		25x45	30x35	35x30	0.110	3.05	15				35x45		
2200	0.120	1.95	20		25x40	30x30	35x25	0.120	2.45	20		25x50	30x40	35x30	0.090	3.50	15	22x25			35x50		
2700	0.098	2.20	20		25x45	30x35	35x30	0.098	2.80	20			30x45	35x35									
3300	0.080	2.50	20			30x40	35x35	0.080	3.15	20			30x50	35x40									
3900	0.068	2.75	20			30x45	35x35	0.068	3.50	20				35x45									
4700	0.056	3.10	20				35x40	0.056	3.80	20				35x50									
5600	0.047	3.45	20				35x50																



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

LG

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LG Series

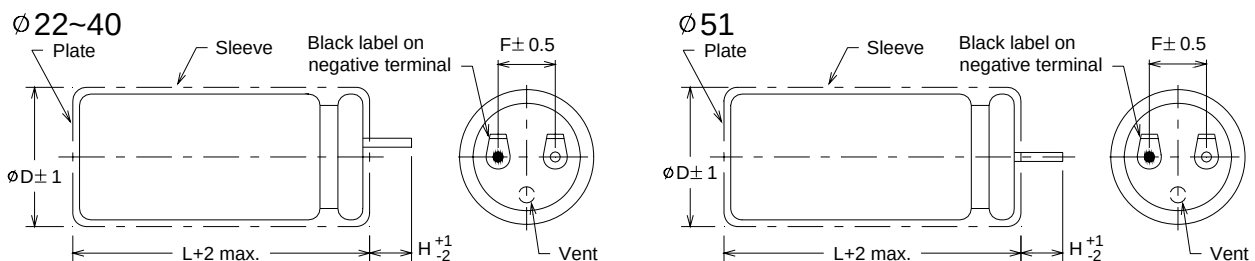
- Most suitable for inverters which requires high ripple current endurance in a compact size.
- LUG Type Terminal.
- High C/V Product, Lug Terminal.

SPECIFICATION

ITEM	SPECIFICATION								
Capacitance Tolerance (120Hz 20 °C)	-10% ~ +50% (T)								
Rated Working Voltage	16 ~ 160WV								
Operation Temperature Range	-40 ~ +85 °C								
Surge Voltage (V) (20 °C)	WV	16	25	35	50	63	80	100	160
	SV	20	32	44	63	79	100	125	200
Leakage Current (μA) (20 °C)	I ≤ 0.03CV or 5mA								
	Whichever is greater after 5 minutes rated voltage applied I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)								
Dissipation Factor (%) (120Hz,20 °C)	Dissipation Factor at 20 °C , 120Hz shall not exceed the values showed in the table of standard rating								
Load Life	After 1000 hours application of W.V. at +85 °C The capacitor shall meet the following limits								
	Capacitance Change			≤ ±25% of Initial Value					
	Dissipation Factor			≤ 200 % of Initial Specified Value					
	Leakage Current			≤ Initial Specified Value					
Shelf Life	After 500 hours to at 85 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.								

DIMENSIONS(unit:mm)

Outline Drawing



Terminal Spacing

Ø D	22	25	30	35	40	51
F	8.5	10	14	14	14	20
H	10	12	12	12	12	12

Coefficient of Temperature for Ripple Current

Temperature (°C) Rated Voltag (V)	~ +70	+85
100 or less	1.25	1.00
160 or more	1.25	1.00

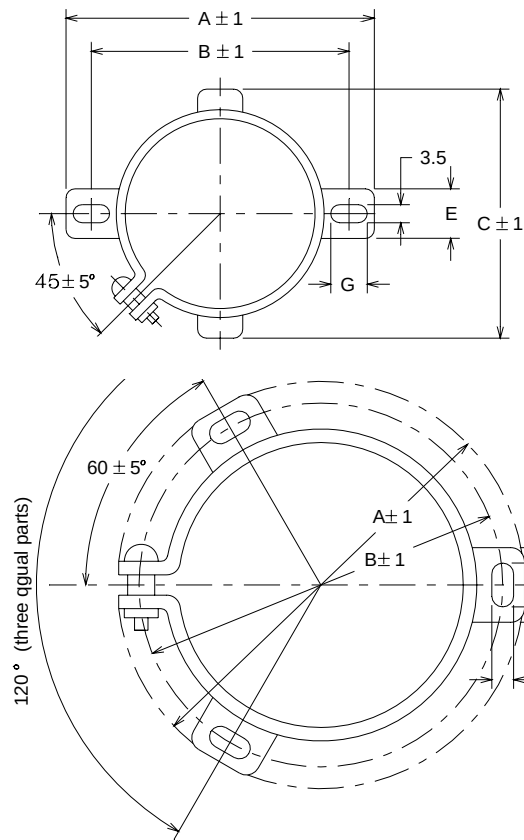
Coefficient of Frequency for Ripple Current

