

# C87, Cylindrical Aluminum Case, Overpressure Protection, 420 VAC/470 VAC

## Overview

C87 is a polypropylene metallized film, with a cylindrical aluminium can-type construction filled with resin. It uses faston, plastic deck or cable terminals, and an overpressure safety device.

## Applications

Typical applications include motor run S2 safety class: single-phase motors, low power electric motors and compressors.

## Benefits

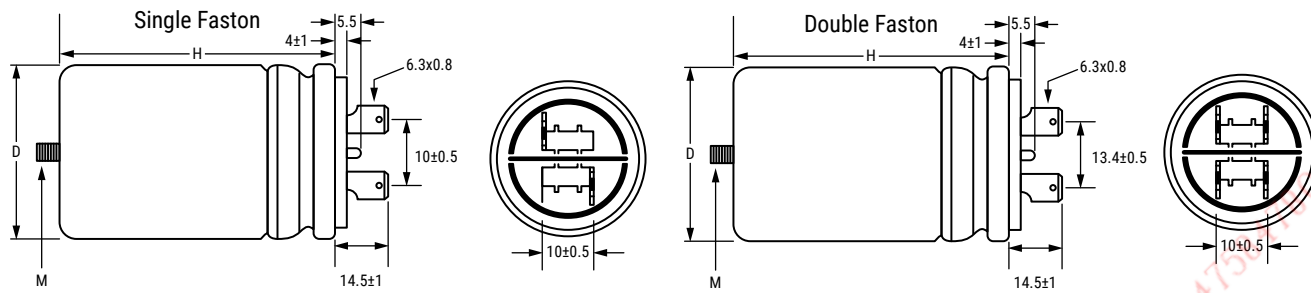
- Self-healing
- VDE, CQC and UL810 approved
- Rated frequency of 50 Hz and 60 Hz
- High capacitance density
- Safety device protection



## Part Number System

C87	8	B	F	3	4300	AA	4	J
	Series	Marking	Case & Fixing Bolt Code	Terminal Style	Capacitance Code (pF)	Packaging	Internal Use	Tolerance
C87 = Motor Run Capacitors	0 = 10,000 hours/ 420 VAC (Class B) or 3,000 hours/ 470 VAC (Class C) 8 = 30,000 hours/ 420 VAC (Class A) or 10,000 hours/ 470 VAC (Class B)	C870: C = Standard D = UL Z = Special C878: A = Standard B = UL Z = Special	F = Cylindrical aluminum can with M8 bolt G = Cylindrical aluminum can with M12 bolt E= Without fixing bolt/flat bottom	1 = Single faston 2.8 x 0.8 (hole) 2 = Single faston 6.3 x 0.8 3 = Double faston 6.3 x 0.8 4 = Single faston 2.8 x 0.8 (slot) 5 = Single faston 2.8 x 0.5 (hole)	Digits 2 - 4 indicate the first three digits of the capacitance value. First digit indicates the number of zeros to be added.	AA = Standard	0, 1, 2, 4, 5 = Standard	J = 5% K = 10% R = 0 to +10% X = Special tolerance

## Dimensions – Millimeters



D	H	Mounting Stud (M)
+1/-0	±2	
25	48	M8 x 10
25	60	M8 x 10
25	78	M8 x 10
30	48	M8 x 10
30	60	M8 x 10
30	78	M8 x 10
35	48	M8 x 10
35	60	M8 x 10
35	78	M8 x 10
35	98	M8 x 10
40	78	M8 x 10
40	98	M8 x 10
45	78	M8 x 10
45	98	M8 x 10
45	133	M8 x 10
50	133	M12 x 12.5
55	133	M12 x 12.5
60	98	M12 x 12.5
60	133	M12 x 12.5

## Qualification

Reference Standards	IEC 252;EN 60252-1:2011/A1/2013, VDE, CQC, UL810 (construction only), approved up to 500 VAC
Vibration Test	IEC 68-2-6

## Performance Characteristics

Type of Service	Continuous
Operating Class	
C87/8	Class B 10,000 hours at 470 VAC, Class A 30,000 hours at 420 VAC
C87/0	Class B 10,000 hours at 420 VAC, Class C 3,000 hours at 470 VAC
Temperature Range	-25 to +85°C
Rated Voltage	470 VAC
Rated Frequency	50 – 60 Hz
Voltage Rise/Fall Time (Maximum)	0 = 15 V/μs 8 = 20 V/μs
Maximum Permissible Voltage	1.10 x rated voltage
Maximum Permissible Current	1.30 x rated current
Dissipation Factor (DF)	20 x 10 <sup>-4</sup> at +20°C, 50 Hz
Safety Class	S2
Maximum Altitude	2,000 m
Capacitance Tolerance	±5%
Mounting	Any position
Case	Aluminium
Disk	Thermoplastic Polymer V0 (UL 94) Plastic deck with: - self-extinguishing features V0 (UL94) - GWT–GWFI–GWIT value in conformity with the Standard IEC60335-1 ed. 4 par. 30/EN60335-1 ed.3 par.30
Filling Resin	Polyurethane
Dielectric	Polypropylene
Plates	Self-healing metal layer
Test Voltage Terminal to Terminal (V <sub>TT</sub> )	2 V <sub>n</sub> for 2 seconds
Test Voltage Terminal to Can (V <sub>TC</sub> )	2,000 V for 2 seconds
Total Harmonic Distortion	Up to 10%
Fire Load	40 MJ/kg
Air Distance Between Live Parts	≥ 5 mm
Air Distance Between Live Parts and Case	≥ 6 mm
Vibration Test	IEC 68–2–6
Maximum Tightening Torque	5 Nm (M8), 10 Nm (M12)

