C44U, 700 – 1,300 VDC, for DC Link

Overview

Polypropylene segmented metallized film with cylindrical aluminium can type filled with resin, screw terminals and plastic deck.

Applications

Typical applications include DC filtering and energy storage.

Benefits

- Controlled self-healing
- Low losses
- High ripple current
- High capacitance density
- Long lifetime

Part Number Decoding

C4	4	U	J	G	T	6	1	2	0	A	7	T	K
Series			DC Voltage	Case and Fixing	Terminals Code	Capacitance Code (pF)				Variants	Case Diameter	Film Type	Tolerance
MKP Capacitors for Power Applications	Cylindrical Types	DC Link	J = 700 V O = 900 V Q = 1100 V U = 1300 V	G = Cylindrical case with threaded bolt M12 E = Cylindrical case without threaded bolt	T = M6 Female Terminals Q = M8 Male Terminals Y = M8 Female Terminals	Digits 9, 10, & 11 indicate the first 3 digits of capacitance value. Digit 8 indicates the number of zeroes that must be added in order to obtain rated capacitance in pF				A = 85°C Hot Spot Temperature Series F = 70°C Hot Spot Temperature Series	7 = 76 mm 8 = 85 mm	T = Standard Film S = Segmented Film	J = 5% K = 10%

Qualification

Reference Standards	IEC 61071
IEC Climatic Category	40/85/21 according to IEC 60068-1

General Technical Data

Dielectric	Polypropylene Metallized Film – non inductive self-healing
Application	DC Filtering/DC Link
Climatic Category	40/85/21 IEC 60068–1
Maximum Operating Temperature	+90°C
Upper Temperature T_{MAX} Group A	+85°C IEC 61071 – Endurance Test Temperature
Upper Temperature T_{MAX} Group B	+70°C IEC 61071 – Endurance Test Temperature
Lower Temperature T_{min}	-40°C
Standard	IEC 61071
Protection	Aluminium case with or without, threaded bolt M12
	Plastic deck flame retardant execution UL 94 V–0
	Thermosetting resin sealing UL 94 V–0 compliant
Installation	Any position
Leads	High current M6 or M8 terminals
Packaging	Packed in cardboard boxes with protection for the terminals
RoHS Compliant	Compliant with the restricted substance requirements of Directive 2002/95/EC

Electrical Characteristics

Capacitance Tolerance	± 10% at T = 25°C
Dissipation Factor PP Typical (tgδ0)	≤ 0.0002 at 10 kHz with T = 25°C ±5°C
Surge Voltage	1.5 x V_{NDC} for maximum 10 times in lifetime at 25°C
Over-Voltage (IEC 61071)	1.15 x V_{NDC} for maximum 30 minimum - once per day
	1.3 x V_{NDC} for maximum 1 minimum - once per day
Peak Non-Repetitive Current	1.5 x I_{pkr} maximum 1,000 times in life time
Insulation Resistance	IR x C ≥ 30,000 seconds at 100 VDC 1 minute T = 25°C
Capacitance Deviation in Operation	±1.5% maximum on capacitance value measured at T = 25°C
Permissible Relative Humidity	Annual average ≤ 70%. 85% on 30 days/year randomly distributed throughout the year. Dewing not admissible.

Life Expectancy

Life Expectancy Group A	100,000 hours at V_{NDC} @ hot spot temperature T_{HS} = 85°C
Life Expectancy Group B	100,000 hours at V_{NDC} @ hot spot temperature T_{HS} = 70°C
Capacitance Drop at End of Life	-10% (typical)
Failure Rate IEC 61709	50 FIT at V_{NDC} @ reference T_{HS} (see FIT curves)

Test Method

Test Voltage Between Terminals	1.5 x V_{NDC} for 10 seconds or 1.65 V_{NDC} for 2 seconds at T = 25°C
Test Voltage Between Terminals and Case	3.2 k VAC 50 Hz for 2 seconds
Damp Heat	IEC 60068–2–78
Change of Temperature	IEC 60068–2–14

