

Sounds divider



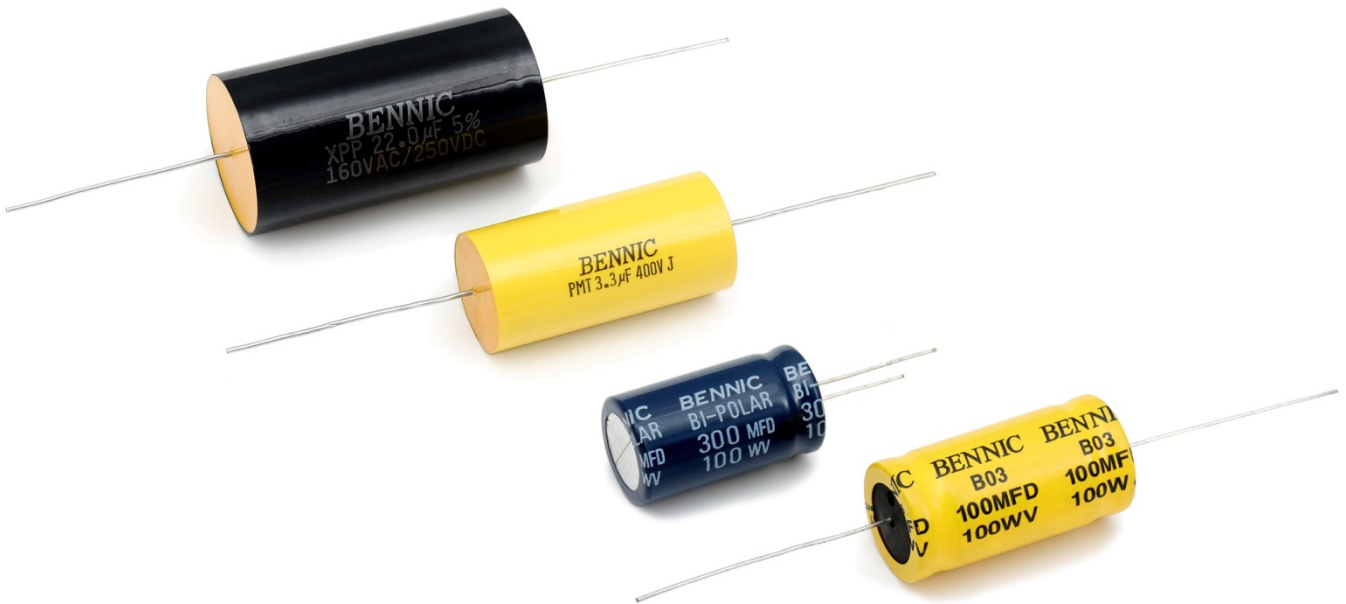
BENNIC COMPONENTS

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



RELIABLE ACOUSTIC CAPACITORS

CO-AXIAL SPEAKER USE * X-OVER NETWORK USE



V.2019.05

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P03	UNDER 18 μ F : 12% @ 20KHZ EXCEED 22 μ F : 20% @ 20KHZ UNDER 3.3 μ F : 4% @ 1KHZ (reference value) UNDER 3.9 μ F : 3% @ 1KHZ (reference value)	AXIAL RADIAL	50 / 100	1.0 - 47	3
B03	UNDER 47 μ F : 10% @ 10KHZ EXCEED 47 μ F : 20% @ 10KHZ 3% @ 1KHZ (reference value)	AXIAL RADIAL	100	1.0 - 150	4
B04	10% @ 5KHZ 4% @ 1KHZ (reference value)	AXIAL RADIAL	50 / 100	1.0 - 220	5
B05	10% @ 3KHZ 5% @ 1KHZ (reference value)	AXIAL RADIAL	50 / 100	1.0 - 330	6
B06	10% @ 2KHZ 6% @ 1KHZ (reference value)	AXIAL RADIAL	50 / 100	1.0 - 470	7
B10	10% @ 1KHZ	AXIAL RADIAL	50 / 100	1.0 - 1000	8
B12	10% @ 600HZ 12% @ 1KHZ (reference value)	AXIAL RADIAL	50 / 100	1.0 - 1000	9
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BENNIC LOW LOSS BI-POLAR CAPACITORS - GENERAL INFORMATION
CHART. A - GENERAL SPECIFICATION

CAPACITANCE	: 0.47 μ F TO 1,000 μ F (ANY VALUE BETWEEN THIS RANGE)	
SERIES CAP. RANGE	: B03: FROM 0.47 μ F TO 150 μ F.,	B04: FROM 0.47 μ F TO 220 μ F
	B05: FROM 0.47 μ F TO 330 μ F.,	B06: FROM 0.47 μ F TO 470 μ F
	B10/N04: FROM 0.47 μ F TO 680 μ F.,	B12/N06: FROM 0.47 μ F TO 680 μ F
	B15: FROM 0.47 μ F TO 1000 μ F.,	N10: FROM 0.47 μ F TO 1000 μ F
WORKING VOLTAGE	: 25V, 50V, 63V, 75V OR 100V	
DISSIPATION FACTOR	: ANY D. F. 3% TILL 20% AT ANY FREQUENCY 120HZ TILL 10KHZ	
TOLERANCE	: 2.5% (H), 5% (J), 10% (K) OR 20% (M)	
LEAD-OUT	: RADIAL OR AXIAL	
TEMP. RANG	: -40°C TO +85°C (-40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)	
LEAKAGE CURRENT	: MAX. 0.04CV +3 (UNIT μ A) C = CAPACITANCE (μ F), V=WV (V)	
SLEEVE STANDARD COLOR	: Black , Dark blue , Yellow (B03 SERIES ONLY) , Green (N04 N06 N10 SERIES ONLY)	

PLEASE SPECIFY DETAILS OF EACH ITEM'S OF YOUR USING :

- (1) CAPACITANCE AND TOLERANCE
- (2) WORKING VOLTAGE
- (3) LEAD-OUT AT RADIAL OR AXIAL, AND IF ANY LIMITE ON PHYSICAL SIZE LIMITED.
(Please note that the reserved space must be bigger than the maximum size plus the tolerance. For example, if the capacitors marked size is 6*18mm and tolerance is \pm 1mm, the reserved space should be bigger than 7*19mm.)
- (4) RATED FREQUENCY
- (5) MAX. DISSIPATION FACTOR OR MIN. Q VALUE.
- (6) IF TEMP. RANG NEEDED -40°C TO +105°C
- (7) IF ANY SPECIAL REQUESTED FOR LEAD FORMED OR PROCESSED, OR OTHERS.

CHART. B - HOW TO ORDER/READ OUR PARTS NUMBER

DIGIT :	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>0</u>	<u>A</u>	<u>B-Z</u>	
P / N :	B	0	3	A	-	1	0	0	J	4	7	5	(4.7 μ F / 100V DF 3% @ 1KHZ, AXIAL, TOL. 5%)
	N	1	0	A	-	0	5	0	M	2	2	7	(220 μ F / 50V DF 10% @ 120HZ, AXIAL, TOL. 20%)

DIGIT 1	: RATED FREQUENCY	B = 1 KHZ, X = 575HZ, Y = 300HZ, N = 120HZ
2 / 3	: RATED MAX. D.F. VALUE., i.e.	04=4% 05=5% 10=10% 20=20%
4	: " A " OR EMPTY - MEANS " AXIAL " LEADS	
	" R "	- MEANS " RADIAL " LEADS
	" S "	- MEANS " SPOT " LEADS (ONLY APPLY FOR B15 & N10 SERIES)
5 / 6 / 7	: MEANS RATED WORKING VOLTAGE, i.e. :	
		025 = 25V 050 = 50V 063 = 63V 100 = 100V
8	: MEANS CAPACITANCE TOLERANCE., i.e.	
		H = \pm 2.5% J = \pm 5% K = \pm 10% M = \pm 20%
9 / 0 / A	: RATED CAPACITANCE., i.e.	
		104 = 0.10 μ F 105 = 1.0 μ F 106 = 10 μ F 107 = 100 μ F
		474 = 0.47 μ F 475 = 4.7 μ F 476 = 47 μ F 477 = 470 μ F
B-Z	: SUFFIX FOR ANY SPECIAL REQUEST.	

** PLEASE FEEL FREE TO CONTACT US IN CASE YOU HAVE ANY QUIRES.

** **Following data sheets are our standard series / size / value . Any special requested upon discussion.**

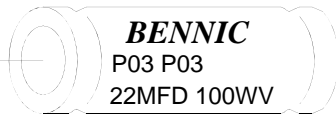
** Here we only accept to use the following sleeve color for the full compliance with the Sony SS-00259 (the sleeve must be use PET material) : Black , Dark blue, Yellow

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).



"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - P03A & P03R SERIES

1) FIGURE : P03A (AXIAL)



P03R (RADIAL)

LEAD WIRE DIA AT mm, TOL. ± 0.05 mm (AXIAL DIA 12 ϕ LEAD DIA MAYBE 0.6 mm)

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	12 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.6	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

2) TOL. RANGE : $\pm 20\%$ (M), or $\pm 10\%$ (K), or $\pm 5\%$ (J) @1KHZ3) LEAKAGE : Max 0.04 CV +3 μ A AFTER CHARGE 5 MINUTES

4) TEMP. RANGE : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)

5) SURGE VOLT : 63V-FOR 50WV., 125V FOR 100WV

6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :

(a) CAPACITANCE : WITHIN $\pm 20\%$ OF INITIAL VALUE

(b) D.F. : WITHIN 200% OF INITIAL VALUE

(c) LEAKAGE CURRENT : WITHIN INITIAL VALUE

7) MAX. D.F. : 3% @1KHZ (FOR EXCEED 3.9 μ F), 12 % @20KHZ (FOR UNDER 18 μ F)4 % @1KHZ (FOR UNDER 3.3 μ F)., 20 % @20KHZ (FOR EXCEED 22 μ F)

8) MARKING : BENNIC

P03 P03

xxx MFD xxx WV

9) SLEEVE STANDARD COLOR : Black (Matte)

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

SERIES	P03A (AXIAL)		P03R (RADIAL)	
	50WV	100WV	50WV	100WV
1	10 x 26	12 x 26	10 x 15	13 x 21
1.5	10 x 26	12 x 31	10 x 20	13 x 21
2.2	12 x 26	13 x 31	13 x 21	13 x 26
2.7	12 x 31	16 x 34	13 x 26	16 x 27
3.3	12 x 31	16 x 34	13 x 26	16 x 27
3.9	13 x 31	16 x 34	13 x 26	16 x 27
4.7	16 x 34	16 x 42	16 x 27	16 x 36
5.6	16 x 34	16 x 42	16 x 27	16 x 36
6.8	16 x 34	18 x 42	16 x 27	18 x 36
7.5	16 x 42	18 x 42	16 x 36	18 x 36
9.2	16 x 42	22 x 44	16 x 36	22 x 37
10	16 x 42	22 x 44	16 x 36	22 x 37
12	18 x 42	22 x 50	18 x 36	22 x 42
15	18 x 42	25 x 52	18 x 36	22 x 44
18	22 x 44	25 x 52	22 x 37	22 x 44
22	22 x 44	25 x 56	22 x 37	25 x 48
27	25 x 52	25 x 60	22 x 44	25 x 53
33	25 x 52	N/A	22 x 44	N/A
47	25 x 60	N/A	25 x 53	N/A

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE

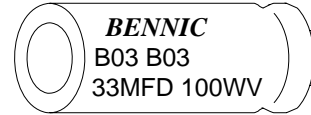


"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - B03A & B03R SERIES

1) FIGURE : B03A (AXIAL)



B03R (RADIAL)

LEAD WIRE DIA AT mm, TOL. ± 0.05 mm (AXIAL DIA 12 ϕ LEAD DIA MAYBE 0.6 mm)

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	12 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.6	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

- 2) TOL. RANGE : $\pm 10\%$ (K), or $\pm 5\%$ (J), or $\pm 2.5\%$ (H) @1KHZ
 3) LEAKAGE : Max 0.04 CV +3 μ A AFTER CHARGE 5 MINUTES
 4) TEMP. RANGE : -40°C TO +85°C (-40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
 5) SURGE VOLT : 125V FOR 100WV
 6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :
 (a) CAPACITANCE : WITHIN $\pm 20\%$ OF INITIAL VALUE
 (b) D.F. : WITHIN 200% OF INITIAL VALUE
 (c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
 7) MAX. D.F. : Max 3% @1KHZ, Max 12% @10KHZ (BUT EXCEED 47 μ F Max 20% @ 10KHZ)
 8) MARKING : BENNIC
 B03 B03
 xxx MFD xxx WV

