

**Protected, for heavy-duty, Oil-impregnated, round Aluminum case, metallized polypropylene AC film capacitors for electrical appliances**

## [1] Features

- ① The highest safety level :protected by double safety(self-healing + PSI)
- ② For heavy-duty conditions(high ambient temperature or humid climatic)
- ③ Low loss.
- ④ High operating temperature.
- ⑤ Environmentally safe and compatible by use of nontoxic(no PCB's)dielectric oil.

## [2] Typical applications

- ① Single phase AC induction motor(compressor,refrigerator,fan,pump,etc.)run.
- ② Lighting power factor correction(Fluorescent ballast efficiency):"Parallel"and "Series"compensation where heavier duty working condition(for high ambient temperature or very humid climatic conditions),higher the risk of dangerous end-of life failures.
- ③ General 50/60Hz application,but not be used at higher frequency or in applications higher frequency harmonics are present.

## [3] Construction



① **Winding** :non-inductively wound self-healing metallized polypropylene film.

② **Style** :Dielectric oil impregnated winding is encapsulated in an aluminum case with aluminum cover to provide a leak proof seal.

\*Impregnation:For a self-healing dielectric,impregnation is basically not required.

However,our capacitors,the windings are vacuum-impregnated with dielectric oil(non PCB) to eliminate air and moisture then protect metallized film from corrosion and improve "self-healing".

The dielectric oil

① suppresses the degrading effects of corona at the edge of the metallized film to attain a high life expectancy.

② eliminates environmental influences and improves heat transfer as coolant then reduces thermal resistance and provides excellent heat dissipation.

③ resulting in superior capacitance stability and guarantee reliable,long-term operation.

The winding is firmly located by inbuilt securing device,make the capacitor safe from earthing insulation and resistance to vibration.

③ **Terminal** :2 tine AMP 250 quick disconnect terminals surrounded by terminal insulator meeting UL minimum spacing requirements standard.

Available with 3 or 4 tine upon request.

④ **PSI(UL recognized,rated for 10,000AFC)** :This device is designed to sense the build-up of pressure within the capacitor, to disconnect the capacitor winding,then interrupt the internal electrical connection before the case can rupture,if excessive pressure should develop inside the case from misapplication or a fault occurs.

⑤ **Options** :Also,available with a discharge resistor,ground lugs,special terminals,mounting bracket, upon request.

## [4] Specifications

### ① General data

Applicable standard	IEC60252,JIS C4908
Rated voltage(URAC)	250VAC,330VAC,370VAC,450VAC
Capacitance range	2.0uF~80.0uF
Capacitance tolerance	+ 10~ -5%(U),±10%(K),±5%(J),±3%(W)
Max. permissible temperature	+85°C
Min. ambient temperature	-25°C
Life expectancy	40D(40,000h)

### ② Electrical data

AC withstand voltage	between terminals	1.75URAC for 10sec.
	the collected terminals and case	2,000 VAC for 60sec.
Dissipation factor(DF)	0.10% max. at 20°C,50/60hz,URAC	
Rated frequency	50/60hz.	
Insulation resistance	≥ 2,000MΩ at 20°C,between the collected terminals and the case. 500VDC,1 min.	
Max. permissible voltage	1.1 URAC	
Max. permissible current	1.3 rated current	
Max. permissible VA	1.35 rated VA	

\*rated current(A)=  $2\pi f(\text{hz})C(\text{uF})URAC(\text{VAC}) \times 10^{-6}$

\*rated VA(Var)= $2\pi f(\text{hz})C(\text{uF})URAC^2(\text{VAC}) \times 10^{-6}$

### [3] Environmental test data

Item	Test conditions	Test criteria
<b>Sealing and heating test</b>	+90±3℃ for 1~3 hours	No leakage of dielectric fluid.
<b>Damp heat test</b>	5 cycles of; ① 8 hours at 40±3℃, R.H.:90~95% ② 16 hours under normal ambient temperature (5~35℃) and normal humidity(R.H.:45~85%)	① Rins: ≥0.5 x specified value in ② Electrical data. ② Increase in DF at 90±3℃: ≤0.05% ③ $\frac{C}{C_0} : \leq \pm 5\%$ of initial value
<b>Endurance test</b>	85±3℃ applying 1.25URAC for 800 hours	① Increase in DF at 90±3℃: ≤0.05% ② $\frac{C}{C_0} : \leq \pm 5\%$ of initial value
<b>Destruction test</b>	85±3℃, repeatedly applying ① 1.3URAC, then ② DC voltage of 10URAC, until the capacitor current becomes zero.	The capacitor shall withstand the Withstand voltage test in ② Electrical data, without drops of liquid fall, rupture the case, smoke appear.

