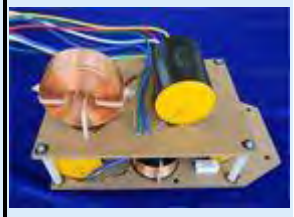
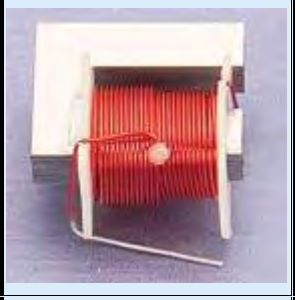
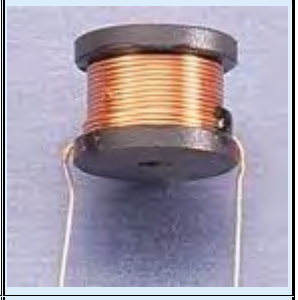
CUSTOM DESIGN ONLY (ALL TYPE)

| 1 | 2 | 3 | 4 |
|---|---|---|---|
|  |  |  |  |
| 5 | 6 | 7 | 8 |
|  |  |  |  |
| 9 | 10 | 14 | 15 |
|  |  |  |  |
| 16 | 17 | 18 | |
|  |  |  | |

CUSTOM SPECIFICATION ONLY

| 1 | 2 | 3 | 4 |
|---|---|---|---|
|  |  |  |  |
| 5 | 6 | 7 | 8 |
|  |  |  |  |
| 9 | 10 | 11 | 12 |
|  |  |  |  |
| 13 | 14 | 15 | 16 |
|  |  |  |  |

# Metallized Polypropylene Film Capacitor
# For Power Factor Correction and Running Motors

NO.E326474

CQC PRODUCT CERTIFICATE

**PPAF series**

**FEATURE:**

1. For Power Factor Correction and Running Motors
2. Used in Motors Electric Fans. Ventilator Fans .Fluorescent Lamps. Mercury Lamps.Pump. Air Conditioners,Washing Machines.and so on.
3. This is constructed with Zn/A1 metalized polypropylene film as medium and electricode,flame retardant plastic case enclosure and flame retardant resin endfill.With low disspation factor, low in herent temperature rise, good capacitance stability,excellent soft-healing property and excellent safely and reliability.

**ELECTRICAL SPECIFICATION:**

| | |
|---|---|
| Reference Standard: | E 326474 |
| Climatic Category: | 25/70/21 |
| Operating temperature range: | -25°C to 70°C or -40°C to 85°C |
| Rated working voltage range: | 250V.AC ~ 450V.AC |
| Capacitance tolerance: | ±5%(J), ±10%(K) |

| | |
|---|---|
| Hertz: | 50/60Hz |
| Withstand voltage: | (a)Between terminals:Rated voltage x 175%<br>(b)Between terminals and case:Rated voltage x 2+1000V 60 sec. |
| Insulation resistance: | (a)Between terminals: ≥ 1000MΩ . μF(at+20 ºC )<br>(b)Between terminals and case: ≥ 2000MΩ. μF(at+20 ºC ) |
| Dissipation factor (tand): | below 0.1% |

**Construction:**

1. Dielectic: Metallized Polypropylene Film .
2. plastic case: Square shape . box made of solvent resistant material UL94V-O .
3. Sealed material: Black epoxy resin UL94-VO .
4. Leads way: Diverse, Regards the user request to decide .

**BODY SIZE (LxTxH) (Unit: m/m)**

| μF ¥ WV | 250WV.AC | 350WV.AC | 400WV.AC | 450WV.AC |
|---|---|---|---|---|
| 1 | 32x11x20 | 32x11x20 | 32x12x22 | 38x13x22 |
| 1.5 | 32x11x20 | 32x13x23 | 38x14x23 | 37x15x26 |
| 2 | 32x11x20 | 38x13x22 | 38x15x25 | 38x16x26 |
| 2.5 | 32x12x22 | 38x14x23 | 38x17x26 | 38x19x30 |
| 3 | 32x13x23 | 38x16x26 | 38x18x28 | 49x20x30 |
| 3.5 | 38x13x22 | 38x16x26 | 38x19x30 | 49x20x30 |
| 4 | 38x13x22 | 38x18x28 | 49x20x30 | 49x20x30 |
| 4.5 | 38x15x26 | 38x19x30 | 49x20x30 | 50x22x32 |
| 5 | 38x15x26 | 49x20x30 | 49x20x30 | 50x22x32 |
| 5.5 | 38x16x26 | 49x20x30 | 50x22x32 | 48x26x37 |
| 6 | 38x16x26 | 49x20x30 | 50x22x32 | 48x26x37 |
| 8 | 38x18x28 | 50x22x32 | 48x26x37 | 51x30x40 |
| 10 | 49x20x30 | 50x28x38 | 51x30x40 | |

| | | | | |
|---|---|---|---|---|
| 12 | 49x20x30 | 51x30x40 | | |
| 14 | 49x20x30 | 51x30x40 | | |
| 16 | 50x22x32 | | | |

* This dimension is able to be alter to be alter without notice .

* Any special value are acceptable, its size to be provided upon requested.

**TYPE**

| | |
|---|---|
| BNM: | Square, copper wire |
| BLM: | Square, lead wire |
| BLT: | Square, lead wire, metal strip |
| BLL: | Square, lead wire, plastic bracket |
| BTM: | Square, soldering terminals |
| BTM(T187 or T250): | Square, faston #187o r#250 terminals |
| BTT: | Square, soldering terminals, metal strip |
| BTT(T187or T250): | Square, faston #187 o r#250 terminals, metal strip |
| BTL: | Square, soldering terminals, plastic bracket |
| BTL(T187or T250): | Square, faston #187or #250 terminals, plastic bracket |
| BUM(T187or U250): | Square, faston U187or U250 terminals |
| BUT(T187or U250): | Square, faston U187or U250 terminals, metal strip |
| BUL(T187or U250): | Square, faston U187or U250 terminals, plastic bracket |


BNM
BLM
BLT
BLL
BTM
BTM(T187)
BTM(T250)
W
H
BTT
BTT(T187)
BTT(T250)
BTL
BTL(T187)
BTL(T250)
BUT(U187)
BUT(U250)
BUL(U187)
BUL(U250)

## PPAT series

**FEATURE:**

1. For Power Factor Correction and Running Motors.
2. Used in Motors Electric Fans. Ventilator Fans .Fluorescent Lamps. Mercury Lamps、Pump, Air Conditioners, Washing Machines. and so on.
3. This is constructed with Zn/A1 metalized polypropylene film as medium and electricode, flame retardant aluminum case or plastic case enclosure and flame retardant resin endfill. With low disspation factor, low in herent temperature rise, good capacitance stability,excellent soft-healing property and excellent safely and reliability.

**ELECTRICAL SPECIFICATION**

| | |
|---|---|
| Reference Standard: | E 326474 |
| Climatic Category: | 25/70/21 |
| Operating temperature range: | -25ºC to 70ºC or -40ºC to 85ºC |
| Rated working voltage range: | 250V.AC ~ 450V.AC |
| Capacitance tolerance: | ±5%(J), ±10%(K) |
| Hertz: | 50/60Hz |
| Withstand voltage: | (a) Between terminals: Rated voltage x 175%<br>(b) Between terminals and case: Rated voltage x 2+1000V 60 sec. |
| | |

| | |
|---|---|
| Insulation resistance: | (a) Between terminals: ≥ 1000MΩ . μF(at+20 ºC )<br>(b) Between terminals and case: ≥ 2000MΩ. μF(at+20 ºC ) |
| Dissipation factor (tand): | below 0.1% |

**Construction:**

1. Dielectic: Metallized Polypropylene Film .
2. Case Material: Aluminum case or Plastic case .
3. Sealed material: Black epoxy resin UL94-VO .
4. Leads way: Diverse, Regards the user request to decide.