**Table 1 – Ratings & Part Number Reference**

Capacitance Value (µF)	VAC	Maximum Dimensions in mm		dV/dt (V/µs)	Packaging Quantity	Termination	Part Number
		D	H				
1	470	25	48	20	162	Single faston	C878AF24100AA5J
1.5	470	30	48	20	115	Single faston	C878AF24150AA4J
2	470	30	48	20	115	Single faston	C878AF24200AA4J
2.5	470	30	48	20	115	Single faston	C878AF24250AA4J
3	470	30	48	20	115	Single faston	C878AF24300AA4J
4	470	35	48	20	86	Single faston	C878AF24400AA4J
5	470	35	48	20	86	Single faston	C878AF24500AA4J
6	470	30	78	20	115	Single faston	C878AF24600AA0J
6.3	470	35	60	20	86	Single faston	C878AF24630AA2J
7	470	30	78	20	115	Single faston	C878AF24700AA0J
7.5	470	30	78	20	115	Single faston	C878AF24750AA0J
8	470	30	78	20	115	Single faston	C878AF24800AA0J
10	470	35	78	20	86	Single faston	C878AF25100AA0J
12	470	35	78	20	86	Single faston	C878AF25120AA0J
16	470	40	78	20	62	Single faston	C878AF25160AA0J
20	470	45	78	20	50	Single faston	C878AF25200AA0J
25	470	45	98	20	50	Single faston	C878AF25250AA0J
30	470	45	98	20	50	Single faston	C878AF25300AA0J
40	470	45	133	20	50	Single faston	C878AF25400AA0J
1	470	30	48	20	115	Double faston	C878AF34100AA4J
1.8	470	30	48	20	115	Double faston	C878AF34180AA0J
2	470	30	48	20	115	Double faston	C878AF34200AA4J
2.5	470	30	48	20	115	Double faston	C878AF34250AA4J
3	470	30	48	20	115	Double faston	C878AF34300AA4J
3.5	470	35	48	20	86	Double faston	C878AF34350AA4J
4	470	35	48	20	86	Double faston	C878AF34400AA4J
5	470	35	48	20	86	Double faston	C878AF34500AA4J
6	470	30	78	20	115	Double faston	C878AF34600AA0J
7.5	470	30	78	20	115	Double faston	C878AF34750AA0J
8	470	30	78	20	115	Double faston	C878AF34800AA0J
10	470	35	78	20	86	Double faston	C878AF35100AA0J
12	470	35	78	20	86	Double faston	C878AF35120AA0J
12.5	470	35	78	20	86	Double faston	C878AF35125AA0J
14	470	40	78	20	62	Double faston	C878AF35140AA0J
15	470	40	78	20	62	Double faston	C878AF35150AA0J
16	470	40	78	20	62	Double faston	C878AF35160AA0J
18	470	45	78	20	50	Double faston	C878AF35180AA0J
20	470	45	78	20	50	Double faston	C878AF35200AA0J
25	470	45	98	20	50	Double faston	C878AF35250AA0J
30	470	45	98	20	50	Double faston	C878AF35300AA0J
31.5	470	45	98	20	50	Double faston	C878AF35315AA0J
35	470	45	133	20	50	Double faston	C878AF35350AA0J
40	470	45	133	20	50	Double faston	C878AF35400AA0J
1	470	30	48	20	115	Double faston	C878BF34100AA4J
1.5	470	30	48	20	115	Double faston	C878BF34150AA4J
2	470	30	48	20	115	Double faston	C878BF34200AA0J
2.5	470	30	48	20	115	Double faston	C878BF34250AA4J
3	470	30	48	20	115	Double faston	C878BF34300AA4J
3.5	470	35	48	20	86	Double faston	C878BF34350AA4J
4	470	35	48	20	86	Double faston	C878BF34400AA0J
5	470	30	60	20	115	Double faston	C878BF34500AA0J
6	470	30	78	20	115	Double faston	C878BF34600AA0J
7.5	470	30	78	20	115	Double faston	C878BF34750AA0J
8	470	30	78	20	115	Double faston	C878BF34800AA0J
10	470	35	78	20	86	Double faston	C878BF35100AA0J
11	470	35	78	20	86	Double faston	C878BF35110AA0J
12	470	35	78	20	86	Double faston	C878BF35120AA0J
15	470	40	78	20	62	Double faston	C878BF35150AA0J
16	470	40	78	20	62	Double faston	C878BF35160AA0J
20	470	45	78	20	50	Double faston	C878BF35200AA0J
23	470	45	78	20	50	Double faston	C878BF35230AA0J
Capacitance Value (µF)	VAC	B (mm)	H (mm)	dV/dt (V/µs)		Termination	Part Number