Table 1 – Ratings & Part Number Reference

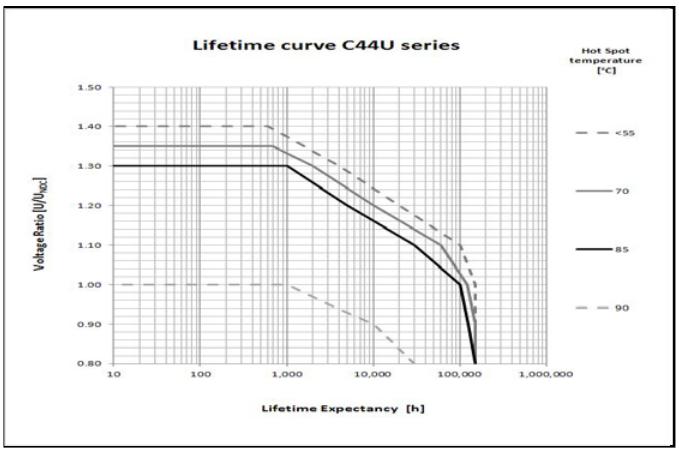
VDC	Cap Value (µF)	Dimensions (mm)			SPQ pcs	W gr	dV/dt (V/µs)	I_{pkr} A	ESL nH	ESR 10 kHz mΩ	I_{rms}* 40°C @ 10 kHz A	RTH (Hs/Amb)	Part Number Group A Heavy Duty
		ø	H	H1									
700	120	76	55	61	18	280	21	2520	36	1:01	63	9:09	C44UJGT6120A7TK
700	160	85	55	61	10	354	21	3360	36	0:09	73	8:06	C44UJGT6160A8TK
700	175	76	70	76	18	348	14	2450	40	1:04	62	8:02	C44UJGT6175A7TK
700	225	85	70	76	10	414	14	3150	40	1:02	70	7:02	C44UJGT6225A8TK
700	350	76	120	126	9	569	7	2450	50	2:08	55	5:03	C44UJGT6350A7SK
700	425	76	140	146	9	656	6	2550	60	3:02	55	4:06	C44UJGT6425A7SK
700	450	85	120	126	5	723	7	3150	50	2:03	65	4:06	C44UJGT6450A8SK
700	550	85	140	146	5	831	6	3300	60	2:06	65	4:01	C44UJGT6550A8SK
900	75	76	55	61	18	283	26	1950	36	1:04	57	9:09	C44UOGT5750A7TK
900	100	85	55	61	10	355	26	2600	36	1:02	65	8:06	C44UOGT6100A8TK
900	110	76	70	76	18	324	17	1870	40	1:06	57	8:02	C44UOGT6110A7TK
900	150	85	70	76	10	437	17	2550	40	1:04	65	7:02	C44UOGT6150A8TK
900	220	76	120	126	9	574	9	1980	50	3:03	50	5:03	C44UOGT6220A7SK
900	275	76	140	146	9	654	7	1925	60	3:08	50	4:06	C44UOGT6275A7SK
900	300	85	120	126	5	711	9	2700	50	2:07	60	4:06	C44UOGT6300A8SK
900	350	85	140	146	5	833	7	2450	60	3:00	60	4:01	C44UOGT6350A8SK
1100	50	76	55	61	18	265	31	1550	36	1:06	52	9:09	C44UQGT5500A7TK
1100	70	85	55	61	10	356	31	2170	36	1:03	62	8:06	C44UQGT5700A8TK
1100	75	76	70	76	18	352	21	1575	40	1:06	58	8:02	C44UQGT5750A7TK
1100	100	85	70	76	10	414	21	2100	40	1:07	60	7:02	C44UQGT6100A8TK
1100	150	76	120	126	9	577	11	1650	50	4:01	45	5:03	C44UQGT6150A7SK
1100	190	76	140	146	9	654	9	1710	60	4:03	47	4:06	C44UQGT6190A7SK
1100	200	85	120	126	5	723	11	2200	50	3:02	55	4:06	C44UQGT6200A8SK
1100	250	85	140	146	5	824	9	2250	60	3:06	55	4:01	C44UQGT6250A8SK
VDC	**Cap Value (µF)**	ø	**H (mm)**	**H1 (mm)**	SPQ	W	**dV/dt (V/µs)**	I_{pkr} A	ESL	ESR	I_{rms} A	RTH **(Hs/Amb)**	**Part Number**