Frequency (Hz) Rated Voltag (V)	60	120	1K	10K	20K
50 or less	0.95	1.00	1.10	1.15	1.15
63 ~ 100	0.95	1.00	1.16	1.30	1.33
160 or more	0.90	1.00	1.20	1.50	1.55

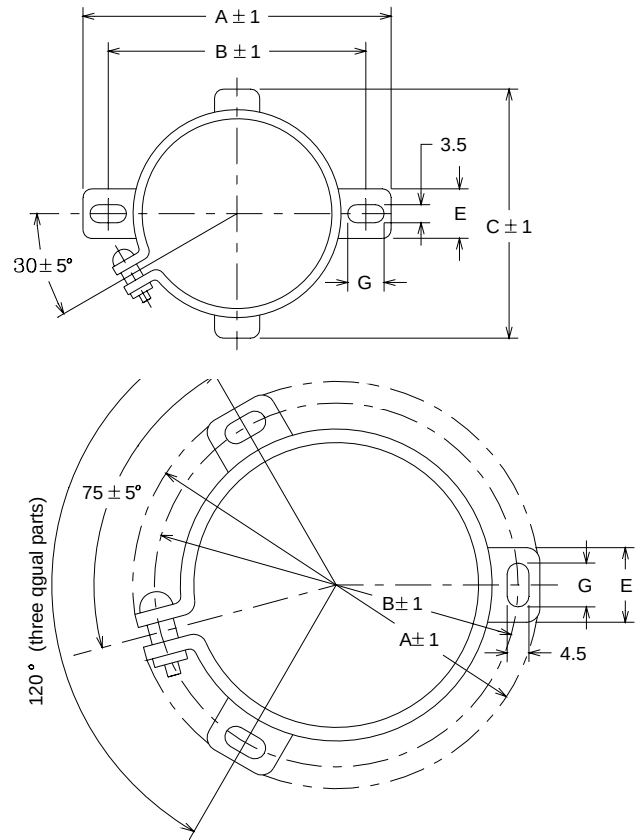


Attachment Band

Ø 22 ~ 30,40



Ø 35



Unit : mm

Case diameter (Ø D)	A	B	C	E	F
22	43	35	-	8	5.5
25	48	38	34	10	6
30	52	42	86	10	6
35	58	48	46	10	7
40	64	54	50	10	7
51	74.5	65	-	14	8
63.5	87	76	-	14	8
76	100	89	-	14	8
89	113	100	-	16	8



CASE SIZE (mm)

ØD x L

µF \ WV	16	25	35	50	63	80	100	160
220								25 x 50
330								25 x 63
470								35 x 50
1000								35 x 80
1500					25 x 315	25 x 315	25 x 40	
2200				22 x 40	22 x 50	22 x 50	30 x 50	
3300			22 x 40	25 x 40	25 x 50	30 x 50	35 x 63	
4700		22 x 40	25 x 40	30 x 40	30 x 50	35 x 50	35 x 80	
6800	22 x 40	22 x 40	30 x 40	30 x 63	35 x 50	35 x 80	35 x 90	
10000	22 x 50	25 x 63	30 x 63	35 x 63	35 x 80	35 x 90	40 x 100	
15000	25 x 63	30 x 63	35 x 63	35 x 80	35 x 100	40 x 100	51 x 90	
22000	30 x 63	35 x 63	35 x 80	35 x 100	40 x 100	51 x 90		
33000	35 x 63	35 x 80	35 x 100	51 x 80	51 x 90			
47000	35 x 80	35 x 100	51 x 80	51 x 100				

MAXIMUM RIPPLE CURRENT (A)