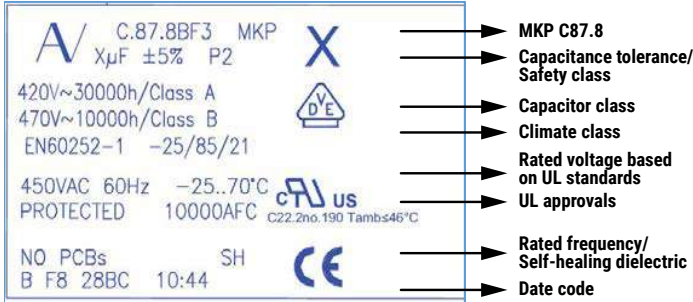
**Table 1 – Ratings & Part Number Reference cont'd**

Capacitance Value (µF)	VAC	Maximum Dimensions in mm		dV/dt (V/µs)	Packaging Quantity	Termination	Part Number
		D	H				
25	470	45	98	20	50	Double faston	C878BF35250AA0J
29	470	45	98	20	50	Double faston	C878BF35290AA0J
30	470	45	98	20	50	Double faston	C878BF35300AA0J
35	470	45	133	20	50	Double faston	C878BF35350AA0J
40	470	45	133	20	50	Double faston	C878BF35400AA0J
46	470	50	133	20	40	Double faston	C878BF35460AA0J
55	470	50	133	20	40	Double faston	C878BF35550AA0J
60	470	50	133	20	40	Double faston	C878BF35600AA0J
3	470	30	48	15	115	Single faston	C870CF24300AA4J
4	470	30	48	15	115	Single faston	C870CF24400AA4J
5	470	35	48	15	86	Single faston	C870CF24500AA4J
6	470	30	60	15	115	Single faston	C870CF24600AA1J
8	470	30	78	15	115	Single faston	C870CF24800AA0J
10	470	30	78	15	115	Single faston	C870CF25100AA0J
12	470	35	78	15	86	Single faston	C870CF25120AA0J
12.5	470	35	78	15	86	Single faston	C870CF25125AA0J
14	470	35	78	15	86	Single faston	C870CF25140AA0J
16	470	35	78	15	86	Single faston	C870CF25160AA0J
18	470	40	78	15	62	Single faston	C870CF25180AA0J
20	470	40	78	15	62	Single faston	C870CF25200AA0J
25	470	40	98	15	62	Single faston	C870CF25250AA1J
30	470	40	98	15	62	Single faston	C870CF25300AA1J
40	470	45	98	15	50	Single faston	C870CF25400AA0J
5	470	35	48	15	86	Double faston	C870CF34500AA4J
8	470	30	78	15	115	Double faston	C870CF34800AA0J
9	470	30	78	15	115	Double faston	C870CF34900AA0J
10	470	30	78	15	115	Double faston	C870CF35100AA0J
14	470	35	78	15	86	Double faston	C870CF35140AA0J
15	470	35	78	15	86	Double faston	C870CF35150AA0J
16	470	35	78	15	86	Double faston	C870CF35160AA0J
18	470	40	78	15	62	Double faston	C870CF35180AA0J
20	470	40	78	15	62	Double faston	C870CF35200AA0J
22	470	40	78	15	62	Double faston	C870CF35220AA0J
25	470	45	78	15	50	Double faston	C870CF35250AA0J
30	470	40	98	15	62	Double faston	C870CF35300AA1J
35	470	45	98	15	50	Double faston	C870CF35350AA0J
40	470	45	98	15	50	Double faston	C870CF35400AA0J
45	470	45	133	15	50	Double faston	C870CF35450AA0J
50	470	50	133	15	40	Double faston	C870CG35500AA1J
60	470	60	98	15	28	Double faston	C870CG35600AA5J
70	470	55	133	15	32	Double faston	C870CG35700AA1J
75	470	60	133	15	28	Double faston	C870CG35750AA0J
80	470	50	133	15	40	Double faston	C870CG35800AA2J
100	470	55	133	15	32	Double faston	C870CG36100AA0J
110	470	60	133	15	28	Double faston	C870CG36110AA0J
Capacitance Value (µF)	VAC	B (mm)	H (mm)	dV/dt (V/µs)		Termination	Part Number