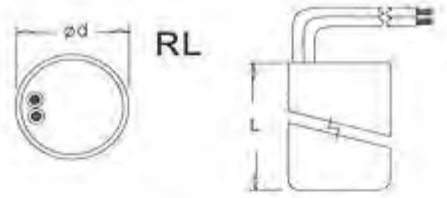
**BODY SIZE (DxL ) (Unit: m/m)**

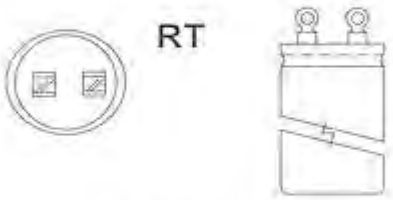
| μF ¥ WV | 250WV.AC | 350WV.AC | 400WV.AC | 450WV.AC |
|---|---|---|---|---|
| 2 | 22x44 | 25x40 | 25x40 | 25x40 |
| 3 | 22x44 | 25x40 | 25x50 | 30x45 |
| 3.5 | 25x40 | 25x40 | 25x50 | 30x45 |
| 4 | 25x40 | 25x40 | 25x50 | 25x50 |
| 4.5 | 25x40 | 25x40 | 25x50 | 33x55 |
| 5 | 25x40 | 25x50 | 25x60 | 33x55 |
| 6 | 25x40 | 25x50 | 25x60 | 33x55 |
| 7 | 25x40 | 25x60 | 25x60 | 33x55 |
| 8 | 25x40 | 25x60 | 30x60 | 45x60 |
| 9 | 25x50 | 30x60 | 30x60 | 35x62 |
| 10 | 25x50 | 30x60 | 30x60 | 35x62 |
| 12 | 25x50 | 30x60 | 40x62 | 40x62 |
| 13 | 25x50 | 35x62 | 40x62 | 40x62 |
| 14 | 25x60 | 35x62 | 40x62 | 40x62 |
| 15 | 25x60 | 35x62 | 40x62 | 45x60 |
| 16 | 25x60 | 35x62 | 40x62 | 45x60 |

| | | | | |
|---|---|---|---|---|
| 17 | 25x60 | 35x62 | 40x62 | 45x60 |
| 18 | 25x60 | 40x62 | 40x62 | 46x60 |
| 19 | 30x60 | 40x62 | 43x75 | 46x60 |
| 20 | 30x60 | 40x62 | 43x75 | 46x85 |
| 21 | 30x60 | 40x62 | 46x60 | |
| 25 | 30x60 | 43x75 | 46x60 | |
| 30 | 45x60 | 43x75 | 46x85 | |
| 35 | 45x60 | 46x85 | 46x85 | |
| 40 | 45x60 | 46x85 | | |
| 50 | 45x60 | | | |
| 60 | 46x85 | | | |

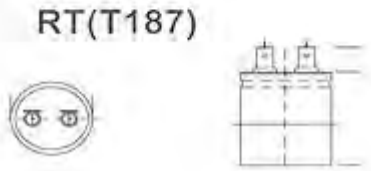
**TYPE:**

| | |
|---|---|
| RL: | Round, lead wire. |
| RT: | Round, soldering terminals. |
| RT(T110 or T187 or T250): | Round, faston #110or #187or #250 terminals. |
| RU(U187orU250): | Round, faston U187or U250 terminals . |
| RT-L: | Round, soldering terminals add lead wire . |


ød
RL
L


RT


RT(T250)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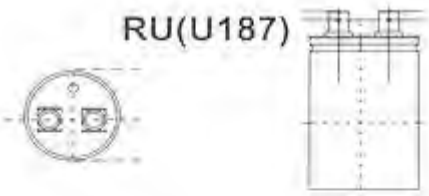
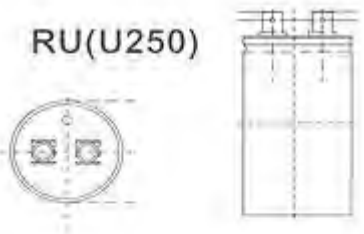
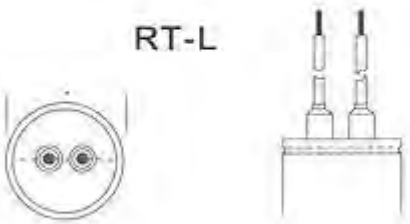

RU(U187)


RU(U250)


RT-L


M8 X 9mm
Screw
( UPON REQUESTED )
底部均可另加M8螺絲

# RELIABLE ACOUSTIC CAPACITORS

*** CO-AXIAL SPEAKER USE ***

*** X-OVER NETWORK USE ***

| BI - POLAR ELECTROLYTIC CAPACITORS | | | | |
|---|---|---|---|---|
| **SERIES** | **MAX. D.F.** | **TYPE** | **RATED WORKING VOLTAGE RANGE (V)** | **CAPACITANCE RANGE ( µF)** |
| P03 | UNDER 18 µF: 12% @ 20KHZ<br>EXCEED 22 µF: 20% @ 20KHZ<br>UNDER 3.3 µF: 4% @ 1KHZ (reference value)<br>UNDER 3.9 µF: 3% @ 1KHZ (reference value) | AXIAL<br>RADIAL | 50 / 100 | 1.0 - 47 |
| B03 | UNDER 47 µF: 10% @ 10KHZ<br>EXCEED 47 µF: 20% @ 10KHZ<br>3% @ 1KHZ (reference value) | AXIAL<br>RADIAL | 100 | 1.0 - 150 |
| B04 | 10% @ 6KHZ<br>4% @ 1KHZ (reference value) | AXIAL<br>RADIAL | 50 / 100 | 1.0 - 220 |
| B05 | 10% @ 3KHZ<br>5% @ 1KHZ (reference value) | AXIAL<br>RADIAL | 50 / 100 | 1.0 - 330 |
| B06 | 10% @ 2KHZ<br>6% @ 1KHZ (reference value) | AXIAL<br>RADIAL | 50 / 100 | 1.0 - 470 |
| B10 | 10% @ 1KHZ | AXIAL<br>RADIAL | 50 / 100 | 1.0 - 680 |
| B12 | 10% @ 600HZ<br>12% @ 1KHZ (reference value) | AXIAL<br>RADIAL | 50 / 100 | 1.0 - 680 |
| B15 | | AXIAL | 25 - 100 | 0.47 - 820 |

| | | | | |
|---|---|---|---|---|
| (N10) | 10% @ 120HZ<br>15% @ 1KHZ (reference value) | RADIAL<br>AXIAL<br>SPOT | | |
| N04 | 4% @ 120HZ | AXIAL<br>RADIAL | 50 / 100 | 1.0 - 680 |
| N06 | 6% @ 120HZ | AXIAL<br>RADIAL | 50 / 100 | 1.0 - 680 |
| N10 | 10% @ 120HZ | AXIAL<br>RADIAL<br>AXIAL<br>SPOT | 25 -100 | 0.47 -1000 |

## LOW LOSS BI-POLAR CAPACITORS
## GENERAL INFORMATION

### CHART. A - GENERAL SPECIFICATION

CAPACITANCE: 0.47 µF - 1,000 µF (ANY VALUE BETWEEN THIS RANGE)

SERIES CAP. RANGE: B03: FROM 1.0 µF TO 150 µF
B04: FROM 1.0 µF TO 220 µF
B05: FROM 1.0 µF TO 330 µF
B06: FROM 1.0 µF TO 470 µF
B10/N04: FROM 1.0 µF TO 680 µF
B12/N06: FROM 1.0 µF TO 680 µF
B15: FROM 0.47 µF TO 820 µF
N10: FROM 0.47 µF TO 1000 µF

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. RANGE: - 40 ºC TO +85 ºC (- 40 ºC TO +105 ºC ALSO AVAILABLE UPON REQUESTED)

LEAKAGE CURRENT: MAX. 0.04CV +3 (UNIT μA) C = CAPACITANCE ( μF)., V=WV (V)

Sleeve Standard color: **Black, Dark blue, Yellow (B03 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
(4) RATED FREQUENCY
(5) MAX. DISSIPATION FACTOR OR MIN. Q VALUE
(6) IF TEMP. RANG NEEDED - 40 ºC TO +105 ºC
(7) IF ANY SPECIAL REQUESTED FOR LEAD FORMED OR PROCESSED, OR OTHERS.

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

| DIGIT: | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 0 | A | B~Z | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P/ N: | B | 0 | 3 | A | - | 1 | 0 | 0 | J | 4 | 7 | 5 | | (4.7 μF / 100V DF 3% @ 1KHZ, AXIAL, TOL. 5%) |
| | N | 1 | 0 | R | - | 0 | 5 | 0 | M | 2 | 2 | 7 | | (220 μF / 50V DF 10% @ 120HZ, AXIAL, TOL. 20%) |
| | P | 0 | 3 | R | - | 1 | 0 | 0 | K | 8 | 2 | 5 | | (8.22 μF / 100V PLAIN FOIL, RADIAL, TOL. 10%) |

DIGIT 1: RATED FREQUENCY B = 1 KHZ, X = 575HZ, Y = 300HZ, N =120HZ
P = 1KHZ TO 20KHZ (MADE BY PLAIN FOILS)

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 075 = 75V 100 = 100V

8: MEANS CAPACITANCE TOLERANCE., i.e.
H = ± 2.5% J= ± 5% K= ± 10% M= ± 20%

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

104 = 0.10 µF, 105 = 1.0 µF, 106 = 10 µF, 107 = 100 µF

474 = 0.47 µF, 475 = 4.7 µF, 476 = 47 µF, 477 = 470 µF

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(B03) 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).

## METALLIZED POLYESTER FILM CAPACITORS

| SERIES | MAX. D.F. | TYPE | RATED WORKING VOLTAGE RANGE (V) | CAPACITANCE RANGE ( µF) |
|---|---|---|---|---|
| MT | 1.0% @ 1KHZ | AXIAL TUBULAR | 100 - 630 | 0.10 - 120 |
| MF | 1.0% @ 1 KHZ | AXIAL FLAT | 100 - 630 | 0.10 - 120 |
| MD | 1.0% @ 1KHZ | RADIAL DIPPED | 100 - 630 | 0.10 - 6.8 |

# METALLIZED POLYESTER CAPACITORS
# GENERAL INFORMATION

## CHART. A - GENERAL SPECIFICATION

CAPACITANCE: 0.10 µF TO 120 µF

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 ºC TO +85 ºC (- 40 ºC TO +105 ºC ALSO AVAILABLE UPON REQUESTED)

INSULATING RESIS: C ≤ 0.33µF, I.R. ≥ 7500 Mega-Ohm (AT 20 ºC, 1min)
C > 0.33µF, I.R ≥ 5000 Mega-Ohm (AT 20 ºC, 1min)

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

(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: | P | E | M | T | - | 2 | 5 | 0 | K | 1 | 0 | 5 | |

DIGIT 1 / 2: PE - POLYESTER CAPACITORS

3: M - 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 = ± 1%, H = ± 2.5%, J = ± 5%, K = ± 10%, M = ± 20%

9 / 0 / A: RATED CAPACITANCE., i.e.
104 = 0.10 µF, 105 = 1.0 µF, 106 = 10 µF, 107 = 100 µF
474 = 0.47 µF, 475 = 4.7 µF, 476 = 47 µF, 477 = 470 µF

B: SUFFIX FOR ANY SPECIAL REQUEST.