9) SLEEVE STANDARD COLOR : Yellow

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

MFD \ SERIES	B03A(AXIAL)100WV	B03R(RADIAL)100WV
1.0	10 x 18	10 x 15
1.5	10 x 18	10 x 15
2.2	10 x 18	10 x 15
2.7	12 x 26	10 x 20
3.3	12 x 26	10 x 20
3.9	12 x 26	13 x 21
4.7	12 x 31	13 x 26
5.6	12 x 31	13 x 26
6.8	12 x 31	13 x 26
7.5	12 x 31	13 x 26
8.2	12 x 31	13 x 26
10	16 x 34	16 x 27
12	16 x 34	16 x 27
15	16 x 34	16 x 27
18	16 x 34	16 x 27
22	16 x 42	16 x 36
27	16 x 42	16 x 36
33	16 x 42	16 x 36
47	18 x 42	18 x 36
56	18 x 42	18 x 36
68	22 x 44	22 x 37
75	22 x 44	22 x 37
82	22 x 44	22 x 37
100	22 x 44	22 x 37
120	25 x 52	25 x 43
150	25 x 52	25 x 43

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED
 ** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE

"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - B04A & B04R SERIES

1) FIGURE : B04A (AXIAL)

B04R (RADIAL)

LEAD WIRE DIA AT mm, TOL. ± 0.05 mm (AXIAL DIA 12 ϕ LEAD DIA MAYBE 0.6 mm)

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	12 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.6	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

2) TOL. RANGE : $\pm 10\%$ (K), or $\pm 5\%$ (J), or $\pm 2.5\%$ (H) @1KHZ3) LEAKAGE : Max 0.04 CV +3 μ A AFTER CHARGE 5 MINUTES

4) TEMP. RANGE : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)

5) SURGE VOLT : 63V-FOR 50WV., 125V FOR 100WV

6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER

RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :

(a) CAPACITANCE : WITHIN $\pm 20\%$ OF INITIAL VALUE

(b) D.F. : WITHIN 200% OF INITIAL VALUE

(c) LEAKAGE CURRENT : WITHIN INITIAL VALUE

7) MAX. D.F. : Max 4% @1KHZ, Max 10% @5KHZ

8) MARKING : BENNIC

BI - POLAR

xxx MFD xxx WV

9) SLEEVE STANDARD COLOR : Dark blue

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

SERIES		B04A (AXIAL)		B04R (RADIAL)	
MFD	WV	50WV	100WV	50WV	100WV
1.0		10 x 19	10 x 19	8 x 13	10 x 15
1.5		10 x 19	10 x 19	8 x 13	10 x 15
2.2		10 x 19	10 x 19	8 x 13	10 x 15
2.7		10 x 19	10 x 19	10 x 13	10 x 15
3.3		10 x 19	12 x 26	10 x 13	10 x 15
3.9		12 x 26	12 x 26	10 x 20	10 x 20
4.7		12 x 26	12 x 26	10 x 20	10 x 20
5.6		12 x 26	12 x 26	10 x 20	10 x 20
6.8		12 x 26	12 x 26	10 x 20	13 x 21
7.5		12 x 26	12 x 31	10 x 20	13 x 21
8.2		12 x 26	12 x 31	13 x 21	13 x 21
10		12 x 26	12 x 31	13 x 21	13 x 26
12		12 x 26	12 x 31	13 x 21	13 x 26
15		12 x 31	12 x 31	13 x 21	13 x 26
18		12 x 31	12 x 31	13 x 21	13 x 26
22		12 x 31	12 x 31	13 x 26	13 x 26
27		12 x 31	13 x 31	13 x 26	13 x 26
33		12 x 31	16 x 34	13 x 26	16 x 27
47		16 x 34	16 x 34	16 x 27	16 x 27
56		16 x 34	16 x 42	16 x 27	16 x 36
68		16 x 34	16 x 42	16 x 27	16 x 36
75		16 x 34	16 x 42	16 x 27	16 x 36
82		16 x 34	18 x 42	16 x 27	18 x 36
100		16 x 42	18 x 42	16 x 36	18 x 36
120		16 x 42	22 x 44	16 x 36	22 x 37
150		18 x 42	22 x 44	18 x 36	22 x 37
180		22 x 44	N/A	18 x 36	N/A
220		22 x 44	N/A	22 x 37	N/A

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

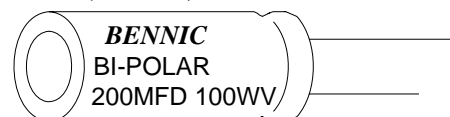
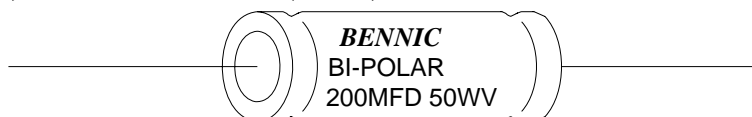
** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE



"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - B05A & B05R SERIES

1) FIGURE : B05A (AXIAL)

B05R (RADIAL)

LEAD WIRE DIA AT mm, TOL. ± 0.05 mm (AXIAL DIA 12 ϕ LEAD DIA MAYBE 0.6 mm)

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	12 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.6	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

- 2) TOL. RANGE : $\pm 10\%$ (K), or $\pm 5\%$ (J), or $\pm 2.5\%$ (H) @1KHZ
3) LEAKAGE : Max 0.04 CV +3 μ A AFTER CHARGE 5 MINUTES
4) TEMP. RANGE : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
5) SURGE VOLT : 63V-FOR 50WV., 125V FOR 100WV
6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :
(a) CAPACITANCE : WITHIN $\pm 20\%$ OF INITIAL VALUE
(b) D.F. : WITHIN 200% OF INITIAL VALUE
(c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
- 7) MAX. D.F. : Max 5% @1KHZ, Max 10% @ 3KHZ
8) MARKING : BENNIC
BI - POLAR
xxx MFD xxx WV

9) SLEEVE STANDARD COLOR : Dark blue

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

SERIES		B05A (AXIAL)		B05R (RADIAL)	
MFD	WV	50WV	100WV	50WV	100WV
1.0		10 x 18	10 x 18	8 x 13	10 x 15
1.5		10 x 18	10 x 18	8 x 13	10 x 15
2.2		10 x 18	10 x 18	8 x 13	10 x 15
2.7		10 x 18	10 x 18	8 x 13	10 x 15
3.3		10 x 18	10 x 18	10 x 15	10 x 15
3.9		10 x 18	12 x 26	10 x 20	10 x 20
4.7		10 x 18	12 x 26	10 x 20	10 x 20
5.6		10 x 18	12 x 26	10 x 20	10 x 20
6.8		12 x 26	12 x 26	10 x 20	10 x 20
7.5		12 x 26	12 x 26	10 x 20	10 x 20
8.2		12 x 26	12 x 26	10 x 20	13 x 21
10		12 x 26	12 x 31	10 x 20	13 x 21
12		12 x 26	12 x 31	10 x 20	13 x 21
15		12 x 26	12 x 31	13 x 21	13 x 26
18		12 x 26	12 x 31	13 x 21	13 x 26
22		12 x 31	12 x 31	13 x 26	13 x 26
27		12 x 31	12 x 31	13 x 26	13 x 26
33		12 x 31	13 x 31	13 x 26	13 x 26
47		16 x 34	16 x 34	16 x 27	16 x 27
56		16 x 34	16 x 34	16 x 27	16 x 27
68		16 x 34	16 x 34	16 x 27	16 x 27
75		16 x 34	16 x 42	16 x 27	16 x 36
82		16 x 34	16 x 42	16 x 27	16 x 36
100		16 x 34	18 x 42	16 x 27	18 x 36
120		16 x 42	18 x 42	16 x 36	18 x 36
150		16 x 42	22 x 44	16 x 36	22 x 37
180		18 x 42	22 x 44	18 x 36	22 x 37
220		22 x 44	25 x 46	22 x 37	25 x 38

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

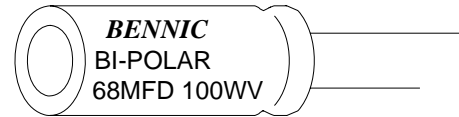
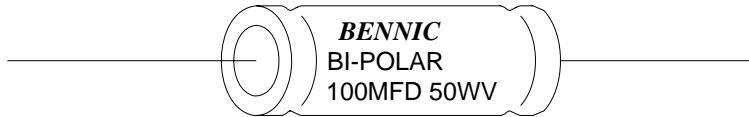
** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE



"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - B06A & B06R SERIES

1) FIGURE : B06A (AXIAL)

B06R (RADIAL)



LEAD WIRE DIA AT mm, TOL. ± 0.05 mm (AXIAL DIA 12 ϕ LEAD DIA MAYBE 0.6 mm)

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	12 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.6	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

- 2) TOL. RANGE : $\pm 20\%$ (M), or $\pm 10\%$ (K), or $\pm 5\%$ (J) @1KHZ
- 3) LEAKAGE : Max 0.04 CV +3 μ A AFTER CHARGE 5 MINUTES
- 4) TEMP. RANGE : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
- 5) SURGE VOLT : 63V-FOR 50WV., 125V FOR 100WV
- 6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :
 - (a) CAPACITANCE : WITHIN $\pm 20\%$ OF INITIAL VALUE
 - (b) D.F. : WITHIN 200% OF INITIAL VALUE
 - (c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
- 7) MAX. D.F. : Max 6% @1KHZ , Max 10% @ 2KHZ
- 8) MARKING : BENNIC
BI - POLAR
xxx MFD xxx WV
- 9) SLEEVE STANDARD COLOR : Dark blue
- 10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

SERIES		B06A (AXIAL)		B06R (RADIAL)	
MFD	WV	50WV	100WV	50WV	100WV
1.0		8 x 17	10 x 18	8 x 13	8 x 13
1.5		8 x 17	10 x 18	8 x 13	8 x 13
2.2		8 x 17	10 x 18	8 x 13	8 x 13
2.7		8 x 17	10 x 18	8 x 13	8 x 13
3.3		8 x 17	10 x 18	10 x 15	10 x 15
3.9		10 x 18	10 x 18	10 x 15	10 x 15
4.7		10 x 18	10 x 18	10 x 15	10 x 15
5.6		10 x 18	10 x 18	10 x 15	10 x 15
6.8		10 x 18	12 x 26	10 x 15	10 x 20
7.5		10 x 18	12 x 26	10 x 15	10 x 20
8.2		10 x 18	12 x 26	10 x 15	10 x 20
10		12 x 26	12 x 26	10 x 20	10 x 20
12		12 x 26	12 x 26	10 x 20	10 x 20
15		12 x 26	12 x 26	10 x 20	13 x 21
18		12 x 26	12 x 26	10 x 20	13 x 21
22		12 x 26	12 x 31	10 x 20	13 x 21
27		12 x 26	12 x 31	13 x 21	13 x 21
33		12 x 31	12 x 31	13 x 21	13 x 26
47		12 x 31	13 x 31	13 x 26	16 x 27
56		16 x 34	16 x 34	13 x 26	16 x 27
68		16 x 34	16 x 34	13 x 26	16 x 27
75		16 x 34	16 x 34	13 x 26	16 x 27
82		16 x 34	16 x 34	13 x 26	16 x 27
100		16 x 34	16 x 42	16 x 27	16 x 36
120		16 x 34	16 x 42	16 x 27	16 x 36
150		16 x 34	18 x 42	16 x 27	16 x 36
180		16 x 42	18 x 42	16 x 36	18 x 36
220		18 x 42	22 x 44	18 x 36	22 x 37

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED
 ** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE



"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - B10A & B10R SERIES

1) FIGURE : B10A (AXIAL)



B10R (RADIAL)



LEAD WIRE DIA AT mm, TOL. ±0.05 mm (AXIAL DIA 12Ø LEAD DIA MAYBE 0.6 mm)

CASE DIA	5Ø	6Ø	8Ø	10Ø	12Ø	13Ø	16Ø	18Ø	20Ø	22Ø	25Ø
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.6	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ±0.5 mm

CASE DIA	5Ø	6Ø	8Ø	10Ø	13Ø	16Ø	18Ø	20Ø	22Ø	25Ø
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

- 2) TOL. RANGE : ±20% (M), or±10% (K), or±5% (J) @1KHZ
- 3) LEAKAGE : Max 0.04 CV +3µA AFTER CHARGE 5 MINUTES
- 4) TEMP. RANGE : -40°C TO +85°C (-40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
- 5) SURGE VOLT : 63V-FOR 50WV., 125V FOR 100WV
- 6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER
RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :
(a) CAPACITANCE : WITHIN ±20% OF INITIAL VALUE
(b) D.F. : WITHIN 200% OF INITIAL VALUE
(c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
- 7) MAX. D.F. : Max 10% @1KHZ
- 8) MARKING : BENNIC BI - POLAR xxx MFD xxx WV