### [5] Marking

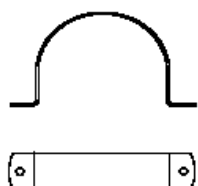
URAC, Capacitance & tolerance are marked on the capacitor.

### [6] Ordering/part number information

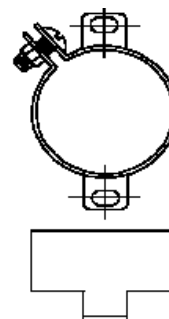
<b>MLC</b>	<b>62</b>	<b>P1</b>	<b>Z</b>	<b>25</b>	<b>455</b>	<b>K</b>	<b>3</b>	<b>G</b>	<b>R</b>	<b>W</b>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

- (1) AC capacitor for electrical appliance
- (2) Shape of capacitor (cylindrical, aluminum case)
- (3) Safety class: with PSI
- (4) Operating temperature: -25~+85℃
- (5) URAC: expressed in tens of volts of AC, for example 25=250VAC
- (6) Capacitance in pF: first 2 figures indicating the pF, last figure indicating numbers of zeros to be added to the pF. The letter D indicates 1/2 uF for capacitors 10.5uF and above.  
For example: 4,500,000pF= 4,500nF= 4.5uF=455  
12,500,000pF=12,500nF=12.5uF=12D
- (7) Capacitance tolerance: ±10%
- (8) Option (Terminal style): 3 or 4 tine AMP 250 quick disconnect terminals available.  
3 tine AMP 250 quick disconnect terminals: 3  
4 tine AMP 250 quick disconnect terminals: 4
- (9) Option (Ground lug): G
- (10) Option (Discharge resistor): R
- (11) Option (Mounting brackets): W (wrap around)

[Mounting brackets]

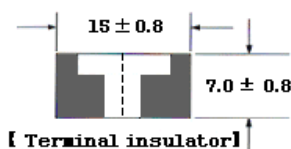
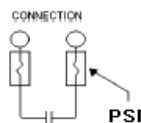
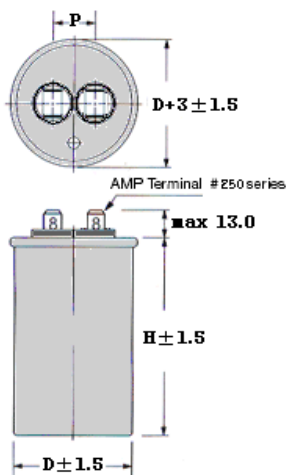


<Wrap around > :W



<2 footed > :F

### [7] Dimensions in mm



**URAC:250Vrms(50/60Hz)**

uF	D	H	P(±1.0)
2.0	40.0	55.0	16.0
3.0	40.0	55.0	16.0
3.5	40.0	55.0	16.0
4.0	40.0	55.0	16.0
4.5	40.0	55.0	16.0
5.0	40.0	55.0	16.0
6.0	40.0	55.0	16.0
7.0	40.0	55.0	16.0
7.5	40.0	55.0	16.0
8.0	40.0	55.0	16.0
9.0	40.0	55.0	16.0
10.0	40.0	55.0	16.0
12.0	40.0	55.0	16.0
12.5	40.0	55.0	16.0
13.0	40.0	55.0	16.0
14.0	40.0	55.0	16.0
15.0	40.0	55.0	16.0
16.0	40.0	55.0	16.0
17.0	40.0	55.0	16.0
17.5	40.0	65.0	16.0
18.0	40.0	65.0	16.0
20.0	40.0	65.0	16.0
22.0	40.0	65.0	16.0
25.0	40.0	75.0	16.0
27.0	40.0	75.0	16.0
30.0	40.0	85.0	16.0
35.0	45.0	75.0	16.0
40.0	45.0	85.0	16.0
45.0	45.0	85.0	16.0
50.0	45.0	100.0	16.0
55.0	45.0	100.0	16.0
60.0	45.0	100.0	16.0
65.0	50.0	100.0	20.0
70.0	50.0	100.0	20.0
75.0	50.0	100.0	20.0
80.0	50.0	100.0	20.0