**METALLIZED POLYPROPYLENE FILM CAPACITORS**

| SERIES | MAX. D.F. | TYPE | RATED WORKING VOLTAGE RANGE (V) | CAPACITANCE RANGE ( µF) |
|---|---|---|---|---|
| PMT | 0.1% @ 1 KHZ | AXIAL TUBULAR | 250 - 630 | 0.10 - 47 |
| XPP | 0.07% @ 1KHZ | AXIAL TUBULAR | 160VAC-250VAC | 1.0 - 47 |
| FPP UPP | 0.06% @ 1KHZ | AXIAL TUBULAR | 250VDC-630VDC | 0.01 - 82 |

## METALLIZED POLYPROPYLENE CAPACITORS GENERAL INFORMATION

### CHART. A - GENERAL SPECIFICATION

CAPACITANCE: 0.10 µF TO 47 µF

WORKING VOLTAGE: 100 - 630VDC (63VAC TO 400VAC)

TOLERANCE: 1% (F), 2.5% (H), 5% (J), 10% (K), OR 20% (M)

DISSIPATION FACTOR: MAX. 1% (0.01) AT 1KHZ

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

INSULATING RESIS: C ≤ 0.33µF, I.R. ≥ 9000 Mega-Ohm (AT 20 ºC, 1min)

C > 0.33μF,  I.R ≥ 7500 Mega-Ohm (AT 20 ºC, 1min)

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

DIGIT 1 / 2: PP - POLYPROPYLENE CAPACITORS

3: M - 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: 250 = 160VAC / 250VDC., 400 = 250VAC / 400VDC.,

8: RATED CAPACITANCE TOLERANCE., i.e.
F = ± 1%, H = ± 2.5%, J = ± 5%, K = ± 10%, M = ± 20%

9 / 0 / A: RATED CAPACITANCE., i.e.
104 = 0.10 μF, 105 = 1.0 μF, 106 = 10 μF, 107 = 100 μF
474 = 0.47 μF, 475 = 4.7 μF, 476 = 47 μf, 477 = 470 μF

B: SUFFIX FOR ANY SPECIAL REQUEST.

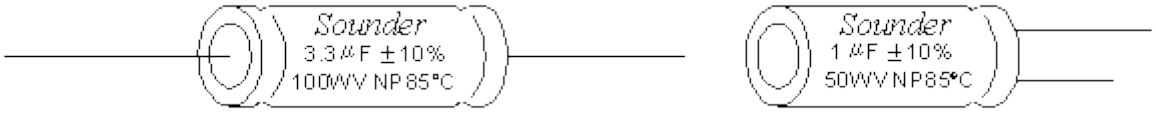
# RELIABLE FILM CAPACITORS

| SERIES | DESCRIPTION | FORM | APPLICATIONS |
|---|---|---|---|
| PEMT | METALLIZED POLYESTER FILM | AXIAL ROUND | COMMERCIAL INDUSTRIAL |
| PEMF | | AXIAL FLAT | |
| PEMD | METALLIZED POLYESTER FILM | RADIAL DIPPED | GENERAL PURPOSE |
| PEME | METALLIZED POLYESTER FILM | RADIAL ENCASE | GENERAL PURPOSE |
| PEMM | METALLIZED POLYESTER FILM | RADIAL ENCASE | SPACE SAVING MINI SIZE |
| PPMT | METALLIZED POLYPROPYLENE FILM | AXIAL ROUND | HIGH FREQUENCY PRECISE VALUES |
| PPMF | | AXIAL FLAT | |
| XPP | | AXIAL ROUND | PROFESSIONAL X-OVER NETWORK |
| FPP | | | HI-END X-OVER NETWORK |
| UPP | | | |
| PPMD | METALLIZED POLYPROPYLENE FILM | RADIAL DIPPED | SWITCHING POWER SUPPLIES |
| PMX1 | METALLIZED POLYPROPYLENE FILM | RADIAL ENCASE | HIGH FREQUENCY CURRENT |
| PMX2 | METALLIZED POLYPROPYLENE FILM | RADIAL ENCASE | MAIN INTERFERENCE SUPPRESSION |
| PMSD | METALLIZED | RADIAL | HIGH AC CURRENT |

| | | | |
|---|---|---|---|
| | POLYPROPYLENE & METAL FOIL FILM | DIPPED | |
| PEID | POLYESTER INDUCTIVE FILM | RADIAL DIPPED | CONSUMER EQUIPMENT |
| PEIM | POLYESTER INDUCTIVE FILM | RADIAL DIPPED | CONSUMER EQUIPMENT MINI SIZE |
| PPNT | POLYPROPYLENE NON-INDUCTIVE FILM | AXIAL ROUND | LOW D.F. HIGH I.R. |
| PPND | | RADIAL DIPPED | LOW D.F. HIGH I.R. |
| PPID | POLYPROPYLENE INDUCTIVE FILM | RADIAL DIPPED | LOW D.F. HIGH I.R. SMALL SIZE |

# SOUNDER
# S05A & S05R SERIES
# BI-POLAR ELECTROLYTIC CAPACITORS

1) FIGURE: S05A (AXIAL ) S05R (RADIAL )




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

| CASE DIA | 8 ø | 10 ø | 12 ø | 13 ø | 16 ø | 18 ø | 20 ø | 22 ø | 25 ø |
|---|---|---|---|---|---|---|---|---|---|
| AXIAL | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| RADIAL | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |

LEAD LENGTH: AXIAL min. 30mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

| CASE DIA | 8 ø | 10 ø | 13 ø | 16 ø | 18 ø | 20 ø | 22 ø | 25 ø |
|---|---|---|---|---|---|---|---|---|
| LEAD PITCH | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 8.0 | 10.0 | 12.5 |

2) CAP. TOL. RANGE: ± 10% (K), or ± 5% (J) @1KHZ

3) LEAKAGE Max 0.04 CV +3 μA AFTER CHARGE 5 MINUTES AT25 ºC

4) TEMP. RANGE: - 40 ºC TO +85 ºC

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

6) MAX. D.F.: Max 5% @1KHZ .

7) MARKING: SOUNDER
xxx μF ± 10%
xxx WV NP 85 ºC

8) Sleeve Standard color: BLACK, DARK BLUE

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

| SERIES | S05A (AXIAL ) | | S05R (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 | 8 x 13 | 10 x 15 |
| 3.3 | 10 x 19 | 10 x 19 | 10 x 13 | 10 x 15 |
| 3.9 | 10 x 19 | 12 x 26 | 10 x 20 | 10 x 20 |
| 4.7 | 10 x 19 | 12 x 26 | 10 x 20 | 10 x 20 |
| 5.6 | 10 x 19 | 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 34 | 18 x 42 | 16 x 27 | 18 x 36 |

| | | | | |
|---|---|---|---|---|
| 150 | 16 x 42 | 22 x 45 | 16 x 36 | 22 x 37 |
| 180 | 18 x 42 | 22 x 45 | 18 x 36 | 22 x 37 |
| 220 | 22 x 45 | 25 x 46 | 22 x 37 | 25 x 38 |
| 270 | | | | |
| 330 | | | | |

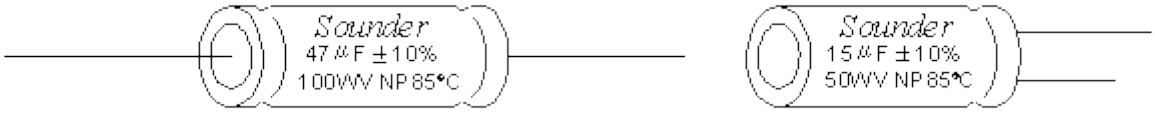
** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED
** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE

**** Case size table 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
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).

# SOUNDER
# S10A & S10R SERIES
# BI-POLAR ELECTROLYTIC CAPACITORS

1) FIGURE: S10A (AXIAL ) S10R (RADIAL )




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

| CASE DIA | 8 ø | 10 ø | 12 ø | 13 ø | 16 ø | 18 ø | 20 ø | 22 ø | 25 ø |
|---|---|---|---|---|---|---|---|---|---|
| AXIAL | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| RADIAL | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |

LEAD LENGTH: AXIAL min. 30mm., RADIAL min. 20 mm & 25 mm

RADIAL LEAD PITCH AT mm TOL. ± 0.5 mm

| CASE DIA | 8 ø | 10 ø | 13 ø | 16 ø | 18 ø | 20 ø | 22 ø | 25 ø |
|---|---|---|---|---|---|---|---|---|
| LEAD PITCH | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 8.0 | 10.0 | 12.5 |

2) CAP. TOL. RANGE: ± 10% (K), or ± 5% (J) @1KHZ

3) LEAKAGE Max 0.04 CV +3 μA AFTER CHARGE 5 MINUTES AT25 °C

4) TEMP. RANGE: - 40 °C TO +85 °C

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

6) MAX. D.F.: Max 10% @1KHZ .