9) SLEEVE STANDARD COLOR : Dark blue

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

SERIES MFD \ WV	B10A (AXIAL)		B10R (RADIAL)	
	50WV	100WV	50WV	100WV
1.0	8 x 17	8 x 17	6.3 x 11	8 x 13
1.5	8 x 17	8 x 17	8 x 13	8 x 13
2.2	8 x 17	8 x 17	8 x 13	8 x 13
2.7	8 x 17	8 x 17	8 x 13	8 x 13
3.3	8 x 17	10 x 18	8 x 13	8 x 13
3.9	8 x 17	10 x 18	8 x 13	8 x 13
4.7	8 x 17	10 x 18	8 x 13	8 x 13
5.6	8 x 17	10 x 18	8 x 13	8 x 13
6.8	10 x 18	10 x 18	8 x 13	10 x 15
7.5	10 x 18	10 x 18	8 x 13	10 x 15
8.2	10 x 18	10 x 18	8 x 13	10 x 15
10	10 x 18	10 x 18	10 x 15	10 x 15
12	10 x 18	10 x 18	10 x 15	10 x 20
15	10 x 18	12 x 26	10 x 15	10 x 20
18	10 x 18	12 x 26	10 x 20	10 x 20
22	10 x 18	12 x 26	10 x 20	10 x 20
27	12 x 26	12 x 26	10 x 20	13 x 21
33	12 x 26	12 x 26	10 x 20	13 x 21
47	12 x 31	12 x 31	10 x 20	13 x 26
56	12 x 31	12 x 31	13 x 21	13 x 26
68	12 x 31	13 x 31	13 x 21	13 x 26
75	12 x 31	13 x 31	13 x 21	13 x 26
82	12 x 31	16 x 34	13 x 26	13 x 26
100	12 x 31	16 x 34	13 x 26	16 x 27
120	12 x 31	16 x 34	13 x 26	16 x 27
150	16 x 34	16 x 42	16 x 27	16 x 36
180	16 x 34	16 x 42	16 x 27	16 x 36
220	16 x 34	18 x 42	16 x 27	18 x 36
270	16 x 34	18 x 42	16 x 27	18 x 36
330	16 x 42	22 x 44	16 x 36	18 x 36
390	16 x 42	22 x 44	16 x 36	22 x 37
470	18 x 42	25 x 52	18 x 36	25 x 43
560	22 x 44	25 x 52	22 x 37	25 x 43
680	25 x 46	25 x 56	25 x 38	25 x 48
750	25 x 46	25 x 56	25 x 38	25 x 48
820	25 x 46	25 x 56	25 x 38	25 x 48
1000	25 x 52	25 x 60	25 x 43	25 x 53

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

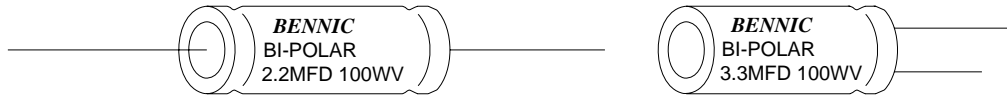
** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE

** AXIAL SIZE 8 x 17 MAYBE 10 x 18



"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - B12A & B12R SERIES

1) FIGURE : **B12A (AXIAL)** **B12R (RADIAL)**



LEAD WIRE DIA AT mm, TOL. ±0.05 mm (AXIAL DIA 12Ø LEAD DIA MAYBE 0.6 mm)

CASE DIA	5Ø	6Ø	8Ø	10Ø	12Ø	13Ø	16Ø	18Ø	20Ø	22Ø	25Ø
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.5	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ±0.5 mm

CASE DIA	5Ø	6Ø	8Ø	10Ø	13Ø	16Ø	18Ø	20Ø	22Ø	25Ø
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

- 2) TOL. RANGE : ±20% (M), or ±10% (K) @ 1KHZ
- 3) LEAKAGE : Max 0.04 CV +3µA AFTER CHARGE 5 MINUTES
- 4) TEMP. RANGE : -40°C TO +85°C (-40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
- 5) SURGE VOLT : 63V-FOR 50WV., 125V FOR 100WV
- 6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER
RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :
(a) CAPACITANCE : WITHIN ±20% OF INITIAL VALUE
(b) D.F. : WITHIN 200% OF INITIAL VALUE
(c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
- 7) MAX. D.F. : Max 12% @1KHZ
- 8) MARKING : BENNIC BI-POLAR xxx MFD xxx WV
- 9) SLEEVE STANDARD COLOR : CASE DIA ≤ 8 Ø Black , CASE DIA ≥10 Ø Dark blue
- 10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

SERIES MFD \ WV	B12A (AXIAL)		B12R (RADIAL)	
	50WV	100WV	50WV	100WV
1.0	6.3 x 16	8 x 17	6.3 x 11	8 x 13
1.5	6.3 x 16	8 x 17	6.3 x 11	8 x 13
2.2	6.3 x 16	8 x 17	6.3 x 11	8 x 13
2.7	6.3 x 16	8 x 17	6.3 x 11	8 x 13
3.3	6.3 x 16	8 x 17	6.3 x 11	8 x 13
3.9	6.3 x 16	8 x 17	6.3 x 11	8 x 13
4.7	8 x 17	8 x 17	8 x 13	8 x 13
5.6	8 x 17	10 x 18	8 x 13	8 x 13
6.8	8 x 17	10 x 18	8 x 13	8 x 13
7.5	8 x 17	10 x 18	8 x 13	10 x 15
8.2	8 x 17	10 x 18	8 x 13	10 x 15
10	10 x 18	10 x 18	8 x 13	10 x 15
12	10 x 18	10 x 18	8 x 13	10 x 15
15	10 x 18	10 x 18	8 x 13	10 x 20
18	10 x 18	12 x 26	10 x 15	10 x 20
22	10 x 18	12 x 26	10 x 15	10 x 20
27	10 x 18	12 x 26	10 x 15	10 x 20
33	10 x 18	12 x 26	10 x 15	13 x 21
47	12 x 26	12 x 31	10 x 20	13 x 26
56	12 x 26	12 x 31	10 x 20	13 x 26
68	12 x 26	13 x 31	10 x 20	13 x 26
75	12 x 31	13 x 31	13 x 21	13 x 26
82	12 x 31	13 x 31	13 x 21	13 x 26
100	12 x 31	16 x 34	13 x 21	16 x 27
120	12 x 31	16 x 34	13 x 26	16 x 27
150	12 x 31	16 x 42	13 x 26	16 x 36
180	16 x 34	16 x 42	16 x 27	16 x 36
220	16 x 34	18 x 42	16 x 27	18 x 36
270	16 x 34	18 x 42	16 x 27	18 x 36
330	16 x 34	22 x 44	16 x 27	18 x 36
390	16 x 42	22 x 44	16 x 36	22 x 37
470	18 x 42	25 x 52	16 x 36	25 x 43
560	18 x 42	25 x 52	16 x 36	25 x 43
680	22 x 44	25 x 56	22 x 37	25 x 48
750	22 x 44	25 x 56	22 x 37	25 x 48
820	25 x 46	25 x 56	25 x 38	25 x 48
1000	25 x 52	25 x 60	25 x 43	25 x 53

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE

** AXIAL SIZE 8 x 17 MAYBE 10 x 18 ** AXIAL SIZE 6.3 x 16 MAYBE 8 x 17

"BENNIC" NON-POLAR ELECTROLYTIC CAPACITORS - B15A & B15S & B15R SERIES

1) **FIGURE** : **B15A(AXIAL)**



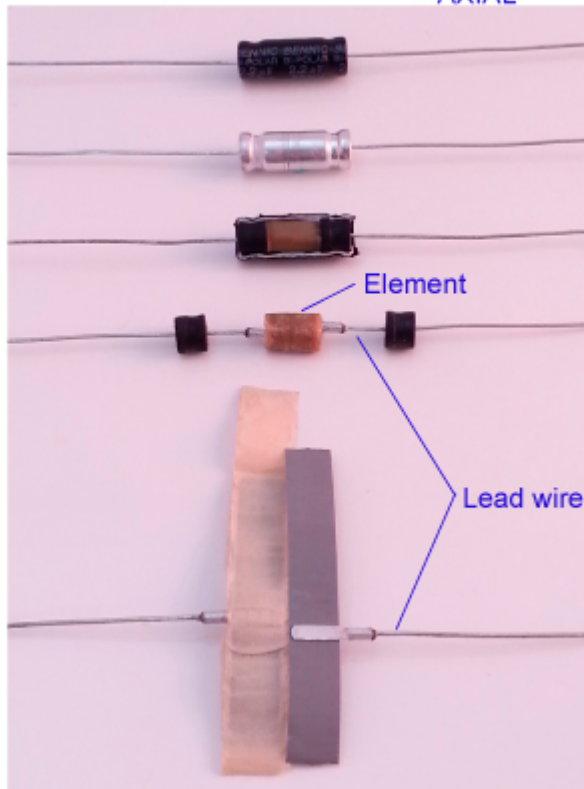
B15S (AXIAL SPOT)



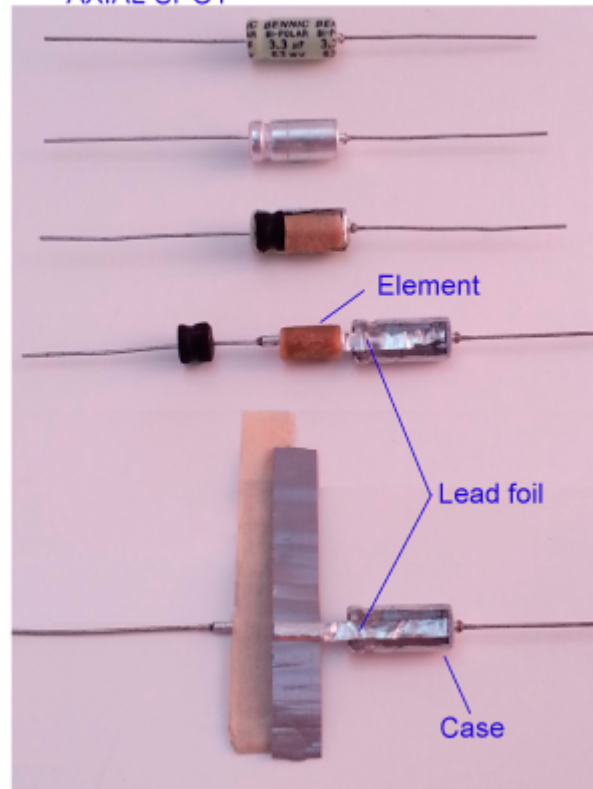
B15R(RADIAL)



Compare Axial with Axial Spot : **AXIAL**



AXIAL SPOT



LEAD WIRE DIA AT mm, TOL. ± 0.05 mm (AXIAL DIA 12 ϕ LEAD DIA MAYBE 0.6 mm)

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	12 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.5	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

- 2) **TOL. RANGE** : $\pm 20\%$ (M), or $\pm 10\%$ (K)
- 3) **LEAKAGE** : Max 0.04 CV + $3\mu A$, B15S Max 0.1CV + $3\mu A$, AFTER CHARGE 5 MINUTES
- 4) **TEMP. RANGE** : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
- 5) **SURGE VOLT** : 32V-FOR 25WV., 63V-FOR 50WV., 125V FOR 100WV
- 6) **LIFE TEST** : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :
 - (a) CAPACITANCE : WITHIN $\pm 20\%$ OF INITIAL VALUE
 - (b) D.F. : WITHIN 200% OF INITIAL VALUE
 - (c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
- 7) **MAX. D.F.** : Max 15% FOR 50V / 100V - @ 1KHZ

8) MARKING : **BENNIC** **BENNIC**
 xxx MFD BI - POLAR (MAYBE USE B P INSTEAD OF BI-POLAR)
 xxx WV xxx uF
 NP or xxx WV

9) SLEEVE STANDARD COLOR : CASE DIA $\leq 8 \text{ } \varnothing$ Black , CASE DIA $\geq 10 \text{ } \varnothing$ Dark blue