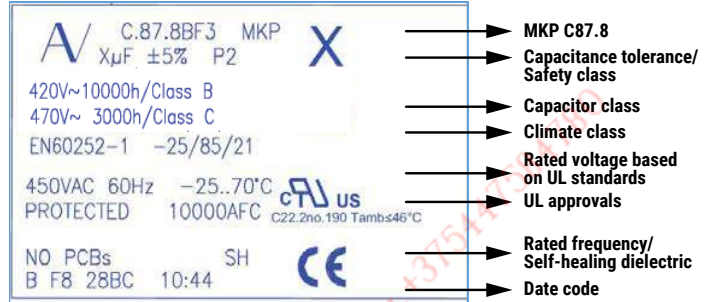
## Marking

### C87.8

From 1  $\mu$ F up to 45  $\mu$ F

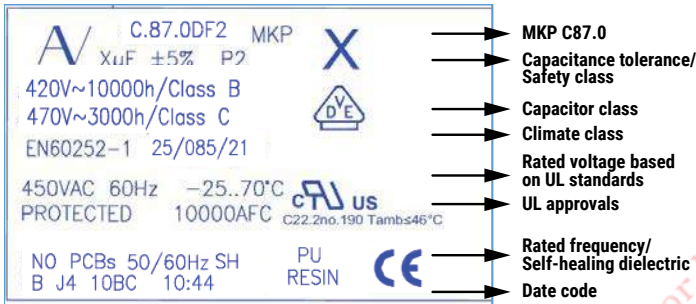


Over 45  $\mu$ F

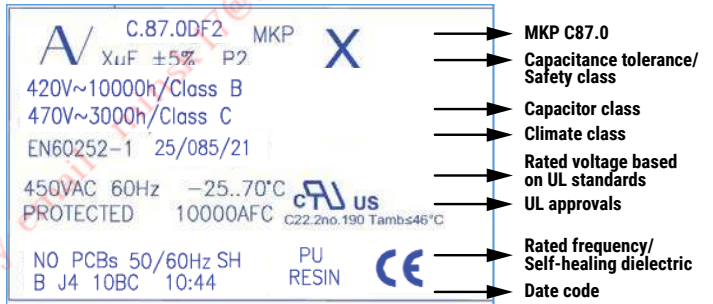


### C87.0

From 1  $\mu$ F up to 80  $\mu$ F



Over 80  $\mu$ F



## Marking (cont.d)

Manufacturing Date Code (IEC-60062)			
Y = Year, Z = Month			
Year	Code	Month	Code
2010	A	January	1
2011	B	February	2
2012	C	March	3
2013	D	April	4
2014	E	May	5
2015	F	June	6
2016	H	July	7
2017	J	August	8
2018	K	September	9
2019	L	October	0
2020	M	November	N
2021	N	December	D
2022	P		
2023	R		
2024	S		
2025	T		
2026	U		
2027	V		
2028	W		
2029	X		
2030	A		

## Environmental Compliance

As an environmentally conscious company, KEMET is working continuously to improve the environmental effects of both our capacitors and their production.

In Europe, due to the RoHS Directive, and in some other geographical areas such as China, legislation has been put in place to prevent the use of some hazardous materials, including lead (Pb) in electronic equipment. All products in this catalog are produced to help our customers' obligations to guarantee their products to fulfill these legislative requirements. The only material of concern in our products has been lead (Pb), which has been removed from all designs to fulfill the requirement of containing less than 0.1% of lead in any homogeneous material.

KEMET will closely follow any changes in legislation world wide and makes any necessary changes in its products, whenever needed.

Some customer segments including medical, defense and automotive electronics may still require the use of lead in electrode coatings. To clarify the situation and distinguish products, the following symbols are used on the packaging labels for RoHS compliant and Pb-free capacitors.

Due to customer requirements, additional markings such as "LF" for lead-free or "LFW" for lead-free wires may appear on the packaging label.

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## Materials & Environment

The selection of materials used by KEMET for the production of capacitors is the result of extensive experience and constant attention to environmental protection. KEMET selects its suppliers according to ISO 9001 standards and carries out statistical analysis on the materials purchased before the acceptance. All the materials, to the company's present knowledge, are non-toxic and free from cadmium, mercury, chrome and compounds, polychlorine triphenyl (PCB), bromide and chlorine dioxins bromurate chlorurate, CFC and HCFC, and asbestos.

## Green Products

All KEMET power film products are ROHS Compliant.



## Insulation Resistance

When the capacitor temperature increases, the insulation resistance decreases. This is due to the increased electron activity. Low insulation resistance can also be the result of moisture trapped in the windings, caused by a prolonged exposure to excessive humidity.

## Dissipation Factor

Dissipation factor is a complex function involved with the inefficiency of the capacitor. The  $\text{tg}\delta$  may change up and down with increased temperature. For more information, please refer to Performance Characteristics.

## Sealing

### Hermetically Sealed Capacitors

When the temperature increases, the pressure inside the capacitor increases. If the internal pressure is high enough, it can cause a breach in the capacitor, which can result in leakage, impregnation, filling fluid or moisture susceptibility.

### Resin Encased/Wrap & Fill Capacitors

The resin seals on resin encased and wrap and fill capacitors will withstand short-term exposure to high humidity environments without degradation. Resins and plastic tapes will form a pseudo-impervious barrier to humidity and chemicals. These case materials are somewhat porous and through osmosis can cause contaminants to enter the capacitor. The second area of contaminated absorption is the lead-wire/resin interface. Since resins cannot bond 100% to tinned wires, there can be a path formed up to the lead wire into the capacitor section. Aqueous cleaning of circuit boards can aggravate this condition.

### Barometric Pressure

The altitude at which hermetically sealed capacitors are operated, controls the voltage rating of the capacitor. As the barometric pressure decreases, the susceptibility to terminal arc-over increases. Non-hermetic capacitors can be affected by internal stresses due to pressure changes. This can be in the form of capacitance changes, or dielectric arc-over, as well as low insulation resistance. Heat transfer can also be affected by altitude operation. Heat, generated in an operation, cannot be dissipated properly and can result in high RI2 losses and eventual failure.