120Hz / 85 °C

µF \ WV	16	25	35	50	63	80	100	160
220								0.70
330								0.93
470								1.2
1000								2.0
1500					1.3	1.3	1.4	
2200				1.8	2.2	2.1	2.3	
3300			2.2	2.3	2.5	2.8	3.3	
4700		2.2	2.8	2.4	3.1	3.6	4.2	
6800	2.7	2.7	3.6	4.1	4.0	5.0	5.3	
10000	3.3	3.7	4.9	5.2	5.7	6.3	6.8	
15000	4.6	4.8	6.4	6.9	7.5	8.3	9.0	
22000	5.1	5.4	6.3	6.8	7.1	8.3		
33000	6.6	7.2	8.3	16.0	9.3			
47000	8.5	9.2	10.7	19.2				

**BENNIC COMPONENTS****ALUMINIUM ELECTROLYTIC CAPACITORS****SW** 35/39EQUIVALENT SERIES RESISTANCE (E.S.R) (Ω)

120Hz / 20 °C

$\mu\text{F} \setminus \text{WV}$	16	25	35	50	63	80	100	160
220								0.904
330								0.603
470								0.423
1000								0.199
1500					0.221	0.176	0.176	
2200				0.180	0.150	0.120	0.120	
3300			0.014	0.120	0.100	0.080	0.080	
4700		0.112	0.098	0.084	0.070	0.056	0.056	
6800	0.097	0.078	0.068	0.058	0.048	0.039	0.039	
10000	0.063	0.053	0.046	0.039	0.033	0.026	0.026	
15000	0.044	0.035	0.039	0.026	0.022	0.017	0.017	
22000	0.030	0.024	0.021	0.018	0.015	0.012		
33000	0.020	0.016	0.014	0.012	0.010			
47000	0.014	0.011	0.009	0.008				



BENNIC COMPONENTS

ALUMINIUM ELECTROLYTIC CAPACITORS

SW

36/39

SW Series

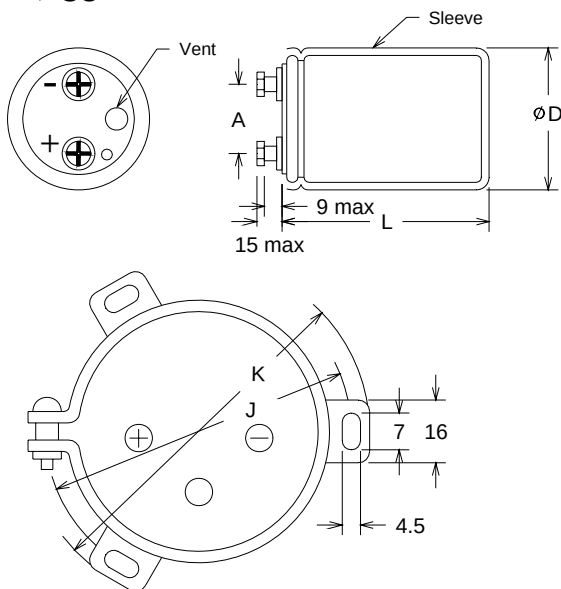
SPECIFICATION

- Most suitable for inverters requires.
high ripple current endurance in a compact size.
- Used for computer, telecommunication, electronic instruments.
- High C/V Product, Screw Terminal.

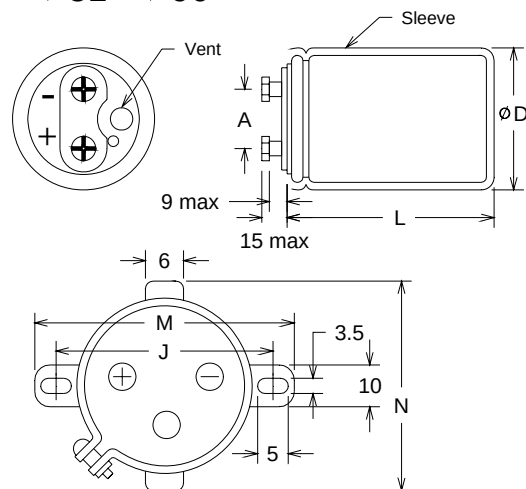
ITEM	SPECIFICATION									
Capacitance Tolerance (120Hz 20 °C)	-10% ~ +50% (T)									
Rated Working Voltage	10 ~ 160WV									
Operation Temperature Range	-25 ~ +85 °C									
Surge Voltage (V) (20 °C)	WV	10	16	25	35	50	63	80	100	160
	SV	13	20	32	44	63	79	100	125	200
Leakage Current (μA) (20 °C)	I ≤ 0.02CV or 5mA									
	Whichever is greater after 5 minutes rated voltage applied I:Leakage Current (μA) C:Capacitance(μF) V:Voltage(V)									
Dissipation Factor (%) (120Hz,20 °C)	Dissipation Factor at 20 °C , 120Hz shall not exceed the values showed in the table of standard rating									
Load Life	After 2000 hours application of W.V. at +85 °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	After 500 hours to at 85 °C without rated voltage applied. The capacitor shall meet the limited as same as load life.									