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. $\pm 1 \text{ mm}$

SERIES	B15A (AXIAL)		B15S (AXIAL SPOT)		B15R (RADIAL)		
	MFD \ WV	50WV	100WV	50WV	100WV	50WV	100WV
0.47		6.3 x 16	6.3 x 16	6 x 13	6 x 13	5 x 11	6.3 x 11
1.0		6.3 x 16	6.3 x 16	6 x 13	6 x 13	5 x 11	6.3 x 11
1.5		6.3 x 16	6.3 x 16	6 x 13	6 x 13	5 x 11	6.3 x 11
2.2		6.3 x 16	8 x 17	6 x 13	8 x 13	5 x 11	6.3 x 11
2.7		6.3 x 16	8 x 17	6 x 13	8 x 13	5 x 11	6.3 x 11
3.3		6.3 x 16	8 x 17	6 x 13	8 x 13	5 x 11	8 x 13
4.7		6.3 x 16	8 x 17	6 x 13	8 x 13	6.3 x 11	8 x 13
5.6		6.3 x 16	8 x 17	6 x 13	8 x 13	6.3 x 11	8 x 13
6.8		8 x 17	10 x 18	8 x 13	10 x 16	6.3 x 11	8 x 13
8.2		8 x 17	10 x 18	8 x 13	10 x 16	8 x 13	10 x 15
10		8 x 17	10 x 18	8 x 13	10 x 16	8 x 13	10 x 15
15		8 x 17	10 x 25	8 x 13	10 x 21	8 x 13	10 x 20
22		10 x 18	10 x 25	10 x 16	10 x 21	8 x 13	10 x 20
33		10 x 18	12 x 26	10 x 16	13 x 21	10 x 15	13 x 21
47		10 x 25	12 x 26	10 x 21	13 x 21	10 x 15	13 x 21
68		12 x 26	13 x 31	13 x 21	13 x 26	10 x 20	13 x 26
75		12 x 26	13 x 31	13 x 21	13 x 26	10 x 20	13 x 26
82		12 x 26	16 x 34	13 x 21	16 x 32	10 x 20	13 x 26
100		12 x 26	16 x 34	13 x 21	16 x 32	10 x 20	16 x 27
120		12 x 26	16 x 34	13 x 21	16 x 32	10 x 20	16 x 27
150		12 x 26	16 x 42	13 x 21	16 x 42	13 x 21	16 x 36
220		12 x 31	18 x 42	13 x 26	18 x 42	13 x 26	18 x 36
270		13 x 31	18 x 42	13 x 26	18 x 42	13 x 26	18 x 36
330		16 x 34	22 x 44	16 x 32	22 x 43	16 x 27	22 x 37
390		16 x 34	22 x 44	16 x 32	22 x 43	16 x 27	22 x 37
470		16 x 42	25 x 52	16 x 42	22 x 52	16 x 36	25 x 43
560		18 x 42	25 x 52	18 x 42	22 x 52	16 x 36	25 x 43
680		18 x 42	25 x 56	18 x 42	25 x 53	18 x 36	25 x 48
750		22 x 44	25 x 56	22 x 43	25 x 53	22 x 37	25 x 48
820		22 x 44	25 x 56	22 x 43	25 x 53	22 x 37	25 x 48
1000		25 x 46	25 x 60	25 x 43	25 x 53	22 x 37	25 x 53

** ANY SPECIAL VALUES ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

** SIZE MAYE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE

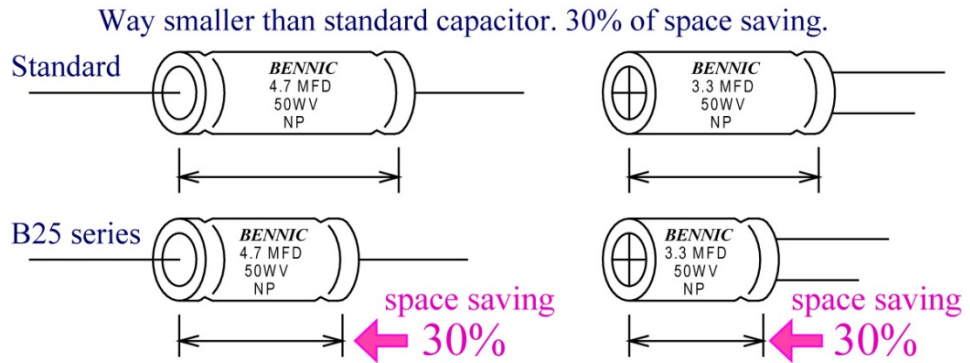
** AXIAL SIZE 8 X 17 MAYBE 10 X 18

** AXIAL SIZE 6.3 x 16 MAYBE 8 X 17

"BENNIC" NON-POLAR ELECTROLYTIC CAPACITORS – B25A & B25R SERIES

(Low profile)

- Feature :**
1. Way smaller than standard capacitor. 30% of space saving.
Low profile. height 7mm for Radial, Length 11mm for Axial NP Elecap.,
 2. Bi-Polar.
 3. Axial type and Radial type



- Application:**
1. Soundbar
 2. Space Limited Car Audio System
 3. Surrounding Speaker System
 4. Computer Motherboard , Sound card



CASE DIA ±0.5 mm	5ø	6.3ø	8ø
AXIAL LEAD WIRE DIA ±0.05 mm	-	0.6	0.6
RADIAL LEAD WIRE DIA ±0.05 mm	0.5	0.5	0.6
RADIAL LEAD PITCH ±0.5 mm	2.0	2.5	3.5

LEAD LENGTH : AXIAL min. 25mm., RADIAL min. 20 mm & 25 mm

- 2) **TOL. RANGE** : ±20% (M) @1KHZ
- 3) **LEAKAGE** : Max 0.04 CV +10µA , AFTER CHARGE 5 MINUTES
- 4) **TEMP. RANGE** : - 40°C TO +85°C
- 5) **SURGE VOLT** : 32V-FOR 25WV., 63V-FOR 50WV
- 6) **LIFE TEST** : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :
 - (a) CAPACITANCE : WITHIN ±20% OF INITIAL VALUE
 - (b) D.F. : WITHIN 200% OF INITIAL VALUE
 - (c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
- 7) **MAX. D.F.** : Max 25% FOR 25V/50V – @ 1KHZ
- 8) **MARKING** : **BENNIC** **BENNIC**
 xxx MFD BI - POLAR (MAYBE USE B P INSTEAD OF BI-POLAR)
 xxx WV xxx uF
 NP or xxx WV
- 9) **SLEEVE STANDARD COLOR** : Black

**10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm**

SERIES		B25A (AXIAL)		B25R (RADIAL)	
MFD	WV	25WV	50WV	25WV	50WV
1.0			6.3 x 11		5 x 7
1.2			6.3 x 11		5 x 7
1.5			6.3 x 11		5 x 7
1.8			6.3 x 11		5 x 7
2.2			6.3 x 11		5 x 7
2.7			6.3 x 11		5 x 7
3.3			6.3 x 11		5 x 7
3.9			6.3 x 11		5 x 7
4.7			6.3 x 11		5 x 7
5.6			6.3 x 11		6.3 x 7
6.8			6.3 x 11		6.3 x 7
7.5			6.3 x 11		6.3 x 7
8.2			6.3 x 11		6.3 x 7
10			6.3 x 11		6.3 x 7
12		6.3 x 11		6.3 x 7	
15		6.3 x 11		6.3 x 7	
18		6.3 x 11		6.3 x 7	
22		6.3 x 11		6.3 x 7	
27		8 x 12		6.3 x 7	
33		8 x 12		6.3 x 7	
39		8 x 12		6.3 x 7	
47		8 x 12		6.3 x 7	

** ANY SPECIAL VALUES ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

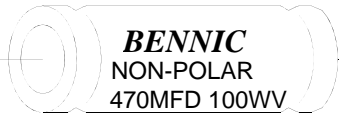
** SIZE MAYE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE



"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - N04A & N04R SERIES

1) FIGURE : N04A (AXIAL)

N04R (RADIAL)

LEAD WIRE DIA AT mm, TOL. ± 0.05 mm (AXIAL DIA 12 ϕ LEAD DIA MAYBE 0.6 mm)

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	12 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.5	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

CASE DIA	5 ϕ	6 ϕ	8 ϕ	10 ϕ	13 ϕ	16 ϕ	18 ϕ	20 ϕ	22 ϕ	25 ϕ
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

- 2) TOL. RANGE : $\pm 20\%$ (M), or $\pm 10\%$ (K), or $\pm 5\%$ (J) @120HZ
 3) LEAKAGE : Max 0.04 CV +3 μ A AFTER CHARGE 5 MINUTES
 4) TEMP. RANGE : -40 $^{\circ}$ C TO +85 $^{\circ}$ C (-40 $^{\circ}$ C TO +105 $^{\circ}$ C ALSO AVAILABLE UPON REQUESTED)
 5) SURGE VOLT : 63V-FOR 50WV., 125V FOR 100WV
 6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25 $^{\circ}$ C. AFTER
 RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85 $^{\circ}$ C :
 (a) CAPACITANCE : WITHIN $\pm 20\%$ OF INITIAL VALUE
 (b) D.F. : WITHIN 200% OF INITIAL VALUE
 (c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
 7) MAX. D.F. : Max 4% @120KHZ
 8) MARKING : BENNIC
 NON - POLAR
 xxx MFD xxx WV

9) SLEEVE STANDARD COLOR : LAWN GREEN

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

SERIES MFD \ WV	N04A (AXIAL)		N04R (RADIAL)	
	50WV	100WV	50WV	100WV
1	8 x 17	8 x 17	6 x 11	8 x 13
1.5	8 x 17	8 x 17	8 x 13	8 x 13
2.2	8 x 17	8 x 17	8 x 13	8 x 13
2.7	8 x 17	8 x 17	8 x 13	8 x 13
3.3	8 x 17	10 x 18	8 x 13	8 x 13
3.9	8 x 17	10 x 18	8 x 13	8 x 13
4.7	8 x 17	10 x 18	8 x 13	8 x 13
5.6	8 x 17	10 x 18	8 x 13	8 x 13
6.8	10 x 18	10 x 18	8 x 13	10 x 15
7.5	10 x 18	10 x 18	8 x 13	10 x 15
8.2	10 x 18	10 x 18	8 x 13	10 x 15
10	10 x 18	10 x 18	10 x 15	10 x 15
12	10 x 18	10 x 18	10 x 15	10 x 20
15	10 x 18	12 x 26	10 x 15	10 x 20
18	10 x 18	12 x 26	10 x 20	10 x 20
22	10 x 18	12 x 26	10 x 20	10 x 20
27	12 x 26	12 x 26	10 x 20	13 x 26
33	12 x 26	12 x 26	10 x 20	13 x 26
47	12 x 31	12 x 31	10 x 20	13 x 26
56	12 x 31	12 x 31	13 x 21	13 x 26
68	12 x 31	13 x 31	13 x 21	13 x 26
75	12 x 31	13 x 31	13 x 21	13 x 26
82	12 x 31	16 x 34	13 x 26	13 x 26
100	12 x 31	16 x 34	13 x 21	16 x 27
120	12 x 31	16 x 34	13 x 26	16 x 27
150	12 x 31	16 x 42	13 x 26	16 x 36
180	13 x 31	16 x 42	13 x 26	16 x 36
220	16 x 34	18 x 42	16 x 27	18 x 36
270	16 x 34	18 x 42	16 x 27	18 x 36
330	16 x 34	22 x 44	16 x 27	22 x 37
390	16 x 42	22 x 44	16 x 36	22 x 37
470	18 x 42	25 x 52	18 x 36	22 x 44
560	18 x 42	25 x 52	18 x 36	22 x 44
680	22 x 44	25 x 56	22 x 37	25 x 48

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

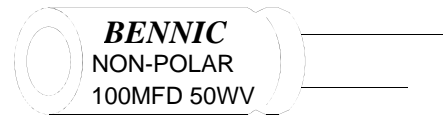
** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE



"BENNIC" BI-POLAR ELECTROLYTIC CAPACITORS - N06A & N06R SERIES

1) FIGURE : N06A (AXIAL)

N06R (RADIAL)

LEAD WIRE DIA AT mm, TOL. ± 0.05 mm (AXIAL DIA 12 \emptyset LEAD DIA MAYBE 0.6 mm)

CASE DIA	5 \emptyset	6 \emptyset	8 \emptyset	10 \emptyset	12 \emptyset	13 \emptyset	16 \emptyset	18 \emptyset	20 \emptyset	22 \emptyset	25 \emptyset
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.5	0.6	-	0.6	0.8	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

CASE DIA	5 \emptyset	6 \emptyset	8 \emptyset	10 \emptyset	13 \emptyset	16 \emptyset	18 \emptyset	20 \emptyset	22 \emptyset	25 \emptyset
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	8.0	10.0	12.5

