Radial Aluminum and Plastic Case Power Film Capacitors

C44P/C20A, 250 – 1,000 VAC, 400 – 1,400 VDC, for PFC and AC Filter

Overview

Polypropylene metallized film with cylindrical aluminium can type filled with oil, screw terminals, plastic insulator and overpressure safety device.

Applications

Typical applications include commutation, power factor correction and AC harmonic filtering.

Benefits

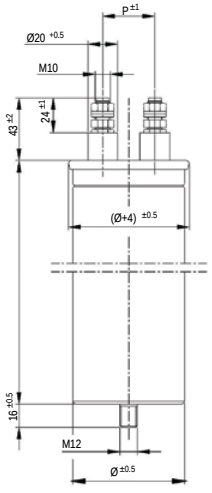
- Overpressure safety device
- High peak current capability
- High torque screw terminals with plastic insulator
- Long lifetime
- Self-healing

Part Number Decoding

C	44	P	F		G	R	6	2	2	0	Z	A	0	J
Series	Series	Application	Rated Voltage (VAC)		Case Type	Terminal Style	Capacitance Code (pF)				Internal Code	Internal Code	Internal Code	Tolerance
MKP Capacitors for Power Applications	44 = 250 – 440 V_{rms} 20 = 550 – 1,000 V_{rms}	AC Filter P = C44 A = C20	For C44P F = 25 L = 330 K = 440	For C20A K = 550 L = 640 Q = 780 Z = 1,000	G = with M12 bolt	R= Male M10	Digits 9, 10, & 11 indicate the first 3 digits of capacitance value. Digit 8 indicates the number of zeros that must be added to obtain rated capacitance in pF.				A = Standard Z = Special			J = 5% K = 10%

Mechanical Data

P (Terminals Pitch)	28 mm for D = 65 mm 35 mm for D ≥ 75 mm
Maximum Driving Torque	10 Nm
Creepage Distance	> 10 mm
Clearance in Air	> 10 mm
Insulation Group	D



Qualification

Reference Standards	EIC 61071
Application Class (DIN 40040)	HSF/LR

Performance Characteristics

Reference Standards	IEC 1071, EN 61071, VDE 0560–12
Application Class (DIN 40040)	HSF/LR according to DIN 40040
Temperature Range (Case)	-25 to + 70°C
Temperature Storage	-55 to + 85°C
Maximum Permissible Ambient Temperature	+70°C
Capacitance Tolerance Code (15th Digit)	J = ± 5%, K = ± 10%
Test Voltage Terminal to Terminal (V_{TT})	2.15 V_{RMS} for 10 seconds at 25°C
Test Voltage Terminal to Case (V_{TC})	4 kV – 50 Hz for 60 seconds
Rated Insulation Voltage V_i	3,600 VAC for 10 seconds at 25°C for V_{rms} < 600 VAC
Insulation Resistance	≥ 10,000 MΩ x µF
Dissipation Factor (tgδ)	≤ 3 x 10^{-4} (V_n, 50 Hz)
Acceptable Relative Humidity	Annual average ≤ 70% ≤ 85% for ≤ 30 intermittent days annually Dewing not admissible
IEC Climatic Category	25/70/56 according to IEC 68–1
Degree of Protection	IP00
Capacitance Deviation in the Operating Temperature Range of -40 to +70°C	±1.5% maximum on capacitance value measured at +20°C
Change of Capacitance vs. Operating Time	-3% after 100,000 hours at V_{rms}
Terminations	Plastic insulator with screw terminals M10
Installation	Space for safety device ≥ 15 mm
Life Expectancy	≥ 100,000 hours at V_{rms}
Failure Quota	300/10^9 components per hour