DIMENSIONS(unit:mm)

Ø35



Ø51 ~ Ø90



CASE CODE (Ø)	J	M	N	K
35	480	580	485	-
51	63.5	-	-	73.0
64	76.2	-	-	85.7
77	88.9	-	-	98.4
90	101.6	-	-	111.1

**ALUMINIUM ELECTROLYTIC CAPACITORS****Coefficient of Frequency for Ripple Current**

Frequency (Hz)	50	60	120	400	1K	2.4K	5K	10K and over
Coefficient	0.80	0.85	1.00	1.14	1.23	1.30	1.36	1.40

Coefficient of Temperature for Ripple Current

Temperature (°C)	85	80	75	70	65	60	55	50	45	40 or less
Coefficient	1.00	1.22	1.40	1.57	1.72	1.85	1.98	2.10	2.21	2.32

10 VDC					16 VDC			
NOMINAL CAPACIT- ANCE (μF)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) Ø D x L	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) Ø D x L
27000					0.058	5.1	120	35 x 54
33000					0.048	5.5	120	35 x 66
39000	0.040	5.0	120	35 x 54	0.040	6.0	120	35 x 66
47000	0.033	5.5	120	35 x 54	0.033	6.7	120	35 x 81
56000	0.035	6.1	150	35 x 66	0.035	7.5	150	35 x 81
68000	0.029	6.9	150	35 x 81	0.029	7.8	150	35 x 101
82000	0.024	7.8	150	35 x 81	0.024	8.1	150	35 x 101
100000	0.019	8.8	150	35 x 101	0.019	9.4	150	35 x 120
120000	0.016	9.9	150	35 x 120	0.016	410.8	170	51 x 81
150000	0.015	10.9	170	51 x 81	0.015	12.3	170	51 x 101
180000	0.012	12.0	170	51 x 81	0.012	13.2	170	51 x 120
220000	0.011	13.3	190	51 x 101	0.010	14.2	170	51 x 120
270000	0.009	14.0	190	51 x 120	0.012	15.3	250	64 x 101
330000	0.007	14.7	190	51 x 120	0.010	17.8	250	64 x 120
390000	0.008	17.2	250	64 x 101	0.009	18.7	280	77 x 101
470000	0.007	19.6	250	64 x 120	0.008	21.9	300	77 x 120
560000	0.007	20.0	300	77 x 101	0.007	27.0	300	77 x 144



25 VDC					35 VDC			
NOMINAL CAPACITANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) $\varnothing$ D x L	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) $\varnothing$ D x L
15000					0.044	4.8	50	35 x 54
18000	0.044	4.9	60	35 x 54	0.036	5.2	50	35 x 66
22000	0.036	5.4	60	35 x 66	0.030	5.6	50	35 x 81
27000	0.049	5.8	100	35 x 81	0.029	6.0	60	35 x 81
33000	0.040	6.2	100	35 x 81	0.024	6.4	60	35 x 81
39000	0.034	6.7	100	35 x 81	0.020	7.6	60	35 x 101
47000	0.028	7.6	100	35 x 101	0.016	9.1	60	35 x 120
56000	0.023	8.2	100	35 x 120	0.021	9.9	90	51 x 81
68000	0.023	9.0	120	51 x 181	0.017	10.8	90	51 x 81
82000	0.019	9.9	120	51 x 181	0.014	12.0	90	51 x 101
100000	0.022	11.1	170	51 x 101	0.018	12.8	140	51 x 120
120000	0.018	12.3	170	51 x 120	0.015	13.6	140	64 x 101
150000	0.016	13.8	220	64 x 101	0.012	15.0	140	64 x 101
180000	0.017	15.4	240	64 x 101	0.012	18.4	170	77 x 120
220000	0.014	17.2	240	64 x 120	0.012	21.0	200	77 x 120
270000	0.013	13.7	280	77 x 101	0.009	23.1	200	77 x 144
330000	0.011	21.4	280	77 x 120	0.010	25.8	250	77 x 144

