



# Power Film Capacitors

C4AQ Automotive Grade  
for DC Link & PCB Applications



## Why Choose KEMET

KEMET Electronics Corporation is a leading global supplier of electronic components. We offer our customers the broadest selection of capacitor technologies in the industry, along with an expanding range of electromagnetic compatibility solutions and supercapacitors. Our vision is to be the preferred supplier of electronic component solutions for customers demanding the highest standards of quality, delivery and service.

## Features & Benefits

- Rated voltage: 500 – 1,500 VDC
- Capacitance range: 1.0 – 210.0  $\mu$ F
- Lead spacing: 27.5 – 52.5 mm
- Capacitance tolerance:  $\pm$ 5%,  $\pm$ 10%
- Endurance test:
  - 500 + 500 hours @  $1.3 \times V_{NDC}$  @ 70°C
  - 500 + 500 hours @  $1.0 \times V_{OP85}$  @ 85°C
  - 500 + 500 hours @  $1.0 \times V_{OP105}$  @ 105°C
- Maximum operating temperature  $T_{MAX}$ : +105°C
- Climatic category: 55/105/56 IEC 60068-1
- RoHS compliant and lead-free
- Automotive grade available (AEC-Q200)

## Product Checklist

- What is the nominal DC bus voltage?
- What is the circuit position and function of the capacitor?
- What is the ripple current spectrum?
- What is the capacitance value?
- What is the required capacitance stability?
- What are the size and lead terminations (diameter and number of pins) required?
- Are there any environmental concerns such as temperature, moisture or vibration?

For more information, samples and engineering kits, please visit us at [www.kemet.com](http://www.kemet.com) or call 1.877.myKEMET.

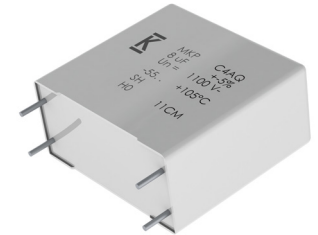
## Overview

The C4AQ is a polypropylene metallized film with a rectangular plastic box-type design, filled with resin and 2 or 4 tinned copper wires.

## Applications

Typical applications include DC filtering and energy storage:

- Power supplies
- Industrial
- Automotive



## Ordering Information

C4	A	Q	U	B	W	5270	A	3	N	J
Series	Type	Application	Rated Voltage (VDC)	Case	Number of Leads	Capacitance Code (pF)	C-Spec	Lead Diameter (mm)	Size Code	Tolerance
C4 = MKP capacitors Power	A = Radial box - wires terminals	Q = DC link automotive grade	L = 500 C = 650 I = 800 Q = 1,100 U = 1,300 S = 1,500	B = Box, plastic case E = Extended box, plastic case	U = 2 pins W = 4 pins	Digits 2 - 4 indicate the first three digits of the capacitance value. First digit indicates the number of zeros to be added.	A = Standard B...Z = Special	1 = 0.8 2 = 1.0 3 = 1.2	Digit 6 = B W = 11 x 20 x 31.5 X = 13 x 25 x 31.5 Y = 14 x 28 x 31.5 1 = 19 x 29 x 31.5 2 = 22 x 37 x 31.5 F = 20 x 40 x 42 J = 28 x 37 x 42 L = 30 x 45 x 42 O = 35 x 50 x 42 M = 30 x 45 x 57.5 N = 35 x 50 x 57.5 Digit 6 = E A = 45 x 56 x 57.5 N = 45 x 65 x 57.5	J = 5% K = 10%