7) MARKING: SOUNDER
xx μF ± 10%
xx WV NP 85 °C

8) Sleeve Standard color: BLACK, DARK BLUE

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

| SERIES | S10A (AXIAL) | | S10R (RADIAL) | |
|---|---|---|---|---|
| MFD ¥ WV | 50 WV (D x L) | 100 WV (D x L) | 50 WV (D x L) | 100 WV (D x L) |
| 1.0 | 8 x 17 | 10 x 19 | 8 x 13 | 10 x 15 |
| 1.5 | 8 x 17 | 10 x 19 | 8 x 13 | 10 x 15 |
| 2.2 | 8 x 17 | 10 x 19 | 8 x 13 | 10 x 15 |
| 2.7 | 8 x 17 | 10 x 19 | 8 x 13 | 10 x 15 |
| 3.3 | 8 x 17 | 10 x 19 | 8 x 13 | 10 x 15 |
| 3.9 | 8 x 17 | 10 x 19 | 8 x 13 | 10 x 15 |
| 4.7 | 8 x 17 | 10 x 19 | 8 x 13 | 10 x 15 |
| 5.6 | 10 x 19 | 10 x 19 | 8 x 13 | 10 x 15 |
| 6.8 | 10 x 19 | 10 x 19 | 8 x 13 | 10 x 15 |
| 7.5 | 10 x 19 | 10 x 19 | 8 x 13 | 10 x 15 |
| 8.2 | 10 x 19 | 10 x 19 | 8 x 13 | 10 x 15 |
| 10 | 10 x 19 | 10 x 19 | 10 x 15 | 10 x 15 |
| 12 | 10 x 19 | 12 x 26 | 10 x 15 | 10 x 20 |
| 15 | 10 x 19 | 12 x 26 | 10 x 15 | 10 x 20 |
| 18 | 10 x 19 | 12 x 26 | 10 x 20 | 10 x 20 |
| 22 | 10 x 19 | 12 x 26 | 10 x 20 | 13 x 21 |
| 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 |
| 39 | 12 x 26 | 12 x 26 | 13 x 21 | 13 x 21 |
| 47 | 12 x 31 | 12 x 31 | 13 x 21 | 13 x 21 |
| 56 | 12 x 31 | 12 x 31 | 13 x 21 | 16 x 27 |
| 68 | 12 x 31 | 13 x 31 | 13 x 21 | 16 x 27 |
| 75 | 12 x 31 | 16 x 34 | 13 x 21 | 16 x 27 |
| 82 | 12 x 31 | 16 x 34 | 13 x 26 | 16 x 27 |

| | | | | |
|---|---|---|---|---|
| 100 | 12 x 31 | 16 x 34 | 13 x 26 | 16 x 27 |
| 120 | 12 x 31 | 16 x 34 | 16 x 27 | 16 x 27 |
| 150 | 16 x 34 | 16 x 42 | 16 x 27 | 16 x 36 |
| 180 | 16 x 34 | 18 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 45 | 16 x 36 | 22 x 37 |
| 390 | 16 x 42 | 22 x 45 | 16 x 36 | 22 x 37 |
| 470 | 18 x 42 | 25 x 52 | 18 x 36 | 25 x 45 |

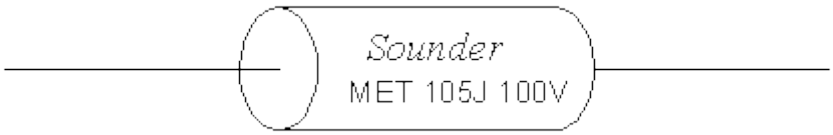
** ANY SPECIAL VALUE ARE ACCEPTABLE, ITS SIZE TO BE PROVIDED UPON REQUESTED
** SIZE MAYBE CHANGED W/O NOTICE., SPECIAL SIZE IS ACCEPTABLE
**AXIAL SIZE MAYBE 10 x 19

**** Case size table 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
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).

# SOUNDER
# MET SERIES (AXIAL TUBULAR)
# METALLIZED POLYESTER FILM CAPACITORS

1) FIGURE:




BODY SIZE: SEE SELOWING TABLE. LEAD LENGTH MIN.30mm

LEAD DIA: 0.6 øFOR OD UNDER 8 ø, 0.8 øOR 1.0 øFOR OD EXCEED 8 ø

2) CAP. TOL. RANGE ± 10% (K), or ± 5% (J) @1KHZ

3) DISSIPATION FACTOR Max 1% @1KHZ .

4) TEMP. RANGE - 40 ºC TO +85 ºC

5) SURGE VOLT 1.25 x RATE VOLTAGE

6) INSULATING RESISTANCE C ≤ 0.33µF, I.R. ≥ 7500 Mega-Ohm (AT 20 ºC, 1min)
C > 0.33µF, I.R ≥ 5000 Mega-Ohm (AT 20 ºC, 1min)

7) MARKING SOUNDER OR SOUNDER
MET xxxJ xxxV MET xxxJ
xxx µF ± 5%

8) MAX. BODY SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm,

| MFD ¥ WV | 100 VDC | 250 VDC | 400 VDC | 630 VDC |
|---|---|---|---|---|
| 0.01 | 5 x 16 | 5 x 16 | 5 x 16 | 5.5 x 16 |
| 0.015 | 5 x 16 | 5 x 16 | 5 x 16 | 6 x 16 |

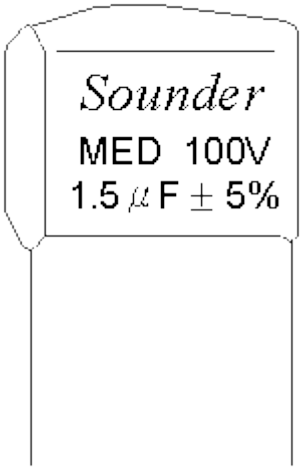
| | | | | |
|---|---|---|---|---|
| 0.022 | 5 x 16 | 5 x 16 | 5 x 16 | 7 x 16 |
| 0.033 | 5 x 16 | 5 x 16 | 5 x 16 | 8 x 16 |
| 0.047 | 5 x 16 | 5 x 16 | 5 x 16 | 9 x 16 |
| 0.068 | 5 x 16 | 5 x 16 | 5 x 16 | 9 x 21 |
| 0.10 | 5 x 16 | 5 x 16 | 8 x 21 | 10 x 21 |
| 0.15 | 5 x 16 | 5.5 x 16 | 9 x 21 | 11 x 26 |
| 0.22 | 5 x 16 | 8.5 x 16 | 9.5 x 21 | 13 x 26 |
| 0.33 | 6 x 16 | 8 x 21 | 10 x 26 | 14 x 31 |
| 0.47 | 6.5 x 16 | 9 x 21 | 12 x 26 | 15 x 31 |
| 0.68 | 8.5 x 21 | 9 x 26 | 12.5 x 31 | 18 x 31 |
| 1.0 | 10 x 26 | 10 x 26 | 15 x 31 | 20.5 x 31 |
| 1.5 | 11 x 26 | 11 x 26 | 18 x 31 | |
| 1.8 | 11 x 26 | 11 x 26 | | |
| 2.2 | 11 x 26 | 11 x 26 | | |
| 3.3 | 13 x 26 | 13 x 26 | | |
| 4.7 | 14 x 31 | 14 x 31 | | |
| 6.8 | 17 x 31 | 17 x 31 | | |
| 10 | 20 x 31 | 20 x 31 | | |

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

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

# SOUNDER
# MED SERIES (RADIAL DIPPED)
# METALLIZED POLYESTER FILM CAPACITORS

1) FIGURE:




BODY SIZE: SEE SELOWING TABLE. LEAD LENGTH MIN.20mm

| BODY LENGTH | 10.0 | 12.5 | 18.0 | 21.0 | 31.0 | 44.0 |
|---|---|---|---|---|---|---|
| LEAD PITCH ± 1.5 | 7.5 | 10.0 | 15.0 | 20.0 | 27.0 | 41.0 |
| LEAD DIA ± 0.05 ø | 0.6 ø | 0.6 ø | 0.8 ø | 0.8 ø | 0.8 ø | 0.8 ø |

2) CAP. TOL. RANGE ± 10% (K), or ± 5% (J) @1KHZ

3) DISSIPATION FACTOR Max 1% @1KHZ .