**URAC:330Vrms(50/60Hz)**

uF	D	H	P(±1.0)
2.0	40.0	55.0	16.0
3.0	40.0	55.0	16.0
3.5	40.0	55.0	16.0
4.0	40.0	55.0	16.0
4.5	40.0	55.0	16.0
5.0	40.0	55.0	16.0
6.0	40.0	55.0	16.0
7.0	40.0	55.0	16.0
7.5	40.0	55.0	16.0
8.0	40.0	55.0	16.0
9.0	40.0	55.0	16.0
10.0	40.0	55.0	16.0
12.0	40.0	55.0	16.0
12.5	40.0	55.0	16.0
13.0	40.0	65.0	16.0
14.0	40.0	65.0	16.0
15.0	40.0	65.0	16.0
16.0	40.0	65.0	16.0
17.0	40.0	75.0	16.0
17.5	40.0	75.0	16.0
18.0	40.0	75.0	16.0
20.0	40.0	75.0	16.0
22.0	40.0	85.0	16.0
25.0	40.0	85.0	16.0
27.0	40.0	95.0	16.0
30.0	40.0	95.0	16.0
35.0	45.0	100.0	16.0
40.0	45.0	100.0	16.0
45.0	45.0	115.0	16.0
50.0	45.0	115.0	16.0
55.0	45.0	125.0	16.0
60.0	50.0	125.0	20.0
65.0	50.0	125.0	20.0
70.0	50.0	125.0	20.0
75.0	50.0	125.0	20.0
80.0	50.0	125.0	20.0



**URAC:370Vrms(50/60Hz)**

uF	D	H	P(±1.0)
2.0	40.0	55.0	16.0
3.0	40.0	55.0	16.0
3.5	40.0	55.0	16.0
4.0	40.0	55.0	16.0
4.5	40.0	55.0	16.0
5.0	40.0	55.0	16.0
6.0	40.0	55.0	16.0
7.0	40.0	55.0	16.0
7.5	40.0	55.0	16.0
8.0	40.0	55.0	16.0
9.0	40.0	65.0	16.0
10.0	40.0	65.0	16.0
12.0	40.0	75.0	16.0
12.5	40.0	75.0	16.0
13.0	40.0	75.0	16.0
14.0	40.0	75.0	16.0
15.0	40.0	75.0	16.0
16.0	40.0	85.0	16.0
17.0	40.0	85.0	16.0
17.5	40.0	85.0	16.0
18.0	40.0	85.0	16.0
20.0	40.0	100.0	16.0
22.0	40.0	100.0	16.0
25.0	45.0	100.0	16.0
27.0	45.0	100.0	16.0
30.0	45.0	100.0	16.0
35.0	50.0	100.0	20.0
40.0	50.0	100.0	20.0
45.0	63.0	100.0	20.0
50.0	63.0	100.0	20.0
55.0	63.0	100.0	20.0
60.0	63.0	100.0	20.0
65.0	63.0	100.0	20.0
70.0	63.0	125.0	20.0

**URAC:450Vrms(50/60Hz)**

uF	D	H	P(±1.0)
2.0	40.0	55.0	16.0
3.0	40.0	55.0	16.0
3.5	40.0	55.0	16.0
4.0	40.0	55.0	16.0
4.5	40.0	55.0	16.0
5.0	40.0	55.0	16.0
6.0	40.0	65.0	16.0
7.0	40.0	65.0	16.0
7.5	40.0	65.0	16.0
8.0	40.0	65.0	16.0
9.0	40.0	75.0	16.0
10.0	40.0	75.0	16.0
12.0	40.0	100.0	16.0
12.5	40.0	100.0	16.0
13.0	40.0	100.0	16.0
14.0	40.0	100.0	16.0
15.0	40.0	100.0	16.0
16.0	40.0	100.0	16.0
17.0	40.0	100.0	16.0
17.5	40.0	100.0	16.0
18.0	45.0	100.0	16.0
20.0	45.0	100.0	16.0
22.0	45.0	100.0	16.0
25.0	50.0	100.0	20.0
27.0	50.0	100.0	20.0
30.0	50.0	100.0	20.0
35.0	50.0	125.0	20.0
40.0	50.0	125.0	20.0
45.0	63.0	125.0	20.0
50.0	63.0	125.0	20.0

\*For further details, refer to  [General technical information of AC film capacitors for electrical appliances](#)