### Radiation

Radiation capabilities of capacitors must be taken into consideration. Electrical degradation in the form of dielectric embitterment can take place causing shorts or opens.

## KEMET Electronics Corporation Sales Offices

For a complete list of our global sales offices, please visit [www.kemet.com/sales](http://www.kemet.com/sales).

### Disclaimer

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Although KEMET designs and manufactures its products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

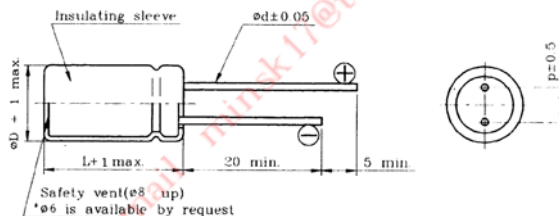
## Таблицы взаимозаменяемости пленочных конденсаторов

<b>Импульсные конденсаторы</b>			
<b>Vishay</b>	<b>Epcos</b>	<b>Wima</b>	<b>EVOX RIFA</b>
МКР1837	B32529	МКР2	<a href="#">PHE426</a>
МКР1840	B3265	МКР4	
	B32612-4		
МКР1841-М	B32620-1	МКР10	<a href="#">PHE450</a>
МКР1841	B3265		
	B32612-4		
КР1830	-	FKP2	<a href="#">PFR</a>
КР1836	КР1836	КР/МКР375	<a href="#">PHE448</a>
		КР/ММКР376	
<b>Конденсаторы общего назначения</b>			
<b>Vishay</b>	<b>Epcos</b>	<b>Wima</b>	<b>EVOX RIFA</b>
МКТ1817	B32529	MKS2	<a href="#">ММК5</a>
МКТ1826		MKS22	
МКТ1818	B32520	MKS4	<a href="#">ММК7,5</a>
МКТ1820	B32521-24	MKS4	<a href="#">ММК10-37,5</a>
МКТ1822			
МКТ1826-E			

<b>Помехоподавляющие конденсаторы</b>			
<b>Vishay</b>	<b>Epcos</b>	<b>Wima</b>	<b>EVOX RIFA</b>
-	-	MP3-X1	<a href="#">PME271E, класс X1</a>
F1722-4	B81141	MP3-X1	<a href="#">PHE278, класс X1</a>
-	-	-	<a href="#">PHE841, класс X1</a>
F1772-4	B81141	-	<a href="#">PHE844, класс X1</a>
F1772-3	B81131		
	B3292	-	<a href="#">PHE820E, класс X2</a>
F1772-2	-	-	<a href="#">PHE820M, класс X2</a>
F1778-AC275	B81130		
F1772-2	B3292	-	<a href="#">PHE840M, класс X2</a>
F1778-AC305			
F1772-3	B3292	-	<a href="#">PHE840E, класс X2</a>
-	-	MP3-X2	<a href="#">PHE846, класс X2</a>

F1710-1.. F1712-2..	F1710-1.. F1712-2..	МКР336 6	<a href="#">PME271M, класс Y2</a>
WKP	B81123	MP3-Y1	PME295, класс Y1
F1710-1 F1712-2	B81122	MP3-Y2	<a href="#">PME271Y, класс Y2</a>
F1710 WKO	B81122	-	<a href="#">PME271YA-E, класс Y2</a>
F1710-1 F1712-1	B81122	MP3-Y2	<a href="#">PME290, класс Y2</a>
F1710-1 F1712-1	B81122	-	<a href="#">PHE850, класс Y2</a>
-	-	SMD MP3-Y2	SMP253, класс Y2
F1776	-	-	<a href="#">PMR209, X2</a>

### Алюминиевые радиальные конденсаторы общего назначения ECR (аналог K50-35)



Емкость и рабочее напряжение (буквами от А до Q обозначены размеры, приведенные ниже).

Габариты (диаметр-длина), мм: 5x11(А), 6x11(В), 8x12(С), 8x14(Д), 10x12,5(Е), 10x16(F), 10x21(Г), 13x21(Н), 13x26(І), 16x26(Ј), 16x32(К), 16x36(Л), 18x36(М), 18x41(Н) -1000мкФx100В, 22x41(О), 25x41(Р), 25x50(Q) -10000мкФx50В

Размер	Максимальная емкость (мкФ) для различных типоразмеров							
	6,3В	10В	16В	25В	35В	50В	63В	100В
5x11 А	220	100	100	47	33	22	10	4,7
6x11 В	470	220	220	100	100	47	47	22
8x12 С	1000	470	470	220	100	100	47	33
8x14 Д		1000		470	220			
10x12,5 Е				470	330	220	100	47
10x16 F	2200	2200	1000		470	330	220	47
10x21 Г	3300			1000		330	330	100
13x21 H	4700	3300	2200	2200	1000	470	330	
13x26 І	6800	4700	3300	2200		1000	470	330
16x26 Ј	10000	6800	4700	3300	2200	1000	1000	470
16x32 К		10000		4700	3300		1000	
16x36 Л			6800			2200		
18x36 М			10000	6800	4700	3300	2200	
22x41 О				10000	6800	4700	3300	
25x41 P					10000	6800	4700	