- 2) TOL. RANGE : $\pm 20\%$ (M), or $\pm 10\%$ (K), or $\pm 5\%$ (J) @120HZ
- 3) LEAKAGE : Max 0.04 CV +3 μ A AFTER CHARGE 5 MINUTES
- 4) TEMP. RANGE : -40 $^{\circ}$ C TO +85 $^{\circ}$ C (-40 $^{\circ}$ C TO +105 $^{\circ}$ C ALSO AVAILABLE UPON REQUESTED)
- 5) SURGE VOLT : 63V-FOR 50WV., 125V FOR 100WV
- 6) LIFE TEST : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25 $^{\circ}$ C. AFTER
RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85 $^{\circ}$ C :
(a) CAPACITANCE : WITHIN $\pm 20\%$ OF INITIAL VALUE
(b) D.F. : WITHIN 200% OF INITIAL VALUE
(c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
- 7) MAX. D.F. : Max 6% @120KHZ
- 8) MARKING : BENNIC
NON - POLAR
xxx MFD xxx WV

9) SLEEVE STANDARD COLOR : LAWN GREEN

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

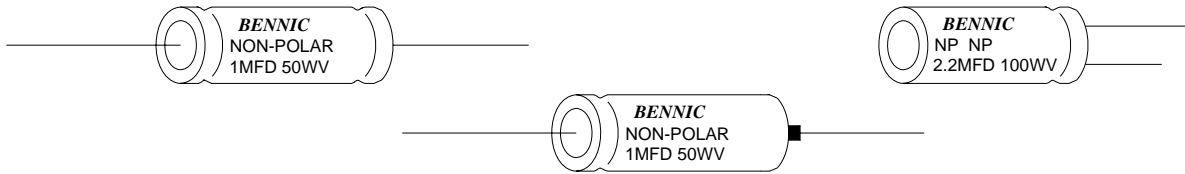
SERIES MFD \ WV	N06A (AXIAL)		N06R (RADIAL)	
	50WV	100WV	50WV	100WV
1	6 x 16	8 x 17	6 x 11	8 x 13
1.5	6 x 16	8 x 17	6 x 11	8 x 13
2.2	6 x 16	8 x 17	6 x 11	8 x 13
2.7	6 x 16	8 x 17	6 x 11	8 x 13
3.3	6 x 16	8 x 17	6 x 11	8 x 13
3.9	6 x 16	8 x 17	6 x 11	8 x 13
4.7	8 x 17	8 x 17	8 x 13	8 x 13
5.6	8 x 17	10 x 18	8 x 13	8 x 13
6.8	8 x 17	10 x 18	8 x 13	8 x 13
7.5	8 x 17	10 x 18	8 x 13	10 x 15
8.2	8 x 17	10 x 18	8 x 13	10 x 15
10	10 x 18	10 x 18	8 x 13	10 x 15
12	10 x 18	10 x 18	8 x 13	10 x 15
15	10 x 18	10 x 18	8 x 13	10 x 20
18	10 x 18	12 x 26	10 x 15	10 x 20
22	10 x 18	12 x 26	10 x 15	10 x 20
27	10 x 18	12 x 26	10 x 15	10 x 20
33	10 x 18	12 x 26	10 x 15	13 x 21
47	12 x 26	12 x 31	10 x 20	13 x 26
56	12 x 26	12 x 31	10 x 20	13 x 26
68	12 x 26	13 x 31	10 x 20	13 x 26
75	12 x 31	13 x 31	13 x 21	13 x 26
82	12 x 31	13 x 31	13 x 21	13 x 26
100	12 x 26	16 x 34	10 x 20	16 x 27
120	12 x 26	16 x 34	13 x 21	16 x 27
150	12 x 26	16 x 42	13 x 21	16 x 36
180	12 x 31	16 x 42	13 x 26	16 x 36
220	13 x 31	18 x 42	13 x 26	18 x 36
270	16 x 34	18 x 42	16 x 27	18 x 36
330	16 x 34	22 x 44	16 x 27	22 x 37
390	16 x 34	22 x 44	16 x 27	22 x 37
470	16 x 42	25 x 52	16 x 36	22 x 44
560	18 x 42	25 x 52	16 x 36	22 x 44
680	20 x 44	25 x 56	18 x 36	25 x 48

** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

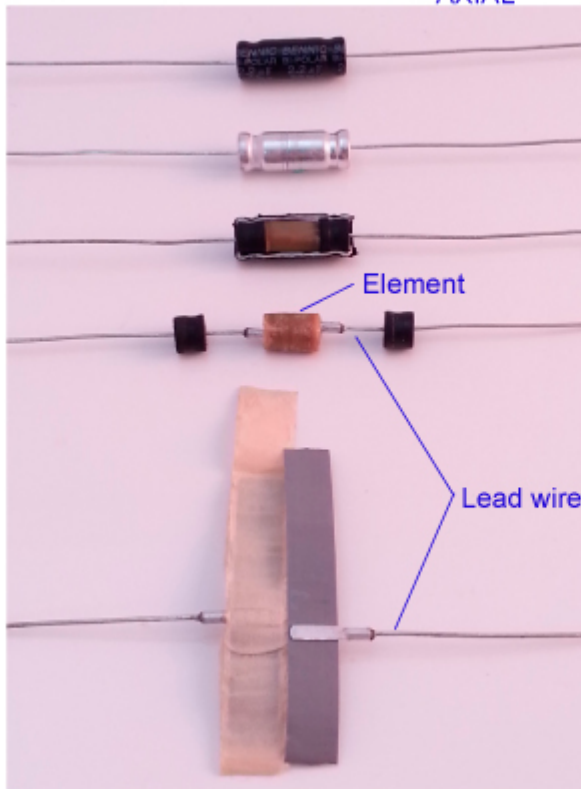
** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE

"BENNIC" NON-POLAR ELECTROLYTIC CAPACITORS – N10A & N10S & N10R SERIES

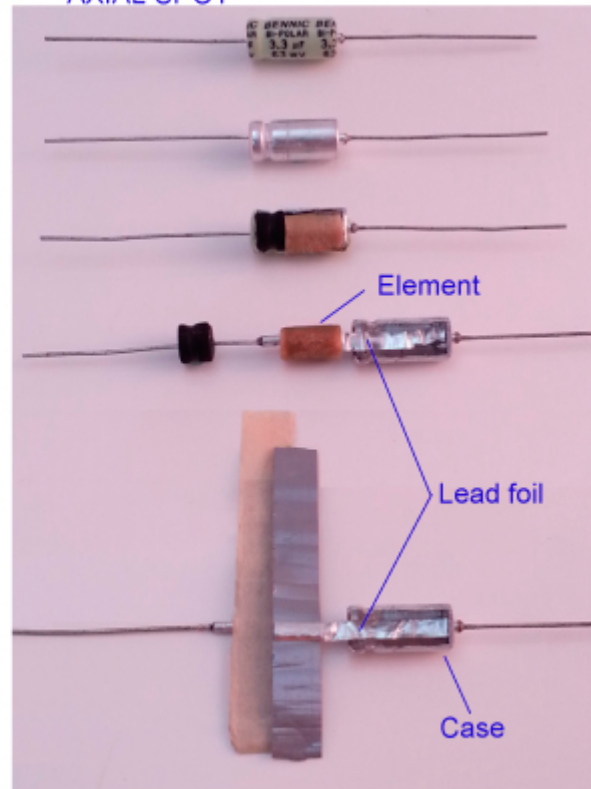
1) **FIGURE** : **N10A (AXIAL)** **N10S (AXIAL SPOT)** **N10R (RADIAL)**



Compare Axial with Axial Spot : **AXIAL**



AXIAL SPOT



LEAD WIRE DIA AT mm, TOL. ±0.05 mm (AXIAL DIA 12Ø LEAD DIA MAYBE 0.6 mm)

CASE DIA	5Ø	6Ø	8Ø	10Ø	12Ø	13Ø	16Ø	18Ø	22Ø	25Ø
AXIAL	-	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8
RADIAL	0.5	0.5	0.6	0.6	-	0.6	0.8	0.8	0.8	0.8

LEAD LENGTH : AXIAL min. 40mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ±0.5 mm

CASE DIA	5Ø	6Ø	8Ø	10Ø	13Ø	16Ø	18Ø	22Ø	25Ø
LEAD PITCH	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	12.5

- 2) **TOL. RANGE** : ±20% (M), or±10% (K) @120HZ
- 3) **LEAKAGE** : Max 0.04 CV +3µA AFTER CHARGE 5 MINUTES
- 4) **TEMP. RANGE** : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
- 5) **SURGE VOLT** : 32V-FOR 25WV., 63V-FOR 50WV., 125V FOR 100WV
- 6) **LIFE TEST** : FOLLOWS DATAS ARE SATISFIED WHEN RETURN TO 25°C. AFTER RATED VOLTAGE APPLIED FOR 1,000 HOURS AT 85°C :
 - (a) CAPACITANCE : WITHIN ±20% OF INITIAL VALUE
 - (b) D.F. : WITHIN 200% OF INITIAL VALUE
 - (c) LEAKAGE CURRENT : WITHIN INITIAL VALUE
- 7) **MAX. D.F.** : Max 15% FOR 25V , 10% FOR 50 / 100V – @ 120HZ

8) MARKING : BENNIC
 NON-POLAR (MAYBE USE N P INSTEAD OF NON-POLAR)
 xxx MFD
 xxx WV

9) SLEEVE STANDARD COLOR : LAWN GREEN

10) CASE SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm, TOL. ± 1 mm

SERIES	N10A (AXIAL)		N10S (AXIAL SPOT)		N10R (RADIAL)		
	MFD \ WV	50WV	100WV	50WV	100WV	50WV	100WV
0.47		6.3 x 16	6.3 x 16	6 x 13	6 x 13	5 x 11	6.3 x 11
1.0		6.3 x 16	6.3 x 16	6 x 13	6 x 13	5 x 11	6.3 x 11
1.5		6.3 x 16	6.3 x 16	6 x 13	6 x 13	5 x 11	6.3 x 11
2.2		6.3 x 16	8 x 17	6 x 13	8 x 13	5 x 11	6.3 x 11
2.7		6.3 x 16	8 x 17	6 x 13	8 x 13	5 x 11	6.3 x 11
3.3		6.3 x 16	8 x 17	6 x 13	8 x 13	5 x 11	8 x 13
4.7		6.3 x 16	8 x 17	6 x 13	8 x 13	6.3 x 11	8 x 13
5.6		6.3 x 16	8 x 17	6 x 13	8 x 13	6.3 x 11	8 x 13
6.8		8 x 17	10 x 18	8 x 13	10 x 16	6.3 x 11	8 x 13
8.2		8 x 17	10 x 18	8 x 13	10 x 16	8 x 13	10 x 15
10		8 x 17	10 x 18	8 x 13	10 x 16	8 x 13	10 x 15
15		8 x 17	10 x 25	8 x 13	10 x 21	8 x 13	10 x 20
22		10 x 18	10 x 25	10 x 16	10 x 21	8 x 13	10 x 20
33		10 x 18	12 x 26	10 x 16	13 x 21	10 x 15	13 x 21
47		10 x 25	12 x 26	10 x 21	13 x 21	10 x 15	13 x 21
68		12 x 26	13 x 31	13 x 21	13 x 26	10 x 20	13 x 26
75		12 x 26	13 x 31	13 x 21	13 x 26	10 x 20	13 x 26
82		12 x 26	16 x 34	13 x 21	16 x 32	10 x 20	13 x 26
100		12 x 26	16 x 34	13 x 21	16 x 32	10 x 20	16 x 27
120		12 x 26	16 x 34	13 x 21	16 x 32	10 x 20	16 x 27
150		12 x 26	16 x 42	13 x 21	16 x 42	13 x 21	16 x 36
220		12 x 31	18 x 42	13 x 26	18 x 42	13 x 26	18 x 36
270		13 x 31	18 x 42	13 x 26	18 x 42	13 x 26	18 x 36
330		16 x 34	22 x 44	16 x 32	22 x 43	16 x 27	22 x 37
390		16 x 34	22 x 44	16 x 32	22 x 43	16 x 27	22 x 37
470		16 x 42	25 x 52	16 x 42	22 x 52	16 x 36	25 x 43
560		18 x 42	25 x 52	18 x 42	22 x 52	16 x 36	25 x 43
680		18 x 42	25 x 56	18 x 42	25 x 53	18 x 36	25 x 48
750		22 x 44	25 x 56	22 x 43	25 x 53	22 x 37	25 x 48
820		22 x 44	25 x 56	22 x 43	25 x 53	22 x 37	25 x 48
1000		25 x 46	25 x 60	25 x 43	25 x 53	22 x 37	25 x 53

** ANY SPECIAL VALUES ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED

** SIZE MAYE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE



BENNIC (METALLIZED) POLYESTER CAPACITORS - GENERAL INFORMATION

GHART A - GENERAL SPECIFICATION

CAPACITANCE	: 0.10 μ F TO 120 μ F
WORKING VOLTAGE	: 100 - 630V
TOLERANCE	: 1% (F), 2.5% (H), 5% (J), 10% (K), OR 20% (M)
DISSIPATION FACTOR	: MAX. 1% (0.01) AT 1KHZ
TEMP. RANGE	: - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
I.R.	: METALLIZED MIN. 10,000 MEGA-OHM

PLEASE SPECIFY DETAILS OF EACH ITEM'S OF YOUR USING/INQUIRY :

- (1) WHICH KIND POLYESTER FILM YOU USE
- (2) CAPACITANCE AND TOLERANCE
- (3) WORKING VOLTAGE, RATED DC OR AC
- (4) LEAD OUT & SHARP (i.e. D.T.F. OR E), ALSO WHAT LEAD SPACE OF RADIAL LEADS OR ANY PHYSICAL SIZE LIMITED
- (5) ANY SPECIAL FINISHING (i.e. TAPPING OR LEAD FORMING)

CHART B - HOW TO ORDER/READ OUR PARTS NUMBER

DIGIT : 1 2 3 4 5 6 7 8 9 0 A B

P / N : B M E T - 2 5 0 K 1 0 5

DIGIT 1 : BRAND : B - *BENNIC* , S - *Souder*

2 / 3 : ME - METALLIZED POLYESTER NON - INDUCTIVE

4 : "T" - MEANS "AXIAL TUBULAR "

"F" - MEANS "AXIAL FLAT"

"D" - MEANS "RADIAL DIPPED"

"E" - MEANS "RADIAL ENCASE"

5 / 6 / 7 : RATED VOLTAGE (* PLS ADDING "AC" - IF AC VOLTAGE), i.e.