50 VDC					63 VDC			
NOMINAL CAPACITANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) $\varnothing$ D x L	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) $\varnothing$ D x L
5600					0.071	4.4	30	35 x 54
6800					0.058	4.8	30	35 x 54
8200					0.048	5.2	30	35 x 66
10000	0.053	5.1	40	35 x 54	0.053	5.8	40	35 x 81
12000	0.044	5.3	40	35 x 66	0.053	6.4	40	35 x 81
15000	0.053	5.5	60	35 x 81	0.035	7.6	40	35 x 101
18000	0.044	6.7	60	35 x 81	0.029	9.0	40	35 x 120
22000	0.036	7.9	60	35 x 101	0.030	9.5	50	51 x 81
27000	0.029	9.4	60	35 x 120	0.024	10.0	50	51 x 81
33000	0.028	9.9	70	51 x 81	0.020	11.7	50	51 x 101
39000	0.023	10.5	70	51 x 81	0.017	13.8	50	51 x 120
47000	0.019	11.4	70	51 x 101	0.016	14.5	60	64 x 101
56000	0.016	12.3	70	51 x 101	0.014	15.3	60	64 x 101
68000	0.013	14.1	70	51 x 120	0.011	16.8	60	64 x 120
82000	0.012	15.6	80	64 x 101	0.012	18.7	80	77 x 120
100000	0.010	16.4	80	64 x 120	0.010	20.7	80	77 x 120
120000	0.008	17.2	80	64 x 120	0.008	23.1	80	77 x 144

**ALUMINIUM ELECTROLYTIC CAPACITORS**

80 VDC					100 VDC			
NOMINAL CAPACITANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) $\varnothing$ D x L	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) $\varnothing$ D x L
3300					0.100	3.8	25	35 x 54
3900					0.085	4.2	25	35 x 54
4700	0.070	4.9	25	35 x 54	0.070	4.8	25	35 x 81
5600	0.059	5.4	25	65 x 66	0.059	5.4	25	35 x 81
6800	0.058	5.7	30	65 x 81	0.048	6.3	25	35 x 101
8200	0.048	6.1	30	65 x 81	0.040	7.6	25	35 x 120
10000	0.039	7.0	30	35 x 101	0.046	8.1	35	51 x 81
12000	0.033	8.2	30	35 x 120	0.038	8.7	35	51 x 81
15000	0.035	8.9	40	51 x 81	0.030	9.6	35	51 x 120
18000	0.029	9.6	40	51 x 81	0.025	10.5	35	51 x 101
22000	0.024	10.8	40	51 x 101	0.024	12.0	40	51 x 120
27000	0.019	12.7	40	51 x 120	0.019	14.5	40	64 x 120
33000	0.018	13.5	45	64 x 101	0.020	15.7	50	77 x 101
39000	0.015	14.4	45	64 x 101	0.017	18.0	50	77 x 120
47000	0.012	15.6	45	64 x 120	0.014	18.9	50	77 x 144
56000	0.014	17.5	60	77 x 120	0.011	19.8	50	77 x 144
68000	0.011	19.5	60	77 x 120	0.011	22.5	60	99 x 144

160 VDC				
NOMINAL CAPACITANCE (μ F)	ESR AT 120Hz 20 °C (Ω)	RIPPLE CURRENT AT 120Hz 85 °C (A)	DISSIPATION FACTOR AT 120Hz 20°C (%)	DIMENSIONS (mm) $\varnothing$ D x L
820				
1000				
1200	0.276	2.8	25	35 x 54
1500	0.221	3.4	25	35 x 66
1800	0.184	3.8	25	35 x 81
2200	0.150	4.2	25	35 x 81
2700	0.122	4.8	25	35 x 101
3300	0.100	5.4	25	35 x 120
3900	0.102	5.8	30	51 x 81
4700	0.084	6.2	30	51 x 81
5600	0.071	6.9	30	51 x 101
6800	0.058	7.6	30	51 x 101
8200	0.048	8.5	30	51 x 120
10000	0.046	9.6	35	64 x 101
12000	0.038	11.0	35	64 x 120
15000	0.030	11.3	35	64 x 120
18000	0.025	12.5	35	77 x 144