Примеры обозначения конденсаторов от „КМ.Компоненти і системи” [www.km-cs.com](http://www.km-cs.com)

Фирма изготовитель	Наименование	Спецификация изделия, Ссылки <a href="http://www.">http://www.</a>
ARCOTRONICS	R82DC4100DQ60K	C-FILM MKT 1.0uF 63V 10% p=5mm <a href="http://arcotronics.com/cms/index.php?option=content&amp;task=view&amp;id=41&amp;Itemid=48">arcotronics.com/cms/index.php?option=content&amp;task=view&amp;id=41&amp;Itemid=48</a>
AVX	C-0805 2.2UF 10% 25V X7R // 08053C225KAT2A	C-0805 X7R 25V 2.2uF 10% <a href="http://avxcorp.com/docs/Catalogs/cx7r.pdf">avxcorp.com/docs/Catalogs/cx7r.pdf</a>
AVX	C-TA 22UF 16V//TPSB226K016R0600	CAP TANT LOWESR 22UF 16V 10% 125°C SMD Size B (3528-21) <a href="http://avx.com/docs/Catalogs/tps.pdf">avx.com/docs/Catalogs/tps.pdf</a>
EPCOS	C-400V 10NF//B32591C6103J008	CAP FILM .01UF 400V METALPOLY MKT 10mm <a href="http://epcos.com/inf/20/20/db/fc_05/MKT_B32591_94.pdf">epcos.com/inf/20/20/db/fc_05/MKT_B32591_94.pdf</a>
KEMET	T491B106K016AT	C-TA 16V 10% 10uF Size B <a href="http://kemet.com/datasheets&amp;T491B106K016AT">kemet.com/datasheets&amp;T491B106K016AT</a>
MURATA	C-0805 2.7NF 5% 50V NP0//GRM2165C1H272JA01D	C-0805 GRM21 2, 7nF 0805 5% 50V NP0 <a href="http://search.murata.co.jp/Ceramy/image/img/PDF/ENG/GRM2165C1H272JA01.pdf">search.murata.co.jp/Ceramy/image/img/PDF/ENG/GRM2165C1H272JA01.pdf</a>
PANASONIC	ECEV1EA220P	Cap 25V 22uF 20% SMD Electrolytic, case D <a href="http://panasonic.com/industrial/components/pdf/DC025.pdf">panasonic.com/industrial/components/pdf/DC025.pdf</a>
SAMSUNG	C-0805 10NF 10% 50V X7R // CL21B103KBANNNC	C-0805 10nF 10% 50V X7R
TDK	C-0805 1.0UF 10% 25V X7R // C2012X7R1E105KT-S	C-0805 1.0uF 10% 25V X7R <a href="http://tdk.co.jp/tefe02/e412_c.pdf">tdk.co.jp/tefe02/e412_c.pdf</a>
UNITED CHEMI-CON	C-EL 330UF 16V 8X11.5 (EKMG160ELL331MHB5D)	C-EL 330mkF 20%, 16V, 8*11.5mm, 3.5mm, -55 +105C <a href="http://chemi-con.co.jp/pdf/catalog/al-e1001h/al-ky-e-070821.pdf">chemi-con.co.jp/pdf/catalog/al-e1001h/al-ky-e-070821.pdf</a>
VISHAY	C-TA 10UF 16V CASEB (293D106X9016B2TE3)	Танталовый конденсатор (smd) 10uF 16V 10% Case B <a href="http://vishay.com/docs/40002/293d.pdf">vishay.com/docs/40002/293d.pdf</a>
WIMA	C-630V 10NF//MKP10 0,010/10/630/10	CAP 0.01UF 10% 630V METAL POLY 5x10x10/10mm <a href="http://wima.com/EN/mkp10.htm">wima.com/EN/mkp10.htm</a>
YAGEO	C-0805 1.0NF 5% 50V NP0 // 2238 861 15102	C-0805 1.0nF 5% 50V NP0 RoHSconf <a href="http://yageo.com/pdf/NP0_50-to-500V_10.pdf">yageo.com/pdf/NP0_50-to-500V_10.pdf</a>

## SINGLE-ENDED LEADS – Low Impedance and long life 105°C / 5000 h

### Description

Long life 5000 hours and high reliability.

### Applications

Electronic ballast and other long life equipment.  
Special designs are available upon request.