100 = 100VDC., 250 = 250VDC., 400 = 400VDC., 1K0 = 1KVDC

8 : RATED CAPACITANCE TOLERANCE., i.e.

F = $\pm 1\%$ H = $\pm 2.5\%$ J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$

9 / 0 / A : RATED CAPACITANCE., i.e.

104 = 0.10 μ F 105 = 1.0 μ F 106 = 10 μ F 107 = 100 μ F

474 = 0.47 μ F 475 = 4.7 μ F 476 = 47 μ F 477 = 470 μ F

B : SUFFIX FOR ANY SPECIAL REQUEST.

PLEASE FEEL FREE TO CONTACT US IN CASE YOU HAVE ANY QUIRES.



METALLIZED POLYESTER FILM CAPACITORS

BMET SERIES (PEMT) (AXIAL TUBULAR)

1) FIGURE



BENNIC
MT 3.9µF 250V 5%

BODY SIZE : SEE BELOWING TABLE., LEAD LENGTH MIN. 40 mm.
LEAD DIA : 0.6ø FOR OD UNDER 8ø. 0.8ø OR 1.0ø FOR OD EXCEED 8ø.
STANDARD COLOR : YELLOW BODY (EPOXY & TAPE), BLACK WORDING.
** CP LEADS (MT,MF,ME,MD).

2) CHARACTERISTICS :

CAP. TOLERANCE : ±10%(K) or ±5%(J) or ±2.5% (H) or ±1%(F).
DISSIPATION FACTOR : Max 0.01 (1.0%) AT 1KHZ.
OPERATION TEMP. : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
CAPACITANCE DRIFT : Max. 2% CYCLED THROUGHT THE OPERATING TEMP. RANGE.
INSULATING RESIS : C ≤ 0.33µF , I.R. ≥ 7500 Mega-Ohm (AT 20 °C, 1min)
C > 0.33µF , I.R ≥ 5000 Mega-Ohm (AT 20 °C, 1min)
LIFE TEST : 150% OF RATED WORKING VOLTAGE AT 85C FOR 1,000 HOURS.
HUMIDITY : CAPS Max. 5% D.F. Max 2% I.R. Min 7,000 Mega-Ohm
UNER R.H. 95%@40°C 1,000 HOURS.
LEAD PULL FORCE : Min. 1.5KGS AT 30 MINUTES , ROOM TEMPERATURE .
LEAD BEND FORCE : NOT BREAK AT 90°C FOR 1 CYCLE.

3) MARKING : BENNIC
MT xxxµF xxxV x%

4) BODY SIZE (DxL) TABLE (FOR STANDARD VALUE) – Unit: mm.



BMET Series (PEMT) MAX. BODY SIZE TABLE (FOR STANDARD VALUE) - UNIT: mm

TOL. L ± 1 mm , D<10mm ± 1 mm , D10~20mm ± 2 mm , D>20mm ± 2.5 mm

Series		BMETxs (Extra Mini Size)	BMETs (Mini size)	BMET			
w v		100VDC	100VDC	100VDC	250VDC	400VDC	630VDC
SYMBOL	μF	D x L	D x L	D x L	D x L	D x L	D x L
103	0.01			5 x 15	5 x 15	5 x 15	5 x 15
153	0.015			5 x 15	5 x 15	5 x 15	5 x 15
223	0.022			5 x 15	5 x 15	5 x 15	5 x 15
333	0.033			5 x 15	5 x 15	5 x 15	5 x 15
473	0.047			5 x 15	5 x 15	5 x 15	5 x 15
683	0.068			5 x 15	5 x 15	8.0 x 15	7.0 x 15
104	0.1			5.5 x 15	5.5 x 15	8.5 x 15	9.5 x 19
154	0.15			5.5 x 15	7 x 15	6.5 x 25	11.2 x 19
224	0.22			6 x 15	8 x 14	7.5 x 25	11 x 25
334	0.33			5.5 x 19	7 x 19	9.5 x 25	13.5 x 25
474	0.47	5.5 x 15	5 x 19	6.5 x 19	8.5 x 19	11.2 x 25	13.5 x 32
684	0.68	6 x 15	5.5 x 19	7.5 x 19	8.5 x 25	13.2 x 25	15.5 x 32
105	1	5.5 x 19	6.5 x 19	9 x 19	9.5 x 25	12.5 x 32	19 x 32
125	1.2	6 x 19	7 x 19	9.5 x 19	10.5 x 25	14 x 32	20.5 x 32
155	1.5	6.5 x 19	7.5 x 19	9 x 25	12 x 25	15.5 x 32	23 x 32
185	1.8	7 x 19	8 x 19	9.5 x 25	12.5 x 25	17 x 32	21.5 x 46
225	2.2	7.5 x 19	7.5 x 25	10.5 x 25	12 x 32	19 x 32	24 x 46
275	2.7	8.5 x 19	8 x 25	11.5 x 25	13.0 x 32	16.5 x 46	26.5 x 46
335	3.3	9 x 19	9 x 25	10.5 x 32	14.0 x 32	18 x 46	29 x 46
395	3.9	9.5 x 19	9.5 x 25	11.5 x 32	15.5 x 32	19.5 x 46	30.5 x 46
475	4.7	10.5 x 19	10.5 x 25	12.5 x 32	16.5 x 32	21.5 x 46	28.5 x 56
565	5.6	11.5 x 19	11.5 x 25	13.5 x 32	18.0 x 32	23.5 x 46	31 x 56
685	6.8	12.5 x 19	12.5 x 25	15 x 32	16 x 46	26 x 46	34 x 56
755	7.5	13.5 x 19	13 x 25	15.5 x 32	17 x 46	24 x 56	36 x 56
825	8.2	11.5 x 25	13.5 x 25	16 x 32	17.5 x 46	25 x 56	37.5 x 56
106	10	12.5 x 25	13 x 32	17.5 x 32	19.5 x 46	28 x 56	41.5 x 56
126	12	14 x 25	14 x 32	15.5 x 46	21.5 x 46	30.5 x 56	41 x 66
156	15	15.5 x 25	15.5 x 32	17.5 x 46	23.5 x 46	34 x 56	46 x 66
186	18	17 x 25	17 x 32	19 x 46	26 x 46	33.5 x 65	44.5 x 81
226	22	16 x 32	15 x 46	21 x 46	28.5 x 46	37 x 65	50 x 81
276	27	17.5 x 32	16.5 x 46	23 x 46	28 x 56	41 x 65	55 x 81
336	33	19.5 x 32	18 x 46	22.5 x 56	31 x 56	45 x 65	60.5 x 81
396	39	21 x 32	19.5 x 46	24.5 x 56	33.5 x 56		
476	47	18 x 46	21.5 x 46	27 x 56	37 x 56		
566	56	19.5 x 46	23.5 x 46	29 x 56	38 x 61		
686	68	21.5 x 46	25.5 x 46	32 x 56	45.0 x 61		
756	75	22.5 x 46	27 x 46	33.5 x 56	44 x 61		
826	82	24 x 46	28 x 46	35 x 56	46 x 61		
107	100	26.5 x 46	28 x 56	39 x 56	48 x 65		
127	120	29 x 46	30.5 x 56	40 x 61	54 x 65		
157	150	32.5 x 46	34 x 56	45 x 61	59 x 65		
207	200	37.5 x 46	39.5 x 56	44 x 81	61 x 81		
257	250	41.5 x 46	44 x 56	50 x 81	68 x 81		

** ANY SPECIAL VALUE AND SIZE ARE ACCEPTABLE UPON DISCUSSION

** SIZE MAYBE CHANGED W/O NOTICE



BMEF Series (PEMF) MAX. BODY SIZE TABLE (FOR STANDARD VALUE) - UNIT: mm

TOL. L ± 1 mm , T/H <10mm ± 1 mm , T/H10~20mm ± 2 mm , T/H>20mm ± 2.5 mm

Series		BMEFxs (Extra Mini Size)	BMEFs (Mini size)	BMEF			
w v		100VDC	100VDC	100VDC	250VDC	400VDC	630VDC
SYMBOL	μF	L x T x H	L x T x H	L x T x H	L x T x H	L x T x H	L x T x H
104	0.1			15x5.0x8.5	15x5.0x8.5	19x5.0x8.5	19x6.0x11.0
154	0.15			15x4.5x7.5	15x4.5x7.5	19x6.0x10.0	19x7.0x13.0
224	0.22			15x5.0x9.0	15x5.0x9.0	19x6.5x12.0	25x7.5x14.0
334	0.33			19x4.5x8.5	19x4.5x8.5	25x7.0x13.0	25x9.0x15.0
474	0.47			19x5.5x9.5	19x5.5x9.5	25x7.0x14.0	31x10.0x14.0
684	0.68			19x4.5x8.5	19x7.0x11	25x10.0x14.0	31x15.0x20.0
105	1	15x3.5x7.5	19x4x7	19x5.5x10	25x7.0x11	25x12.0x16.0	31x17.0x23.0
125	1.2	15x4x8	19x4.5x7.5	19x6x10	25x7.5x11.5	25x14.0x18.0	31x18.0x24.0
155	1.5	15x4.5x8.5	19x5.5x10.5	25x5.5x10.5	32x6.5x11.5	31x15.0x20.0	46x16.5x21.5
185	1.8	15x5x9	19x6.0x11.0	25x6x11	32x7.5x12.5	31x16.0x22.0	46x18.5x23.5
225	2.2	19x4x8	25x6.0x10.0	25x7x12	32x8.5x13.5	31x17.0x24.0	46x20.0x25.0
275	2.7	19x4.5x8.5	25x6.5x10.5	25x7.5x14	32x 9.0x15.5	46x14.0x16.0	46x22.0x27.0
335	3.3	25x4.5x8.5	25x6.5x11.5	32x7.5x12.5	32x10x16.5	46x15.0x18.0	46x25.0x29.0
395	3.9	25x5x9	25x7.0x12.5	32x7.5x14	32x11x17.5	46x15.0x20.0	46x26.0x32.0
475	4.7	25x5.5x9.5	25x7.5x14.0	32x8.5x15	32x12.5x19	46x16.0x22.0	56x22.0x28.0
565	5.6	25x6.5x10.5	25x8.0x14.5	32x9.5x16	46x10.5x17	46x23.0x28.0	56x26.0x32.0
685	6.8	25x7x11	25x9.0x15.5	32x 10.5x17.0	46x12.0x18.5	46x25.0x30.0	56x30.0x34.0
755	7.5	25x7.5x11.5	25x9.5x16.0	32x11x18	46x12.5x19	56x18.0x28.0	56x33.0x36.0
825	8.2	25x8x12	25x10.5x17.0	32x12x18.5	46x13.5x20.0	56x19.0x30.0	56x32.0x42.0
106	10	32x7.5x11.5	32x9.5x16	36x12x18.5	46x13.5x23.5	56x21.0x31.0	56x34.0x44.0
126	12	32x8.5x12.5	32x11x17.5	46x11.5x18	46x15x 25	56x28.0x36.0	61x36.0x44.0
156	15	32x9.5x13.5	32x12.5x19	46x12.5x20.5	46x17.5x27.5	56x30.0x40.0	
186	18	32x10.5x14.5	32x13.5x20.5	46x14x22	46x19.5x29.5	61x30.0x40.0	
226	22	32x11.5x16.5	46x12x18.5	46x15x24.5	46x22x32	61x35.0x44.0	
276	27	32x13x18	46x13.5x20	56 x15.5 x23.5	56x21.5x31.5		
336	33	46x10.5x17	46x15x21.5	56x16.5x26.5	56x24.5x 34		
476	47	46x13x19.5	46x17x27	56x20.5x 30.5	56x30.0x40.0		
566	56			56x23x33	61x29.5x42.5		
686	68			56x25x34.5	61x33.5x46.5		
756	75			61x23.5x33.5	61x35x48.5		
826	82			61x24.5x34	66x35x48		
107	100			61x26x39	66x39.5 x52.5		
127	120			61x29x42			