4) TEMP. RANGE - 40 ºC TO +85 ºC

5) SURGE VOLT 1.25 x RATE VOLTAGE

6) INSULATING RESISTANCE C ≤ 0.33μF, I.R. ≥ 7500 Mega-Ohm (AT 20 ºC, 1min)
C > 0.33μF, I.R ≥ 5000 Mega-Ohm (AT 20 ºC, 1min)

7) MARKING SOUNDER
MED xxxV
xxx μF ± 5%

8) MAX. BODY SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm,

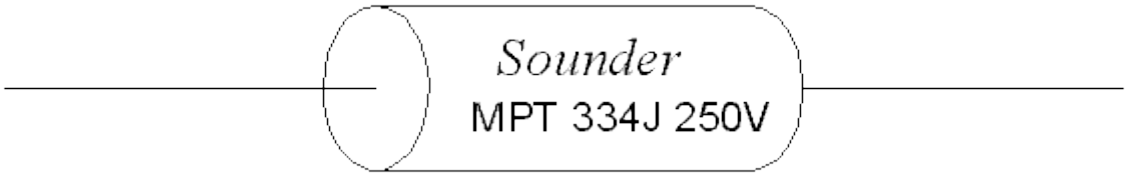
| MFD ¥ WV | 100 VDC<br>L x T x H | 250 VDC<br>L x T x H | 400 VDC<br>L x T x H | 630 VDC<br>L x T x H |
|---|---|---|---|---|
| 0.01 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 6.0 x 10.5 |
| 0.015 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 6.0 x 10.5 |
| 0.022 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 6.5 x 10.5 |
| 0.033 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 6.5 x 11 | 13 x 7.0 x 11.5 |
| 0.047 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 7.0 x 11.5 | 18 x 6.0 x 10 |
| 0.068 | 13 x 5.5 x 10 | 13 x 5.5 x 10 | 13 x 7.5 x 12.5 | 18 x 8.0 x 12 |
| 0.10 | 13 x 5.5 x 15.5 | 13 x 5.5 x 12 | 18 x 6.5 x 11.5 | 18 x 9.5 x 15 |
| 0.15 | 13 x 8.0 x 12.5 | 13 x 6.5 x 12.5 | 18 x 8.0 x 14 | 24 x 9.0 x 14 |
| 0.22 | 13 x 8.0 x 12.5 | 13 x 7.5 x 13.5 | 18 x 9.0 x 15 | 24 x 10.5 x 16.5 |
| 0.33 | 13 x 8.5 x 13 | 18 x 8.0 x 14 | 18 x 10.0 x 16.5 | 31 x 11.0 x 17.5 |
| 0.47 | 13 x 8.5 x 13 | 18.8 x 9.5 x 16 | 24 x 10.5 x 17.5 | 31 x 12.5 x 22.5 |
| 0.68 | 13 x 8.0 x 13.5 | 24 x 9.5 x 14 | 31 x 10.5 x 17.5 | 31 x 14.0 x 23.5 |
| 1.0 | 18 x 9.5 x 16 | 24 x 10.5 x 18 | 31 x 12.0 x 21.5 | 30 x 15.5 x 25.5 |
| 1.5 | 24 x 12 x 19.5 | 31 x 10.5 x 20 | 31 x 14.0 x 24 | |
| 1.8 | 24 x 13 x 21 | 31 x 16 x 23 | | |
| 2.2 | 24 x 13 x 21 | 31 x 16 x 23 | | |
| 3.3 | 31 x 12 x 21 | 31 x 16 x 24 | | |
| 4.7 | 31 x 14 x 22.5 | 44 x 12 x 18 | | |
| 6.8 | 31 x 15.5 x 23.5 | 44 x 15 x 20 | | |
| 8.2 | 31 x 20.2 x 25.5 | | | |
| 10 | 31 x 20.2 x 25.5 | | | |

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

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

# SOUNDER
# MPT SERIES (AXIAL TUBULAR)
# METALLIZED POLYPROPYLENE FILM CAPACITORS

1) FIGURE:




BODY SIZE: SEE SELOWING TABLE. LEAD LENGTH MIN.30mm

LEAD DIA: 0.6 øFOR OD UNDER 8 ø, 0.8 øOR 1.0 øFOR OD EXCEED 8 ø

2) CAP. TOL. RANGE ± 10% (K), or ± 5% (J) @1KHZ

3) DISSIPATION FACTOR Max 0.1% @1KHZ .

4) TEMP. RANGE - 40 ºC TO +85 ºC

5) SURGE VOLT 1.25 x RATE VOLTAGE

6) INSULATING RESISTANCE C ≤ 0.33µF, I.R. ≥ 9000 Mega-Ohm (AT 20 ºC, 1min)
C > 0.33µF, I.R ≥ 7500 Mega-Ohm (AT 20 ºC, 1min)

7) MARKING SOUNDER
MPT xxxJ xxxV

8) MAX. BODY SIZE (DxL) TABLE (FOR STANDARD VALUE) - AT mm,

| MFD ¥ WV | 100 VDC<br>D x L | 250 VDC<br>D x L | 400 VDC<br>D x L | 630 VDC<br>D x L |
|---|---|---|---|---|
| 0.01 | 5 x 16 | 5 x 16 | 6 x 16 | 6 x 16 |
| 0.015 | 5 x 16 | 5 x 16 | 6 x 16 | 6 x 16 |
| 0.022 | 6 x 16 | 6 x 16 | 8.5 x 16 | 8.5 x 16 |

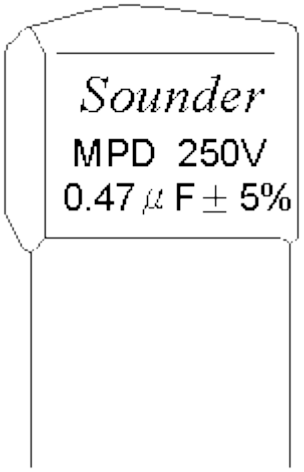
| | | | | |
|---|---|---|---|---|
| 0.033 | 6 x 16 | 6 x 16 | 8.5 x 16 | 10 x 16 |
| 0.047 | 7 x 16 | 7 x 16 | 8.5 x 16 | 9 x 21 |
| 0.068 | 7.5 x 16 | 7.5 x 16 | 8.0 x 21 | 10 x 21 |
| 0.1 | 8.5 x 16 | 8.5 x 16 | 8.5 x 21 | 13 x 21 |
| 0.15 | 8.0 x 21 | 8.0 x 21 | 10 x 21 | 15 x 28 |
| 0.22 | 9.0 x 21 | 9.0 x 21 | 10 x 28 | 18 x 28 |
| 0.33 | 10 x 21 | 10 x 21 | 13 x 28 | 17 x 31 |
| 0.47 | 10 x 26 | 10 x 26 | 13 x 28 | 18 x 31 |
| 0.68 | 10 x 26 | 10 x 26 | 15 x 31 | 18 x 31 |
| 1.0 | 11 x 26 | 11 x 26 | 18 x 31 | 20.5 x 31 |
| 1.5 | 15 x 31 | 15 x 31 | 20 x 31 | |
| 1.8 | 15 x 31 | 15 x 31 | 24 x 31 | |
| 2.2 | 15 x 31 | 15 x 31 | | |
| 3.3 | 21 x 31 | 21 x 31 | | |
| 4.7 | 21 x 31 | 21 x 31 | | |
| 6.8 | 23 x 46 | 23 x 46 | | |
| 10 | 26 x 46 | 26 x 46 | | |

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

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

# SOUNDER
# MPD SERIES (RADIAL DIPPED)
# METALLIZED POLYPROPYLENE FILM CAPACITORS

1) FIGURE:




BODY SIZE: SEE SELOWING TABLE. LEAD LENGTH MIN.20mm

| BODY LENGTH | 12.5 | 18.0 | 21.0 | 31.0 |
|---|---|---|---|---|
| LEAD PITCH ± 1.5 | 10.0 | 15.0 | 20.0 | 27.5 |
| LEAD DIA ± 0.05 ø | 0.6 ø | 0.8 ø | 0.8 ø | 0.8 ø |

2) CAP. TOL. RANGE: ± 10% (K), or ± 5% (J) @1KHZ

3) DISSIPATION FACTOR: Max 0.1% @1KHZ .