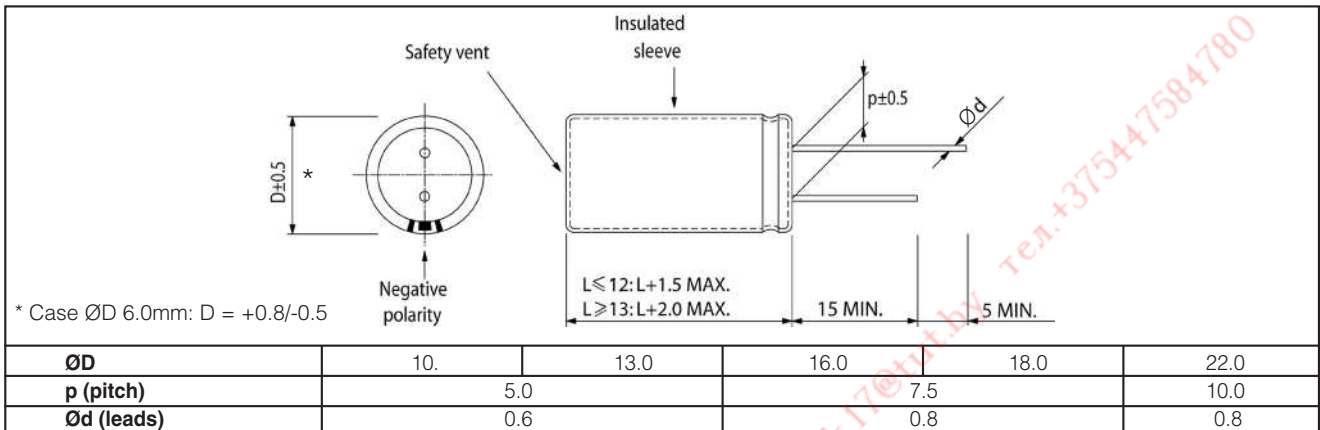
### Features

Case with  $\varnothing D \geq 6.0$  mm has the safety vent at the bottom.

### Marking

ARCOTRONICS' logo  
Series: (ESG), Operating temperature: (105°C)  
Capacitance ( $\mu\text{F}$ ), Rated voltage: (Vdc),  
Negative polarity: (white line), Date code

### Diagram of dimensions (Units=mm)



### Electrical characteristics

Rated voltage	160 to 400 Vdc	450 Vdc
Operating temperature	-40 to +105°C	-25 to +105°C
Capacitance range	3.3 $\mu\text{F}$ to 330 $\mu\text{F}$	
Capacitance tolerance	$\pm 20\%$ at 120Hz / 20°C	
Endurance test	5000 h (see conditions in Test method and performance)	
Leakage current	$I = 0.06 CV (\mu\text{A}) + 10\mu\text{A}$ C = rated capacitance ( $\mu\text{F}$ ); V = rated voltage (Vdc) (after than D.C. rated working voltage at 20°C has been applied for 2 min)	

### Impedance Z characteristics at 120 Hz

Rated voltage (Vdc)	160	200	250	350	400	450
Z (-25°C) / Z (20°C)	3	3	3	5	5	6
Z (-40°C) / Z (20°C)	6	6	6	6	6	

### Compensation factor of ripple current (R.C.) vs. frequency

Frequency	50 to 60 Hz	120 Hz	300 Hz	1 kHz	10 to 100 kHz
Multiplier factors	0.80	1.00	1.20	1.40	1.60

### Compensation factor of ripple current (R.C.) vs. temperature

Temperature	65°C	85°C	105°C
Multiplier factors	1.70	1.40	1.00

### Test method and performance

Conditions	Load life test	Shelf life test
Temperature: Test duration: Ripple current: Voltage:	105°C 5000 hours max ripple current at 120Hz 105°C specified in the table the sum of D.C. voltage and the peak A.C. voltage must not exceed the rated voltage of capacitor.	105°C 1000 hours no ripple current applied. no voltage applied.
Performance	The following specifications will be satisfied when the capacitors will be restored at 20°C.	
Capacitance change: Dissipation factor: Leakage current:	within 20% of initial value. not exceed 200% of the initial requirement. not exceed initial requirement.	within 20% of initial value. not exceed 200% of the initial requirement. not exceed initial requirement.

## SINGLE-ENDED LEADS – Low Impedance and long life 105°C / 5000 h

### Technical data and ordering codes

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	160 Vdc Rated voltage - 200 Vdc Surge voltage				L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C ( $\text{tg}\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 120 Hz 105°C ( $\text{mA}_{\text{rms}}$ )			
22	10 x 19	15	1.52	160	221	ESG226M160AH4AA	
33	10 x 19	15	1.30	210	327	ESG336M160AH4AA	
47	13 x 20	15	0.95	260	461	ESG476M160AL3AA	
68	13 x 25	15	0.60	360	663	ESG686M160AL4AA	
68	16 x 20	15	0.55	430	663	ESG686M160AM5AA	
100	16 x 25	15	0.30	475	970	ESG107M160AM7AA	
100	18 x 20	15	0.31	465	970	ESG107M160AN4AA	
150	16 x 32	15	0.22	650	1450	ESG157M160AM2AA	
150	18 x 25	15	0.24	625	1450	ESG157M160AN5AA	
220	16 x 32	15	0.22	750	2122	ESG227M160AM2AA	
220	18 x 25	15	0.24	725	2122	ESG227M160AN5AA	
330	18 x 32	15	0.22	960	3178	ESG337M160AN1AA	