** ANY SPECIAL VALUE AND SIZE ARE ACCEPTABLE UPON DISCUSSION

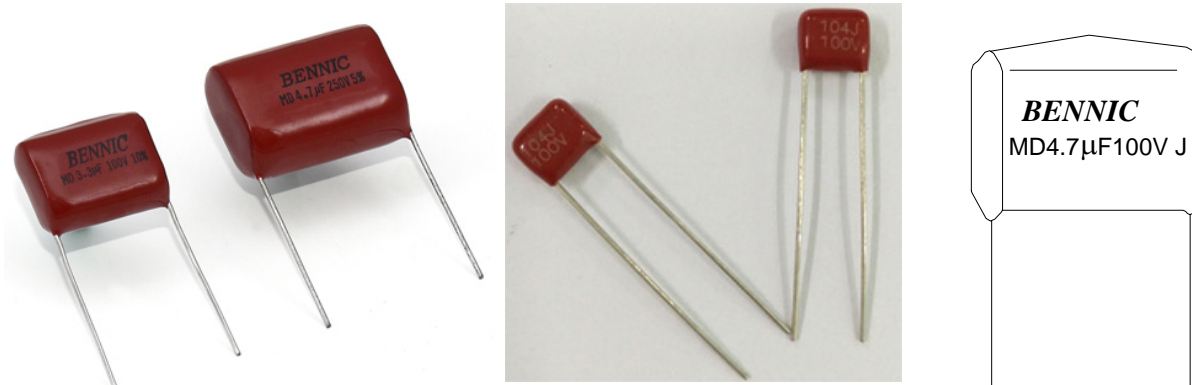
** SIZE MAYBE CHANGED W/O NOTICE



METALLIZED POLYESTER FILM CAPACITORS

BMED SERIES (PEMD) (RADIAL DIPPED)

1) FIGURE



BODY SIZE : SEE BELOWING TABLE., LEAD LENGTH MIN. 25 mm.

STANDARD COLOR : BLUE or BROWN EPOXY DIPPED .

LEAD DIA. & PITCH: (Unit: m/m)

BODY LENGTH	12.5	19.0	24.0	31.0
LEAD PITCH ± 0.1	10.0	15.0	20.0	27.5
LEAD DIA $\pm 0.05 \varnothing$	0.6 \varnothing	0.8 \varnothing	0.8 \varnothing	0.8 \varnothing

** CP LEADS (MT,MF,ME,MD).

2) CHARACTERISTICS :

CAP. TOLERANCE : $\pm 10\%$ (K) or $\pm 5\%$ (J) or $\pm 2.5\%$ (H) or $\pm 1\%$ (F).

DISSIPATION FACTOR : Max 0.01 (1.0%) AT 1KHZ.

OPERATION TEMP. : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)

CAPACITANCE DRIFT : Max. 2% CYCLED THROUGH THE OPERATING TEMP. RANGE.

INSULATING RESIS : $C \leq 0.33\mu\text{F}$, I.R. ≥ 7500 Mega-Ohm (AT 20 °C, 1min)

$C > 0.33\mu\text{F}$, I.R ≥ 5000 Mega-Ohm (AT 20 °C, 1min)

LIFE TEST : 150% OF RATED WORKING VOLTAGE AT 85°C FOR 1,000 HOURS.

HUMIDITY : CAPS Max. 5% D.F. Max 2% I.R. Min 7,000 Mega-Ohm UNER R.H. 95%@40°C 1,000 HOURS.

LEAD PULL FORCE : Min. 1.5KGS AT 30 MINUTES , ROOM TEMPERATURE .

LEAD BEND FORCE : NOT BREAK AT 90°C FOR 1 CYCLE.

3) MARKING

: BENNIC

MD xxxµF xxxV x%

4) BODY SIZE (LxTxH) TABLE (FOR STANDARD VALUE) - UNIT mm.

BMED Series (PEMD) MAX. BODY SIZE TABLE (FOR STANDARD VALUE) - UNIT: mm
 TOL. W/ T/ H ± 1 mm , W/ T/ H 10~20mm ± 2 mm , W/ T/ H >20mm ± 2.5 mm

Series		BMEDs (Mini size)	BMED			
w v		100VDC	100VDC	250VDC	400VDC	630VDC
SYMBOL	μ F	W x T x H	W x T x H	W x T x H	W x T x H	W x T x H
103	0.01		12.5x6.0x8.5	12.5x6.0x8.5	12.5x6.0x8.5	12.5x6.0x8.5
153	0.015		12.5x6.0x8.5	12.5x6.0x8.5	12.5x6.0x8.5	12.5x6.0x8.5
223	0.022		12.5x6.0x8.5	12.5x6.0x8.5	12.5x6.0x8.5	12.5x6.0x9.5
333	0.033		12.5x6.0x8.5	12.5x6.0x8.5	12.5x6.5x9.5	18x6.0x9.5
473	0.047		12.5x6.0x8.5	12.5x6.0x8.5	12.5x6.5x10.5	18x7.0 x10
683	0.068		12.5x6.0x9.5	12.5x6.0x9.5	12.5x7x11.5	18x7.5x11
104	0.1		12.5x5.0x9.5	12.5x5.5x9.5	19x6.5x12.5	19x7.0x17.0
154	0.15		12.5x5.0x9.5	19x5.5x10.5	19x6.5x12.5	19x8.5x14.5
224	0.22		12.5x5.5x9.5	19x8.5x10.5	19x7.5x13.5	25x10.0x16.0
334	0.33		19x5.5x9.5	19x7.0x12.5	25x8.5x13.5	31x10.0x16.0
474	0.47		19x6.0x10.0	19x7.0x15.0	25x8.5x15.0	31x11.0x18.0
684	0.68		19x7.5x12.0	25x8.0x13.0	31x9.0x15.5	
105	1	19x5.5x10.0	19x7.5x14.0	25x8.0x15.0	31x12.0x18.0	
125	1.2	19x6.0x11.0	19x9.5x16.0	25x10.0x17.0	31x14.0x19.0	
155	1.5	19x6.5x12.5	25x7.5x14.5	25x12.0x19.0	31x16.0x21.0	
185	1.8	19x7.0x13.0	25x8.5x15.5	25x13.0x20.0	31x18.0x22.0	
225	2.2	25x7.0x12.0	25x9.0x16.0	31x10.0x18.0	31x20.0x24.0	
275	2.7	25x8.0x13.0	25x10.0x17.0	31x12.0x20.0		
335	3.3	25x8.0x14.0	25x11.0x18.0	31x14.0x22.0		
395	3.9	25x8.5x15.0	31x10.0x16.0	31x16.0x23.0		
475	4.7	25x9.5x16.5	31x11.0x18.0	31x18.0x23.0		
565	5.6	25x10.0x17.0	31x12.0x18.0			
685	6.8	25x11.0x18.5	31x12.0x19.0			
755	7.5	25x11.5x19.0				
825	8.2	25x12.5x20.0				
106	10	25x13.0x20.5				
126	12	25x14.5x21.5				
156	15	31x15.0x22.0				
186	18	31x16.0x23.5				
226	22	31x17.0x25.0				
276	27	31x18.0x26.5				
336	33	31x20.5x30.0				

** ANY SPECIAL VALUE AND SIZE ARE ACCEPTABLE UPON DISCUSSION

** SIZE MAYBE CHANGED W/O NOTICE



BENNIC (METALLIZED) POLYPROPYLENE CAPACITORS - GENERAL INFORMATION

GHART A - GENERAL SPECIFICATION

CAPACITANCE : 0.10 μ F TO 47 μ F
 WORKING VOLTAGE : 100 - 630VDC (63VAC TO 400VAC)
 TOLERANCE : 1% (F), 2.5% (H), 5% (J), 10% (K), OR 20% (M)
 DISSIPATION FACTOR : MAX. 0.1% (0.001) AT 1KHZ
 TEMP. RANGE : - 40°C TO +85°C (- 40°C TO +105°C ALSO AVAILABLE UPON REQUESTED)
 I.R. : METALLIZED MIN. 30,000 MEGA-OHM

PLEASE SPECIFY DETAILS OF EACH ITEM'S OF YOUR USING/INQUIRY :

- (1) WHICH KIND POLYPROPYLENE FILM YOU USE
- (2) CAPACITANCE AND TOLERANCE
- (3) WORKING VOLTAGE, RATED DC OR AC
- (4) LEAD OUT & SHARP (i.e. D.T.F. OR E), ALSO WHAT LEAD SPACE OF RADIAL LEADS OR ANY PHYSICAL SIZE LIMITED
- (5) ANY SPECIAL FINISHING (i.e. TAPPING OR LEAD FORMING)

CHART B - HOW TO ORDER/READ OUR PARTS NUMBER

DIGIT : 1 2 3 4 5 6 7 8 9 0 A B

P/N : B M P T - 2 5 0 K 1 0 5

P/N : X P P - 2 5 0 K 1 0 5

DIGIT 1 : BRAND : B - *BENNIC* , S - *Souder*
 2 / 3 : MP - METALLIZED POLYPROPYLENE NON - INDUCTIVE
 4 : "T" OR EMPTY - MEANS "AXIAL TUBULAR "
 "F" - MEANS "AXIAL FLAT"
 "D" - MEANS "RADIAL DIPPED"
 "E" - MEANS "RADIAL ENCASE"
 5 / 6 / 7 : RATED VOLTAGE (* PLS ADDING "AC" - IF AC VOLTAGE), i.e.
 100 = 100VDC., 250 = 250VDC., 400 = 400VDC., 1K0 = 1KVDC
 ** FOR XPP : 160 = 160VAC / 250VDC., 250 = 250VAC / 400VDC.,
 8 : RATED CAPACITANCE TOLERANCE., i.e.
 F = $\pm 1\%$ H = $\pm 2.5\%$ J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$
 9 / 0 / A : RATED CAPACITANCE., i.e.
 104 = 0.10 μ F 105 = 1.0 μ F 106 = 10 μ F 107 = 100 μ F
 474 = 0.47 μ F 475 = 4.7 μ F 476 = 47 μ F 477 = 470 μ F
 B : SUFFIX FOR ANY SPECIAL REQUEST.

PLEASE FEEL FREE TO CONTACT US IN CASE YOU HAVE ANY QUIRES.