4) TEMP. RANGE: - 40 ºC TO +85 ºC

5) SURGE VOLT: 1.25 x RATE VOLTAGE

6) INSULATING RESISTANCE: C ≤ 0.33μF, I.R. ≥ 9000 Mega-Ohm (AT 20 ºC, 1min)
C > 0.33μF, I.R ≥ 7500 Mega-Ohm (AT 20 ºC, 1min)

7) MARKING: SOUNDER
MPD xxxV
xxx μF ± 5%

8) MAX. BODY SIZE (L x T x H) TABLE (FOR STANDARD VALUE) - AT mm,

| MFD ¥ WV | 250VDC<br>L x T x H | 400VDC<br>L x T x H | 630VDC<br>L x T x H |
|---|---|---|---|
| 0.01 | 13 x 6.0 x 10 | 13 x 6.0 x 10 | 13 x 7.0 x 11 |
| 0.015 | 13 x 6.0 x 10 | 13 x 6.0 x 10 | 13 x 7.5 x 11.5 |
| 0.022 | 13 x 7.0 x 11 | 13 x 7.0 x 11 | 18 x 7.0 x 11 |
| 0.033 | 13 x 7.0 x 11 | 18 x 7.0 x 11 | 18 x 8.0 x 12.5 |
| 0.047 | 13 x 7.0 x 11 | 18 x 7.0 x 11 | 18 x 9.0 x 14.5 |
| 0.068 | 18 x 7.0 x 12.5 | 18 x 7.0 x 12.5 | 24 x 9.0 x 14.5 |
| 0.1 | 18 x 7.0 x 12.5 | 18 x 8.0 x 12.5 | 24 x 10.0 x 14.5 |
| 0.15 | 18 x 7.5 x 12.5 | 24 x 8.0 x 14.5 | 24 x 11.5 x 27.5 |
| 0.22 | 18 x 9.0 x 14.5 | 24 x 9.0 x 14.5 | 31 x 11.5 x 20 |
| 0.33 | 24 x 9.0 x 14.5 | 24 x 11.0 x 17.5 | 31 x 13.0 x 20 |
| 0.47 | 24 x 10.0 x 14.5 | 31 x 11.0 x 20 | 31 x 15.5 x 24 |
| 0.68 | 24 x 11.5 x 17.5 | 31 x 12.0 x 20 | 31 x 17.0 x 25.5 |
| 1.0 | 31 x 11.5 x 20 | 31 x 15.5 x 21 | |
| 1.5 | 31 x 13.0 x 22 | 31 x 17.0 x 23 | |
| 1.8 | 31 x 15.5 x 25 | | |
| 2.2 | 31 x 15.5 x 25 | | |
| 3.3 | 31 x 17.0 x 27 | | |

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

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

# RELIABLE UNI-POLAR CAPACITORS

## ALUMINIUM ELECTROLYTIC CAPACITORS

| SERIES | APPLICATION AND FEATURES | TYPE | TEMPERATURE ( ºC) | RATED WORKING VOLTAGE RANGE(V) | CAPACI-TANCE RANGE ( µF) |
|---|---|---|---|---|---|
| SL (A) | General Electronic Circuits | Axial | -40 ~ +85 | 6.3 ~ 160 | 1.0 ~ 22000 |
| SL (R) TM | General Electronic Circuits | Radial | -40 ~ +85<br>-40 ~ +105 | 6.3 ~ 160 | 1.0 ~15000 |
| MN MX | General Electronic circuits.<br>for 85 ºC(MN series) and 105 ºC (MX series)<br>Mini Size, Height 7mm | Radial | -40 ~ +85<br>(MN series)<br>-40 ~ +105<br>(MX series) | 4 ~ 63 | 1.0 ~ 220 |
| LL LX | Low Leakang Current for 85 ºC (LL series)and 105 ºC (LX series) | Radial | -40 ~ +85<br>(LL series)<br>-40 ~ +105<br>(LX series) | 6.3 ~ 100 | 1.0 ~15000 |
| ML | Low Leakage Current.<br>Mini Size,Height 7mm | Radial | -40 ~ +85 | 4 ~ 63 | 1.0 ~100 |
| LN | Low Noise, Low Leakage, High Reliability | Radial | -40 ~ +85 | 6.3 ~ 50 | 1.0 ~ 470 |
| TX | General Circuit<br>for 105 ºC 2000Hours,<br>Better Ripple current and ESR than TM series | Radial | -40 ~ +105 | 6.3 ~160 | 1.0 ~ 10000 |
| HA | High Ripple Current, Low ESR<br>for Switching Power Supply, | Radial | -55 ~ +105 | 6.3 ~160 | 4.7 ~ 6800 |

| | | | | | |
|---|---|---|---|---|---|
| | 2000Hours at105 ºC | | | | |
| HX | High Ripple Current, Low ESR<br>for Switching Power Supply.<br>5000Hours at105 ºC | Radial | -55 ~ +105 | 10 ~160 | 0.47 ~ 4700 |
| PB<br>PX | Bi-Polar for TV Horizontal Deflection Current Correction Circuit.<br>85 ºC (PB series) and<br>105 ºC (PX series) | Radial | -40 ~ +85<br>(PB series)<br>-25 ~ +105<br>(PX series) | 25~50 | 1~33 |
| SD | General Electronic Circuits<br>High C/V Product with Auxiliary Lead. | Radial | -40 ~ +85 | 10 ~160 | 100 ~ 22000 |
| SI | Snap-in for P.C.B.85 ºC | Radial | -40 ~ +85 | 10 ~160 | 56 ~ 56000 |
| SX | Snap-in for P.C.B.105 ºC | Radial | -40 ~ +105 | 10 ~160 | 68 ~ 68000 |
| LG | High C/V Product,<br>Lug Terminal. | Radial | -40 ~ +85 | 16 ~160 | 22 ~ 47000 |
| SW | High C/V Product,<br>Screw Terminal. | Radial | -25 ~ +85 | 10 ~160 | 22 ~ 56000 |

ALUMINIUM ELECTROLYTIC CAPACITORS - General information

# TERMINALS, BINDING POST

| SERIES | DESCRIPTION |
|---|---|
| BP-09 | PLASTIC CAP BINDING POSTS |
| BP-10 | PLASTIC CAP BINDING POSTS |
| BP-11, 12,13 | COPPER UNSCREW CAP SOLID BINDING POST |
| BP16 | FULLY TRANSPARENT INSULATION - MEET CE'S REGULATION, |
| BP17 | PUSH & RELEASE LOCKED - PREVENT WIRE LOOSEN ON VIBRATION |
| BP22 | PUSH & RELEASE LOCKED - PREVENT WIRE LOOSEN ON VIBRATION |
| BP18,19,21 | COPPER CAP SOLID BINDING POST |
| BP18U, 19U,21U | U TYPE COPPER CAP SOLID BINDING POST |
| BP30 | 3 WAY INPUT COPPER CAP BINDING POST |
| SP-01, SP-02 | SPEAKER TERMINALS |
| PUSH TERMINALS | STANDARD TYPE |
| PUSH TERMINALS | WITH PCB SLOT LEGS |
| TPT-21, TPT-22 | 4WAYS PUSH TYPE TERMINALS |
| TPT-45, RPT-45 | 8WAYS PUSH TYPE TERMINALS |
| RPT-11 | ROUND TYPE - SMALLER SIZE (O.D. 57mm) TERMINALS |
| RPT-12 | ROUND TYPE - STANDARD SIZE (O.D. 105mm) TERMINALS |
| RPT-14 | ROUND TYPE - BIG SIZE (O.D. 114mm ) TERMINALS |

| | |
|---|---|
| RPT-15 | ROUND TYPE - STANDARD SIZE (O.D. 105mm) TERMINALS |
| RPT-16 | ROUND TYPE - SIZE (O.D. 80mm) TERMINALS |
| RPT-17 | ROUND TYPE - MEDIUM SIZE (O.D. 75mm) TERMINALS |
| RPT-18 | ROUND TYPE - SMALLER SIZE (O.D. 55.5mm) TERMINALS |
| SPT-10 | SQUARE SHARP ROUND BOWL TERMINALS 80 x 80mm |
| SPT-11, SPT-13 | SQUARE SHARP ROUND BOWL TERMINALS 57 x 57mm |
| SPT-12 | SQUARE SHARP ROUND BOWL TERMINALS 102 x 102mm |
| SPT-15 | SQUARE SHARP ROUND BOWL TERMINALS 98 x 98mm |
| SPT-16 | SQUARE SHARP ROUND BOWL TERMINALS 80 x 80mm |
| TPT-10 | RECTANGLE SHARP TERMINALS SIZE 80 x 94mm |
| TPT-12 | RECTANGLE SHARP TERMINALS SIZE 94 x 112mm |
| TPT-15 | RECTANGLE SHARP TERMINALS SIZE 92 x 110mm |
| RPT-24 | BI-WIRING ROUND TYPE SIZE (O.D. 114.5mm) |
| RPT-26 | BI-WIRING ROUND TYPE SIZE (O.D. 132mm) |
| SPT-20 | BI-WIRING SQUARE TYPE SIZE 102 x 102mm |
| SPT-26 | BI-WIRING SQUARE TYPE SIZE 116 x 116mm |
| TPT-20 | BI-WIRING RECTANGLE SIZE 93 x 120mm |
| TPT-25 | BI-WIRING RECTANGLE SIZE 92 x 110mm |
| TPT-30 | TRI-WIRING RECTANGLE SIZE 100 x 140mm |
| TPT-40 | QUAD-WIRING RECTANGLE SIZE 120 x 140mm |
| PIN JACK | PIN JACK |

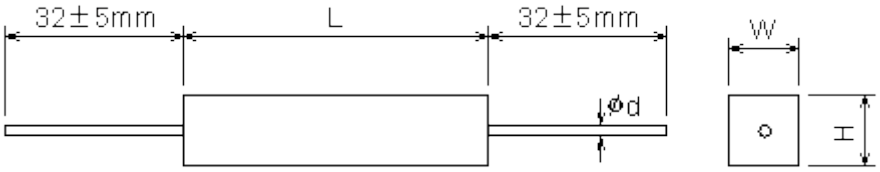
# SQ CEMENT POWER RESISTORS

The wire wound resistor is sealed with special nonflame cement In the ceramic package.