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	200 Vdc Rated voltage - 250 Vdc Surge voltage				L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C ( $\text{tg}\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 120 Hz 105°C ( $\text{mA}_{\text{rms}}$ )			
10	10 x 12	15	6.00	60	130	ESG106M200AH1AA	
22	10 x 19	15	1.50	160	274	ESG226M200AH4AA	
33	13 x 20	15	0.95	210	406	ESG336M200AL3AA	
47	13 x 20	15	0.91	260	574	ESG476M200AL3AA	
68	13 x 25	15	0.60	360	826	ESG686M200AL4AA	
68	16 x 20	15	0.55	430	826	ESG686M200AM5AA	
100	16 x 25	15	0.30	475	1210	ESG107M200AM7AA	
100	18 x 20	15	0.31	465	1210	ESG107M200AN4AA	
150	18 x 25	15	0.27	650	1810	ESG157M200AN5AA	
220	18 x 32	15	0.22	780	2650	ESG227M200AN1AA	

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	250 Vdc Rated voltage - 300 Vdc Surge voltage				L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C ( $\text{tg}\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 120 Hz 105°C ( $\text{mA}_{\text{rms}}$ )			
10	10 x 19	15	3.50	100	160	ESG106M250AH4AA	
22	13 x 20	15	2.50	160	340	ESG226M250AL3AA	
33	13 x 20	15	1.90	210	505	ESG336M250AL3AA	
47	13 x 25	15	1.70	270	715	ESG476M250AL4AA	
47	16 x 20	15	1.50	275	715	ESG476M250AM5AA	
68	16 x 25	15	0.80	380	1030	ESG686M250AM7AA	
68	18 x 20	15	0.95	375	1030	ESG686M250AN4AA	
100	16 x 32	15	0.65	520	1510	ESG107M250AM2AA	
100	18 x 25	15	0.65	500	1510	ESG107M250AN5AA	
150	18 x 32	15	0.45	650	2260	ESG157M250AN1AA	
220	18 x 40	15	0.35	820	3310	ESG227M250AN3AA	

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	350 Vdc Rated voltage - 400 Vdc Surge voltage				L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C ( $\text{tg}\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 120 Hz 105°C ( $\text{mA}_{\text{rms}}$ )			
10	10 x 19	20	3.00	100	220	ESG106M350AH4AA	
22	13 x 20	20	2.10	160	472	ESG226M350AL3AA	
33	13 x 25	20	1.00	230	703	ESG336M350AL4AA	
33	16 x 20	20	0.91	250	703	ESG336M350AM5AA	
47	16 x 25	20	0.75	300	997	ESG476M350AM7AA	
47	18 x 20	20	0.80	315	997	ESG476M350AN4AA	
68	16 x 32	20	0.50	400	1438	ESG686M350AM2AA	
68	18 x 25	20	0.55	380	1438	ESG686M350AN5AA	
100	18 x 32	20	0.40	530	2110	ESG107M350AN1AA	

## SINGLE-ENDED LEADS – Low Impedance and long life 105°C / 5000 h

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	400 Vdc Rated voltage - 450 Vdc Surge voltage				L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C ( $\text{tg}\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 120 Hz 105°C ( $\text{mA}_{\text{rms}}$ )			
1.5	10 x 12	24	18.0	35	46	ESG155M400AH1AA	
2.2	10 x 12	24	12.5	40	63	ESG225M400AH1AA	
3.3	10 x 12	24	8.00	45	90	ESG335M400AH1AA	
4.7	10 x 15	24	3.50	50	123	ESG475M400AH2AA	
6.8	10 x 19	24	3.30	70	173	ESG685M400AH4AA	
10	10 x 19	24	2.90	100	250	ESG106M400AH4AA	
22	13 x 25	24	1.35	170	538	ESG226M400AL4AA	
22	16 x 20	24	1.00	200	538	ESG226M400AM5AA	
33	16 x 25	24	0.95	230	802	ESG336M400AM7AA	
33	18 x 20	24	0.91	250	802	ESG336M400AN4AA	
47	16 x 32	24	0.75	300	1138	ESG476M400AM2AA	
47	18 x 25	24	0.80	325	1138	ESG476M400AN5AA	
68	18 x 36	24	0.49	420	1642	ESG686M400AN2AA	
100	18 x 40	24	0.34	545	2410	ESG107M400AN3AA	
150	22 x 40	24	0.30	650	3610	ESG157M400AQ4AA	

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	450 Vdc Rated voltage - 500 Vdc Surge voltage				L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C ( $\text{tg}\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 120 Hz 105°C ( $\text{mA}_{\text{rms}}$ )			
3.3	10 x 19	24	6.50	60	99	ESG335M450AH4AA	
4.7	13 x 20	24	3.60	80	137	ESG475M450AL3AA	
6.8	10 x 19	24	3.40	90	194	ESG685M450AH4AA	
10	13 x 20	24	3.00	110	280	ESG106M450AL3AA	
22	16 x 25	24	1.80	190	604	ESG226M450AM7AA	
22	18 x 20	24	2.20	200	604	ESG226M450AN4AA	
33	16 x 32	24	1.30	275	901	ESG336M450AM2AA	
33	18 x 25	24	1.20	280	901	ESG336M450AN5AA	
47	18 x 32	24	1.00	340	1279	ESG476M450AN1AA	
68	18 x 40	24	0.80	460	1846	ESG686M450AN3AA	
100	22 x 40	24	0.60	580	2710	ESG107M450AQ4AA	