BMPT Series (PPMT) MAX. BODY SIZE (DxL) (Unit: mm)

TOL. L ± 1 mm , D<10mm ± 1 mm , D10~20mm ± 2 mm , D>20mm ± 2.5 mm

SERIES		BMPTs		BMPT									
CAPACITANCE		100VDC (Mini size)		100VDC		250VDC		400VDC (6u)		400VDC (8u)		630VDC	
SYMBOL	MFD	D	L	D	L	D	L	D	L	D	L	D	L
103	0.01			5.3	15	5.3	15	5.3	15	5.3	15	5.3	15
333	0.033			4.9	15	4.9	15	4.9	15	4.8	20	6.4	20
473	0.047			5.6	15	5.6	15	5.6	15	5.4	20	7.4	20
683	0.068			6.5	15	5.6	15	6.5	15	6.2	20	8.7	20
104	0.1	4.2	15	5.5	15	6.5	15	7.6	15	7.3	20	8.8	25
224	0.22	5.3	15	7.5	15	9.1	15	7.9	20	10.3	20	12.5	25
334	0.33	6.2	15	6.7	20	8.1	20	9.5	20	10.3	25	12.7	32
474	0.47	7.1	15	7.8	20	7.9	25	9.3	25	12.1	25	14.9	32
684	0.68	8.4	15	9.1	20	9.3	25	11	25	12.1	32	17.8	32
105	1	6.6	25	7.7	32	9.4	32	11	32	14.5	32	21.4	32
155	1.5	7.8	25	9.2	32	11.3	32	13.4	32	17.6	32	21	46
225	2.2	9.2	25	10.9	32	13.6	32	16.1	32	19.6	36	25.2	46
275	2.7	10	25	12	32	14.9	32	16.4	36	21.6	36	27.9	46
335	3.3	11	25	13.2	32	16.4	32	18	36	20.8	46	30.7	46
395	3.9	11.9	25	14.3	32	17.8	32	19.5	36	22.5	46	29.5	56
475	4.7	11	32	15.6	32	19.4	32	21.5	36	24.6	46	32.3	56
565	5.6	11.9	32	15.7	36	19.5	36	20.3	46	26.8	46	35.2	56
685	6.8	13	32	17.3	36	21.4	36	22.3	46	26.1	56	38.7	56
755	7.5	13.6	32	18.1	36	19.5	46	23.4	46	27.3	56	38.6	61
825	8.2	14.2	32	18.9	36	20.3	46	24.4	46	28.5	56	40.3	61
106	10	15.7	32	18	46	22.4	46	26.8	46	31.4	56	42.4	66
126	12	17.1	32	19.7	46	24.4	46	26	56	32.6	61	46.4	66
156	15	19.1	32	21.9	46	24.3	56	28.9	56	36.4	61	39.6	106
186	18	16.8	46	24	46	26.5	56	31.6	56	39.8	61	43.3	106
226	22	18.5	46	23.5	56	29.2	56	34.9	56	43.9	61	47.8	106
276	27	20.6	46	26	56	30.6	61	38.6	56	46.4	66	52.9	106
336	33	20.4	56	28.6	56	33.8	61	40.4	61	45.5	81		
396	39	22.1	56	29.5	61	36.7	61	43.9	61	49.4	81		
476	47	24.1	56	32.3	61	40.2	61	45.9	66	50.7	91		
566	56	26.2	56	35.2	61	43.8	61						
686	68	28.8	56	38.7	61	46	66						
756	75	30.2	56	40.6	61	48.3	66						
826	82	30	61	42.4	61	48.3	71						
107	100	33	61	44.7	66	49.4	81						
127	120	36.1	61	48.9	66	48.9	66						
157	150	40.3	61	42.5	81	42.5	81						
187	180	44	61	46.5	81	46.5	81						

** ANY SPECIAL VALUE AND SIZE ARE ACCEPTABLE UPON DISCUSSION

** SIZE MAYBE CHANGED W/O NOTICE



XPP Series MAX. BODY SIZE (DxL) (Unit: mm)

TOL. L ± 1 mm , D<10mm ± 1 mm , D10~20mm ± 2 mm , D>20mm ± 2.5 mm

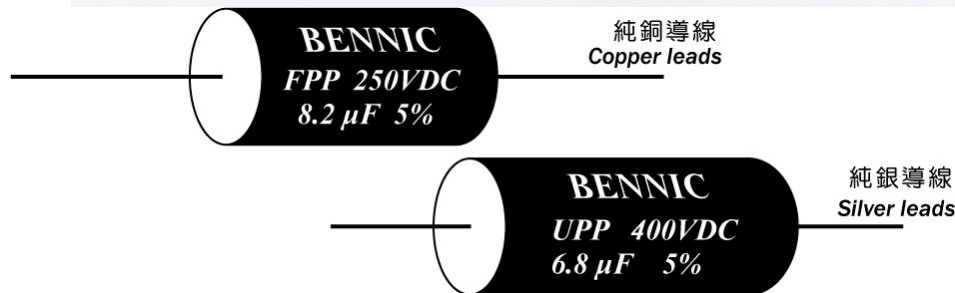
SERIES		XPP									
CAPACITANCE		100VDC		250VDC		400VDC (6u)		400VDC (8u)		630VDC	
SYMBOL	MFD	D	L	D	L	D	L	D	L	D	L
103	0.01	5.3	15	5.3	15	5.3	15	5.3	15	5.3	15
333	0.033	4.9	15	4.9	15	4.9	15	4.8	20	6.4	20
473	0.047	5.6	15	5.6	15	5.6	15	5.4	20	7.4	20
683	0.068	6.5	15	5.6	15	6.5	15	6.2	20	8.7	20
104	0.1	5.5	15	6.5	15	7.6	15	7.3	20	8.8	25
224	0.22	7.5	15	9.1	15	7.9	20	10.3	20	12.5	25
334	0.33	6.7	20	8.1	20	9.5	20	10.3	25	12.7	32
474	0.47	7.8	20	7.9	25	9.3	25	12.1	25	14.9	32
684	0.68	9.1	20	9.3	25	11	25	12.1	32	17.8	32
105	1	7.7	32	9.4	32	11	32	14.5	32	21.4	32
155	1.5	9.2	32	11.3	32	13.4	32	17.6	32	21	46
225	2.2	10.9	32	13.6	32	16.1	32	19.6	36	25.2	46
275	2.7	12	32	14.9	32	16.4	36	21.6	36	27.9	46
335	3.3	13.2	32	16.4	32	18	36	20.8	46	30.7	46
395	3.9	14.3	32	17.8	32	19.5	36	22.5	46	29.5	56
475	4.7	15.6	32	19.4	32	21.5	36	24.6	46	32.3	56
565	5.6	15.7	36	19.5	36	20.3	46	26.8	46	35.2	56
685	6.8	17.3	36	21.4	36	22.3	46	26.1	56	38.7	56
755	7.5	18.1	36	19.5	46	23.4	46	27.3	56	38.6	61
825	8.2	18.9	36	20.3	46	24.4	46	28.5	56	40.3	61
106	10	18	46	22.4	46	26.8	46	31.4	56	42.4	66
126	12	19.7	46	24.4	46	26	56	32.6	61	46.4	66
156	15	21.9	46	24.3	56	28.9	56	36.4	61	39.6	106
186	18	24	46	26.5	56	31.6	56	39.8	61	43.3	106
226	22	23.5	56	29.2	56	34.9	56	43.9	61	47.8	106
276	27	26	56	30.6	61	38.6	56	46.4	66	52.9	106
336	33	28.6	56	33.8	61	40.4	61	45.5	81		
396	39	29.5	61	36.7	61	43.9	61	49.4	81		
476	47	32.3	61	40.2	61	45.9	66	50.7	91		
566	56	35.2	61	43.8	61						
686	68	38.7	61	46	66						
756	75	40.6	61	48.3	66						
826	82	42.4	61	48.3	71						
107	100	44.7	66	49.4	81						
127	120	48.9	66	48.9	66						
157	150	42.5	81	42.5	81						
187	180	46.5	81	46.5	81						

** ANY SPECIAL VALUE AND SIZE ARE ACCEPTABLE UPON DISCUSSION

** SIZE MAYBE CHANGED W/O NOTICE

METALLIZED POLYPROPYLENE FILM CAPACITORS
FPP SERIES (Pure Copper leads)

UPP SERIES (Pure Silver leads)

1) FIGURE :


BODY SIZE : SEE BELOWING BODY SIZE TABLE.,
 FPP Series LEAD LENGTH MIN. 30 mm.
 UPP Series FOR OD under 30 ϕ LEAD LENGTH MIN. 20 mm.
 UPP Series FOR OD 30~50 ϕ LEAD LENGTH MIN. 30 mm.
 UPP Series FOR OD exceed 50 ϕ LEAD LENGTH MIN. 40 mm.

LEAD DIA. : FPP Series- 0.8 ϕ FOR OD under 19 ϕ .. 1.0 ϕ FOR OD EXCEED 19 ϕ
 UPP Series- 1.0 ϕ

COLOR : BLACK TAPE, WHITE BODY, WHITE WORDING.
 (UL FLAME RETARDANT BODY RESIN)

2) CHARACTERISTICS :

CAP. TOLERANCE : $\pm 10\%$ (K) or $\pm 5\%$ (J) or $\pm 2.5\%$ (H) or $\pm 1\%$ (F).
DISSIPATION FACTOR: Max 0.0006 (0.06%) AT 1KHZ.
OPERATION TEMP. : - 40 °C TO +105 °C
CAPACITANCE DRIFT : Max. 2% CYCLED THROUGH THE OPERATING TEMP. RANGE.
INSULATING RESIS : C $\leq 0.33\mu\text{F}$, I.R. ≥ 7500 Mega-Ohm (AT 20 °C, 1min)
 C $> 0.33\mu\text{F}$, I.R. ≥ 5000 Mega-Ohm (AT 20 °C, 1min)
LIFE TEST : 150% OF RATED WORKING VOLTAGE AT 105 °C FOR 1,000 HOURS.
HUMIDITY : CAPS Max. 5% D.F. Max 2% I.R. Min 70% UNER R.H. 95% @40 °C 1,000 HOURS.
LEAD PULL FORCE : Min. 1.5KGS AT 30 MINUTES , ROOM TEMPERATURE .
LEAD BEND FORCE : NOT BREAK AT 90° FOR 1 CYCLE.

3) MARKING :

 BENNIC
 FPP xxxVDC
 xxx μF x%

 BENNIC
 UPP xxxVDC
 xxx μF x%

4) BODY SIZE (DxL Unit: mm)

FPP SERIES UPP SERIES MAX. BODY SIZE (DxL) (Unit: mm).

TOL. L ± 1 mm , D<10mm ± 1 mm , D10~20mm ± 2 mm , D>20mm ± 2.5 mm

SYMBOL	W V	100VDC		250VDC		400VDC		630VDC	
	MDF	D	L	D	L	D	L	D	L
104	0.1	6.5	15	6.5	15	5.8	20	10.4	20
154	0.15	6.4	15	7.7	15	6.8	20	12.5	20
224	0.22	5.7	20	6.8	20	7.9	20	15	20
334	0.33	6.7	20	8.1	20	9.5	20	15	25
474	0.47	7.8	20	9.5	20	11.2	20	17.8	25
684	0.68	9.1	20	11.2	20	11	25	17.7	32
824	0.82	9.9	20	12.2	20	12	25	19.4	32
105	1	9.1	25	11.1	25	11	32	21.3	32
125	1.2	9.9	25	12.1	25	12	32	23.3	32
135	1.3	10.2	25	12.6	25	12.5	32	22.4	36
155	1.5	10.9	25	13.4	25	13.3	32	24	36
185	1.8	11.9	25	14.6	25	14.5	32	26.2	36
205	2	12.5	25	12.9	32	15.3	32	23.6	46
225	2.2	13	25	13.5	32	16	32	24.7	46
255	2.5	13.9	25	14.4	32	17.1	32	26.3	46
275	2.7	14.5	25	14.9	32	17.7	32	27.4	46
305	3	15.2	25	15.7	32	18.6	32	28.8	46
335	3.3	13.3	32	16.4	32	19.5	32	30.2	46
395	3.9	14.4	32	17.8	32	19.5	36	32.8	46
405	4	14.5	32	18	32	19.8	36	33.2	46
435	4.3	15.1	32	18.6	32	20.5	36	34.4	46
475	4.7	15.7	32	19.4	32	21.4	36	35.9	46
505	5	16.2	32	20	32	22	36	37	46
565	5.6	17.4	32	19.9	36	23.7	36	35.1	56
605	6	18	32	20.5	36	24.5	36	36.3	56
635	6.3	18.4	32	21	36	25.1	36	37.2	56
685	6.8	19.1	32	21.8	36	22.1	46	38.6	56
685	6.8	19.1	32	21.8	36	22.1	46	38.6	56
755	7.5	20	32	19.5	46	23.2	46	38.5	61
805	8	20.7	32	20.1	46	24	46	39.7	61
825	8.2	20.9	32	20.3	46	24.2	46	40.2	61
106	10	21.2	36	22.4	46	26.7	46	42.3	66
126	12	23.1	36	24.4	46	29.2	46	46.3	66
146	14	24.9	36	26.3	46	31.5	46		
156	15	22.1	46	27.4	46	28.9	56		
186	18	24.1	46	29.9	46	31.6	56		
206	20	25.4	46	27.9	56	33.3	56		
226	22	26.5	46	29.2	56	34.9	56		
256	25	28.2	46	31.1	56	37.1	56		
276	27	29.3	46	32.3	56	38.6	56		
336	33	28.6	56	35.6	56	38.6	66		
356	35	29.5	56	36.6	56	39.7	66		
396	39	31	56	38.6	56	41.9	66		
476	47	34	56	42.3	56	45.9	66		
566	56	37	56	46.1	56	44.4	81		
686	68	40.7	56	46	66	48.9	81		
756	75	42.8	56	48.3	66				
826	82	44.7	56	48.3	71				
107	100	44.7	66	49.4	81				
187	180	46.5	81	47	81				

** ANY SPECIAL VALUE AND SIZE ARE ACCEPTABLE UPON DISCUSSION

** SIZE MAYBE CHANGED W/O NOTICE