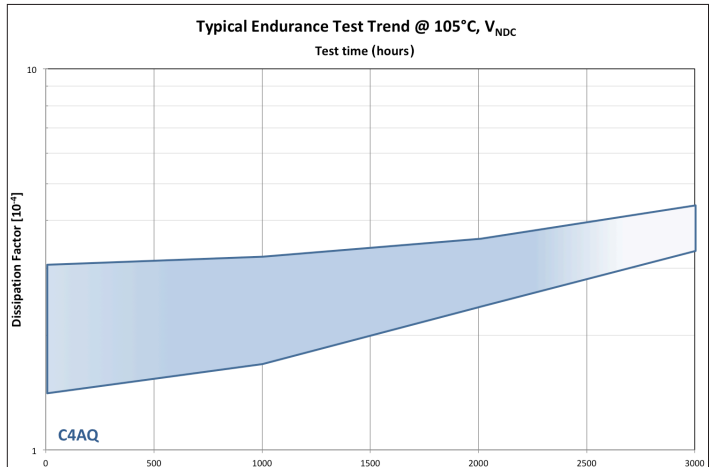
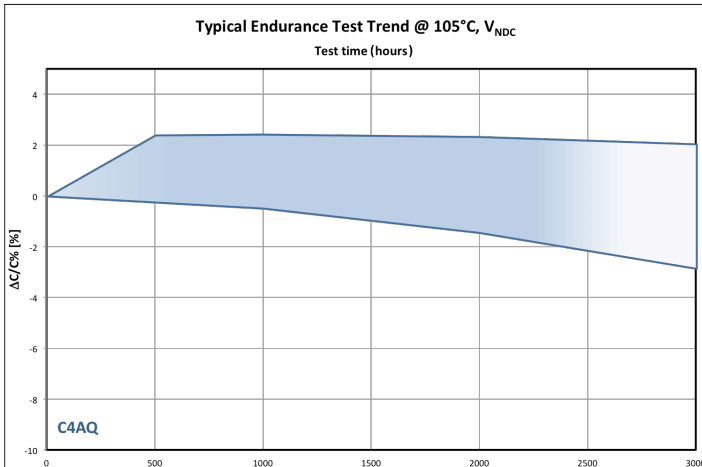
## KEMET Electrical/Physical Characteristics

Temperature Range	-55°C to 105°C
Qualification	AEC-Q200
Dissipation Factor PP Typical ( $tg\delta_p$ )	$\leq 0.0002$ at 10 kHz and +25°C, $\pm 5^\circ$ C
Surge Voltage	$1.5 * V_{NDC}$ for maximum 10 times in a lifetime @ 25°C, $\pm 5^\circ$ C
Overvoltage (IEC 61071)	$1.15 * V_{NDC}$ for maximum 30 minutes - once per day $1.3 * V_{NDC}$ for maximum 1 minute - once per day
Peak Non-Repetitive Current	$1.5 * I_{PKR}$ - maximum 1,000 times in a lifetime
Insulation Resistance	$IR \times C \geq 30.000$ seconds at 100 VDC 1 minute (+25°C, $\pm 5^\circ$ C)
Capacitance Deviation in Operation	$\pm 2\%$ maximum on capacitance value measured at (+25°C, $\pm 5^\circ$ C)
Temperature Storage	-40 to +80°C
Test Voltage Between Terminations	$1.5 * V_{NDC}$ for 10 seconds or $1.65 * V_{NDC}$ for 2 seconds @ +25°C, $\pm 5^\circ$ C
Permissible Relative Humidity – Storage	Annual average $\leq 70\%$ , 85% on 30 days/year randomly distributed throughout the year. Dewing not admissible.
Rated Voltage (VDC) @ 70°C	500, 650, 1,300, 700, 1,200, 700
Operating Voltage (VDC) @ 85°C	450, 800, 1,500, 900, 450, 850
Operating Voltage (VDC) @ 105°C	350, 1,100, 600, 1,100, 550, 900



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Case Size (B x H x L – p) mm	Voltage (VDC)					
	500	650	800	1,100	1,300	1,500
11 x 20 x 31.5 – 27.5	5.6 μF	3.3 μF	2.7 μF	1.5 μF	1 μF	1 μF
13 x 25 x 31.5 – 27.5	10 μF	5.6 μF	4 μF	2.7 μF	1.8 μF	1.5 μF
14 x 28 x 31.5 – 27.5	12.5 μF	7 μF	5 μF	3.3 μF	2.2 μF	2 μF
19 x 29 x 31.5 – 27.5	15 μF	10 μF	8 μF	5 μF	3.3 μF	3 μF
22 x 37 x 31.5 – 27.5	25 μF	15 μF	12.5 μF	8 μF	5 μF	4.5 μF
20 x 40 x 42 – 37.5	40 μF	20 μF	15 μF	12 μF	8 μF	6 μF
28 x 37 x 42 – 37.5	50 μF	30 μF	20 μF	14 μF	10 μF	8 μF
30 x 45 x 42 – 37.5	70 μF	40 μF	30 μF	20 μF	12 μF	12 μF
35 x 50 x 42 – 37.5	90 μF	50 μF	40 μF	25 μF	18 μF	15 μF
30 x 45 x 57.5 – 52.5	100 μF	55 μF	45 μF	30 μF	20 μF	17 μF
35 x 50 x 57.5 – 52.5	130 μF	75 μF	55 – 60 μF	40 μF	25 – 27 μF	22 μF
45 x 56 x 57.5 – 52.5	170 μF	110 μF	85 μF	55 μF	38 μF	32 μF
45 x 65 x 57.5 – 52.5	210 μF	130 μF	100 μF	65 μF	45 μF	40 μF