Table 1 – Ratings & Part Number Reference

VDC	VAC	Cap Value (µF)	Dimensions (mm)			Vpk VDC	I_{pkr} A	I_{rms} A	Weight (kg)	Part Number
			D	H	P					
400	250	300	75	268	35	600	3000	60	1.2	C44PFGR6300ZA0J
400	250	400	85	268	35	600	4000	65	1.7	C44PFGR6400ZA0J
400	250	500	85	268	35	600	5000	65	1.7	C44PFGR6500AA0J
400	250	600	95	280	35	600	6000	65	2.1	C44PFGR6600AA0J
500	330	100	65	115	28	700	1500	25	0.5	C44PLGR6100AASJ
500	330	200	65	145	28	700	3000	43	0.6	C44PLGR6200ZASJ
500	330	300	65	247	28	700	4500	50	0.8	C44PLGR6300ZASJ
500	330	400	65	247	28	700	6000	50	1	C44PLGR6400ZASJ
500	330	500	75	247	35	700	7500	58	1.2	C44PLGR6500ZASJ
500	330	600	85	270	35	700	9000	70	1.3	C44PLGR6600ZASJ
750	440	100	75	147	35	940	2000	30	0.7	C44PKGR6100AASJ
750	440	133	65	247	28	940	3000	40	0.8	C44PKGR6133AASJ
750	440	150	65	247	28	940	3000	45	1	C44PKGR6150AASJ
750	440	200	75	247	35	940	4000	55	1.2	C44PKGR6200AASJ
750	440	300	85	247	35	940	4000	60	1.6	C44PKGR6300AASJ
750	550	22	65	117	28	940	1540	40	0.4	C20AKGR5220AASK
750	550	33	75	117	35	940	2310	45	0.5	C20AKGR5330AASK
750	550	47	65	247	28	940	3290	50	0.8	C20AKGR5470AASK
750	550	68	65	247	28	940	4760	55	1	C20AKGR5680AASK
750	550	100	75	247	35	940	7000	60	1.5	C20AKGR6100AASK
750	550	120	85	247	35	940	8400	60	2	C20AKGR6120AASK
750	550	150	95	247	35	940	10500	60	2.3	C20AKGR6150AASK
900	640	15	65	117	28	1130	1350	45	0.4	C20ALGR5150AASK
900	640	22	75	147	35	1130	1980	45	0.5	C20ALGR5220AASK
900	640	33	75	147	35	1130	2970	50	0.8	C20ALGR5330AASK
900	640	47	65	247	28	1130	4230	55	1	C20ALGR5470AASK
900	640	68	75	247	35	1130	6120	60	1.5	C20ALGR5680AASK
900	640	100	95	247	35	1130	9000	60	2.3	C20ALGR6100AASK
900	640	120	95	280	35	1130	10800	60	2.5	C20ALGR6120AASK
900	640	150	116	280	35	1130	13500	60	3	C20ALGR6150AASK
1100	780	10	65	147	28	1380	1000	30	0.4	C20AQGR5100AASK
1100	780	15	75	147	35	1380	1500	45	0.5	C20AQGR5150AASK
1100	780	22	75	147	35	1380	2200	45	0.8	C20AQGR5220AASK
1100	780	33	85	147	35	1380	3300	50	1.2	C20AQGR5330AASK
1100	780	47	75	247	35	1380	4700	55	1.5	C20AQGR5470AASK
1100	780	68	85	247	35	1380	6800	60	2	C20AQGR5680AASK
1100	780	100	95	280	35	1380	10000	60	2.5	C20AQGR6100AASK
1000	1400	10	65	147	28	1700	1000	25	0.56	C20AZGR5100AASK
1000	1400	15	75	147	35	1700	1500	33	0.75	C20AZGR5150AASK
1000	1400	22	75	147	35	1700	2200	35	0.75	C20AZGR5220AASK
1000	1400	33	75	247	35	1700	3300	40	1.25	C20AZGR5330AASK
1000	1400	47	85	247	35	1700	4700	45	1.65	C20AZGR5470AASK
1000	1400	68	95	247	35	1700	6800	55	2	C20AZGR5680AASK
VDC	VAC	**Cap Value (µF)**	**D (mm)**	**H (mm)**	**P (mm)**	Vpk VDC	I_{pkr} A	I_{rms} A	**Weight (kg)**	**Part Number**

Roll Over for Order Info.

Environmental Compliance

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

In Europe (RoHS Directive) and in some other geographical areas like China, legislation has been put in place to prevent the use of some hazardous materials, like 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 like Medical, Military and Automotive Electronics may still require the use of Lead in electrode coatings. To clarify the situation and distinguish products from each other, a special symbol is used on the packaging labels for RoHS compatible capacitors.

Because of customer requirements there may appear additional markings like LF = Lead Free or LFW = Lead Free Wires on the label.

All KEMET power film products are RoHS Compliant.

RoHS Compliant

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 acceptance. All materials are, to the company's present knowledge, non-toxic and free from Cadmium, Mercury, Chrome and compounds, PCB (Polychlorine Triphenyl), Bromide and Chlorine Dioxins Bromurate Clorurate, CFC and HCFC and Asbestos.

Insulation Resistance

When the capacitor temperature increases, the insulation resistance decreases. This is due to 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 tgδ may change up and down with increased temperature. For more information, please refer to Performance Characteristics.

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 operation cannot be dissipated properly and can result in high R^{I2} 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.

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Shanghai, China
Tel: 86-21-6447-0707

Taipei, Taiwan
Tel: 886-2-27528585

Southeast Asia
Singapore
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Penang, Malaysia
Tel: 60-4-6430200

Bangalore, India
Tel: 91-806-53-76817

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Other Kemet Resources

Tools	
Resource	Location
Configure A Part: CapEdge	http://capacitoredge.kemet.com
SPICE & FIT Software	http://www.kemet.com/spice
Search Our FAQs: KnowledgeEdge	http://www.kemet.com/keask

Product Information	
Resource	Location
Products	http://www.kemet.com/products
Technical Resources (Including Soldering Techniques)	http://www.kemet.com/technicalpapers
RoHS Statement	http://www.kemet.com/rohs
Quality Documents	http://www.kemet.com/qualitydocuments

Product Request	
Resource	Location
Sample Request	http://www.kemet.com/sample
Engineering Kit Request	http://www.kemet.com/kits

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Although we design and manufacture our 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.

Digitally signed by Marcy Brand
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