1. Small dimension, low price, excellent stability In high temperature humidity and shock.
2. Completely insulated for printed circuit board.
3. Wind the resistance wire on ceramic core and end weld to terminal cap, thus, resistance value is correct and with better life proof in comparison with other methods.

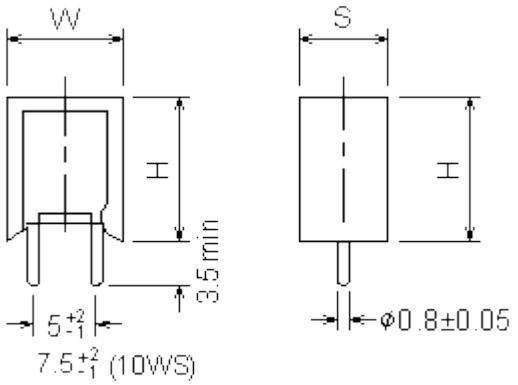
## 1) DIMENSION

**SQP Series**



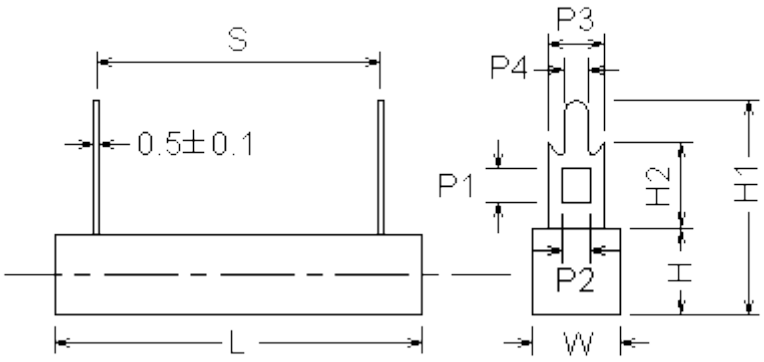

| SQP Series | DIMENSION (mm) | | | | RANGE (Ω) | |
|---|---|---|---|---|---|---|
| Watts | W ± 1 | H ± 1 | L ± 1.5 | d ± 0.05 | SQP | RS+SQP |
| 2W | 7 | 7 | 18 | 0.8 | 0.1~60 | 61-33K |
| 3W | 8 | 8 | 22 | 0.8 | 0.1~180 | 181~33K |
| 5W | 10 | 9 | 22 | 0.8 | 0.1~180 | 181~50K |
| 7W | 10 | 9 | 35 | 0.8 | 0.1~430 | 431~50K |
| 10W | 10 | 9 | 48 | 0.8 | 0.1~470 | 471~50K |
| 15W | 12.5 | 11.5 | 48 | 0.8 | 0.5~600 | 601~150K |
| 20W-25W | 14 | 13.5 | 60 | 0.8 | 0.5~1K | 1.1~150K |
| 40W | 20 | 20 | 90 | 0.8 | | |

**SQM Series**




| SQM Series | DIMENSION (mm) | | | RANGE (Ω) | |
|---|---|---|---|---|---|
| Watts | H ± 1.5 | W ± 1 | S ± 1 | SQM | RS+SQM |
| 2W | 20 | 12 | 8 | 0.1~60 | 61~33K |
| 3W | 25 | 12 | 8 | 0.1~180 | 181~33K |
| 5W | 25 | 13 | 9 | 0.1~180 | 181~50K |
| 7W | 39 | 13 | 9 | 0.1~430 | 431~50K |
| 10WS | 35 | 16 | 12 | 0.1~430 | 431~50K |
| 10W | 51 | 13 | 9 | 0.1~471 | 471~50K |

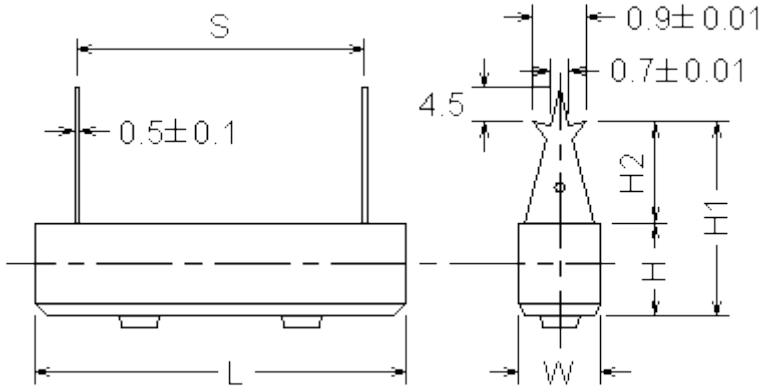
**SQZ Series**




| SQZ | DIMENSION (mm) | RANGE (Ω) |
|---|---|---|

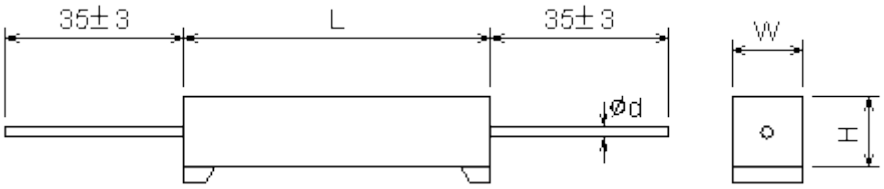
| Series | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Watts | L ±1.5 | W ±1.5 | H ±1.5 | S ±1.5 | P1 | P2 | P3 ±0.5 | P4 ±0.2 | H1 ±1 | H2 ±1 | SQZ | RS+SQZ |
| 5W | 25(28) | 9.5 | 9.5 | 9.5(15) | 4 | 2 | 7.5 | 1.5 | 26 | 12.5 | 0.1~200 | 201~50K |
| 7W | 36 | 9.5 | 9.5 | 20.5 | 4 | 2 | 7.5 | 1.5 | 26 | 12.5 | 0.1~500 | 501~50K |
| 10W | 48 | 9.5 | 9.5 | 34 | 4 | 2 | 7.5 | 1.5 | 26 | 12.5 | 0.1~800 | 801~50K |
| 15W | 48 | 12.5 | 12.5 | 34 | 7.5 | 4 | 10 | 3 | 34.5 | 15.0 | 0.1~800 | 801~150K |
| 20W | 63 | 12.5 | 12.5 | 45 | 7.5 | 4 | 10 | 3 | 34.5 | 15.0 | 10.5~1K | 1.1K~150K |
| 25W | 63 | 12.5 | 12.5 | 45 | 7.5 | 4 | 10 | 3 | 34.5 | 15.0 | 10.5~1K | 1.1K~150K |

**SQY Series**



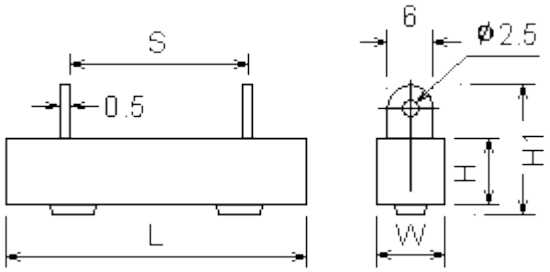

| SQY Series | DIMENSION (mm) | | | | | | RANGE (Ω) | |
|---|---|---|---|---|---|---|---|---|
| Watts | L ± 1.5 | W ± 1 | H ± 1 | S ± 1.5 | H1 ± 1 | H2 ± 1 | SQY | RS+SQY |
| 5W | 25(28) | 9.5 | 9.5 | 9.5(15) | 24 | 9.5 | 0.1~200 | 201~50K |
| 7W | 36 | 9.5 | 9.5 | 20.5 | 24 | 9.5 | 0.1~500 | 501~50K |
| 10W | 48 | 9.5 | 9.5 | 32 | 24 | 9.5 | 0.1~800 | 801~50K |
| 15W | 48 | 12.5 | 12.5 | 32 | 34.5 | 15.0 | 0.1~800 | 801~150K |
| 20W | 63 | 12.5 | 12.5 | 45 | 34.5 | 15.0 | 10.5~1K | 1.1K~150K |

**SQT Series**

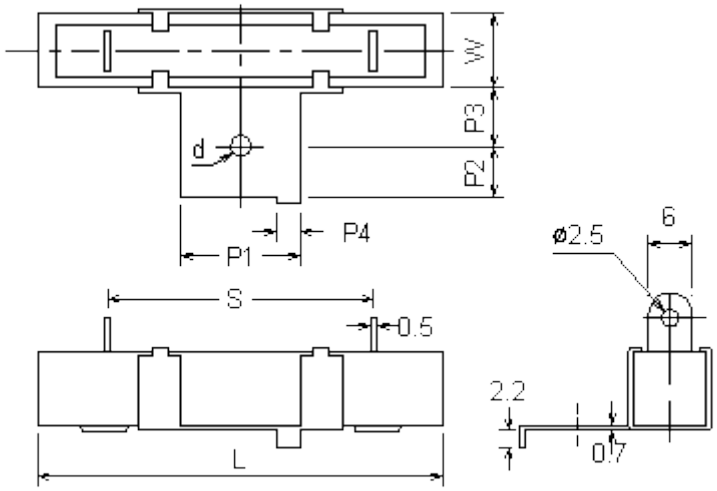



| SQT Series | DIMENSION (mm) | | | | RANGE (Ω) | |
|---|---|---|---|---|---|---|
| Watts | H ± 1.5 | W ± 1 | L ± 1 | t ± 1 | SQT | RS+SQT |
| 5W | 9 | 10 | 22 | 1.5 | 0.1~180 | 181~50K |
| 7W | 9 | 10 | 35 | 3.0 | 0.1~430 | 431~47K |
| 10W | 9 | 10 | 48 | 3.0 | 0.1~470 | 471~47K |

**SQH Series**




**SQHG Series**

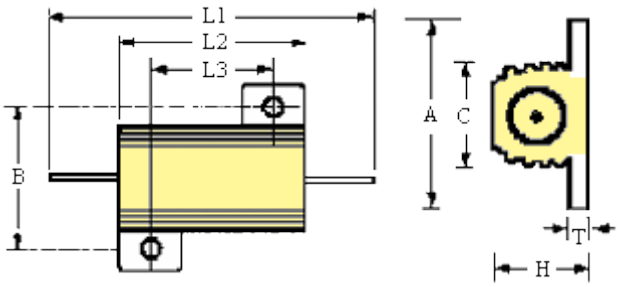



| SQH | DIMENSION (mm) | | | | | | | | | | RANGE (Ω) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Watts | W ± 1 | H ± 1 | L ± 1.5 | S ± 1 | H1 ± 1 | d | P1 | P2 | P3 | P4 | SQH | RS+SQH |

| | | | | | | ± 0.5 | ± 0.2 | ± 0.2 | ± 0.2 | ± 0.2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10W | 10.5 | 10.5 | 48 | 33 | 19.5 | 3.8 | 11 | 6 | 5.8 | 2.5 | 0.1~800 | 801~50K |
| 15W | 12 | 12.5 | 48 | 33 | 20.5 | 3.8 | 11 | 6 | 6.5 | 3.0 | 0.1~800 | 801~150K |
| 20/25W | 12 | 12.5 | 63 | 48 | 28 | 3.8 | 11 | 6 | 6.5 | 3.0 | 0.1~1K | 1.1K~150K |
| 30W | 18 | 19 | 63.5 | 56 | 28 | 4.2 | 18 | 8 | 10 | 3.0 | 0.5~1K | ~ |
| 40W | 18 | 19 | 90 | 71 | 28 | 4.5 | 18 | 8 | 10 | 3.0 | 1.0~5K | ~ |

**ALP Series**

**Aluminum case**

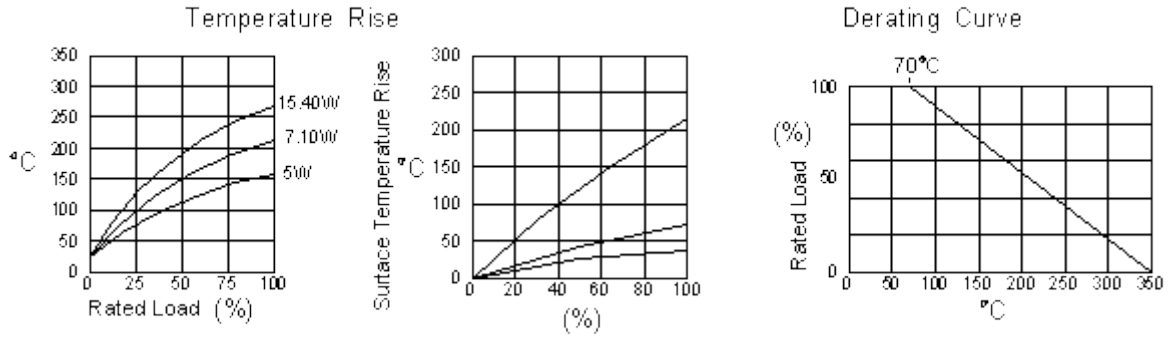



**Aluminum case** Wire-Wound Resistors

** Case standard color: Gold

| **ALP Series** | DIMENSION (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Watts / Size | L1 Min | L2 ± 1 | L3 ± 1 | A ± 1 | B ± 1 | C ± 1 | H ± 1 | T ± 0.5 |
| 5W | 25.00 | 15.50 | 11.50 | 16.50 | 12.50 | 8.50 | 8.50 | 1.60 |
| 10W | 30.00 | 19.00 | 14.50 | 20.50 | 16.00 | 11.00 | 10.00 | 2.00 |
| 25W | 45.00 | 27.00 | 18.50 | 27.50 | 20.00 | 14.00 | 14.00 | 2.00 |
| 50W | 65.00 | 50.00 | 40.00 | 29.50 | 21.50 | 16.00 | 16.00 | 2.00 |

**2) TEMPERATURE RISE**




### 3) ELECTRICAL PERFORMANCE

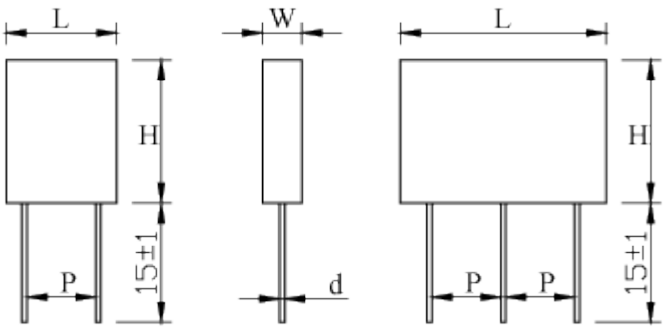
| Test Items | Condition | Specification |
|---|---|---|
| Resistance Temp. Coelf | 30 ºC ~ 200 ºC | ± 300 ppm/ ºC |
| Short Time Over Load | 10 times of rated wattage for 5 sec. | ± 2% |
| Rate Load | Rate watt 30 min. | ± 1% |
| Voltage Durability | 800V AC 1 min. | not changed |
| Insulation Resistance | 500V megger | 20 M Ω |
| Temp. Cycle | -30 ºC ~ 85 ºC 5 cycles | ± 1% |
| Load Life | 70 ºC on-off cycle 1000 hrs. | ± 5% |
| Moisture-proof Load Life | 40 ºC 95% RH on-off cycle 500hrs. | ± 3% |
| Incombustibility | 6 times of rated wattage for 5 min, | not flamed |

# CEMENT POWER RESISTORS

SQF Series (Flat Sheet Type )

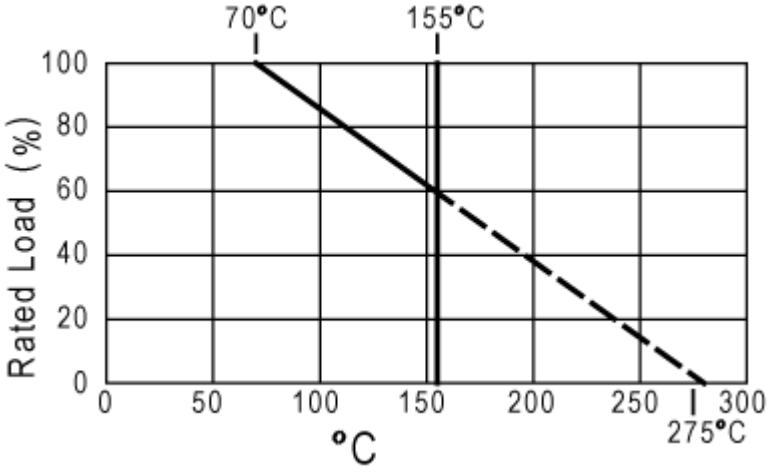

1. Low inductance.
2. Safety flameproof construction.
3. Thin Light weight body save the PCB space considerably.
4. Tolerance available ±10%, ±5% ±2% .

1) DIMENSION (mm)




| SQF Series | DIMENSION (mm) | | | | | RANGE (Ω) |
|---|---|---|---|---|---|---|
| Watts | L ± 1.0 | H ± 1.0 | W ± 1.0 | d ± 0.1 | p ± 1.5 | |
| 3W | 13.5 | 13 | 5 | 0.75 | 10 | 0.1~1Ω |
| 3W+3W | 26 | 13 | 5 | 0.75 | 10 | 0.1~1Ω |
| 5W | 13 | 18 | 5 | 0.75 | 10 | 0.1~1Ω |
| 5W+5W | 26 | 18 | 5 | 0.75 | 10 | 0.1~1Ω |
| 7W+7W | 26 | 20 | 5 | 0.75 | 10 | 0.1~1Ω |

2) DERATING CURVE




### 3) ELECTRICAL PERFORMANCE

| Test Items | Condition | Specification |
|---|---|---|
| Resistance Temp. Coelf | -55 °C ~ 155 °C | ± 300 ppm/ °C |
| Short Time Over Load | 10 times of rated wattage for 5 sec. | ± 2% |
| Rate Load | Rate watt 30 min. | ± 1% |
| Voltage Durability | 1,000V AC 1 min. | Not changed |
| Insulation Resistance | 500V megger | 1,000 M Ω |
| Load Life | 70 ° C on-off cycle 1,000 hrs. | ± 5% |
| Moisture-proof Load Life | 40 ° C 95% RH on-off cycle 1,000hrs. | ±5 % |
| Incombustibility | 16 times of rated wattage for 5 min, | not flamed |