VDC	Cap Value (µF)	Dimensions (mm)			SPQ pcs	W gr	dV/dt (V/µs)	I_{pkr} A	ESL nH	ESR 10 kHz mΩ	I_{rms}* 40°C @ 10 kHz A	RTH (Hs/Amb)	Part Number Group B Standard Duty
		ø	H	H1									
900	200	Ø	H	H1	9	645	10	2000	36	2:03	45	6:04	C44UOGQ6200F7SK
900	270	76	95	101	9	610	10	2700	36	1:08	50	6:04	C44UOGQ6270F7SK
900	370	76	95	101	5	715	10	3700	40	1:04	60	5:06	C44UOGQ6370F8SK
900	510	85	95	101	5	840	7	3570	40	1:08	60	4:06	C44UOGQ6510F8SK
900	600	85	120	126	5	950	7	4200	40	2:02	58	4:01	C44UOGQ6600F8SK
1100	130	85	140	146	9	580	12	1560	36	2:08	40	6:04	C44UQGQ6130F7SK
1100	175	76	95	101	9	610	12	2100	36	2:02	46	6:04	C44UQGQ6175F7SK
1100	240	76	95	101	5	710	12	2880	40	1:07	56	5:06	C44UQGQ6240F8SK
1100	280	85	95	101	9	805	7	1960	40	3:04	43	4:06	C44UQGQ6280F7SK
1100	330	76	140	146	5	990	7	2310	40	2:09	50	4:01	C44UQGQ6330F8SK
1100	500	85	140	146	5	1120	12	6000	80	1:01	90	3:04	C44UQGQ6500F8SK
1300	90	85	174	180	9	580	15	1350	36	3:03	37	6:04	C44UUGQ5900F7SK
1300	120	76	95	101	9	610	15	1800	36	2:05	43	6:04	C44UUGQ6120F7SK
1300	165	76	95	101	5	716	15	2475	40	2:00	52	5:06	C44UUGQ6165F8SK
1300	195	85	95	101	9	797	9	1755	50	4:00	40	4:06	C44UUGQ6195F7SK
1300	250	76	140	146	5	957	9	2250	50	3:03	47	4:01	C44UUGQ6250F8SK
1300	320	85	140	146	5	1130	15	4800	80	1:03	82	3:04	C44UUGQ6320F8SK
1300	550	85	174	180	5	1600	9	4950	100	1:09	82	2:03	C44UUGQ6550F8SK
VDC	**Cap Value (µF)**	ø	**H (mm)**	**H1 (mm)**	SPQ	W	**dV/dt (V/µs)**	I_{pkr} A	ESL	ESR	I_{rms} A	RTH **(Hs/Amb)**	**Part Number**

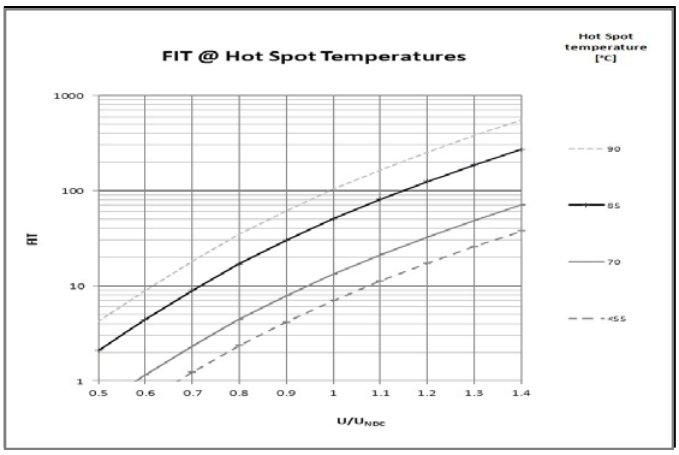
Roll Over for Order Info.

Lifetime Expectancy/Failure Quota Graphs

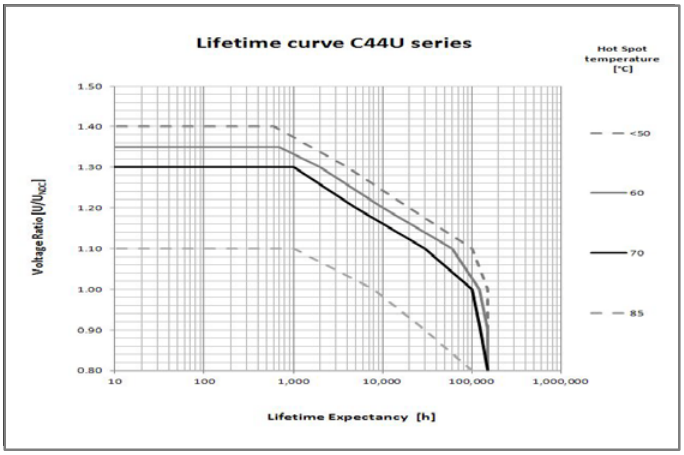
Lifetime Curve Group A – Heavy Duty



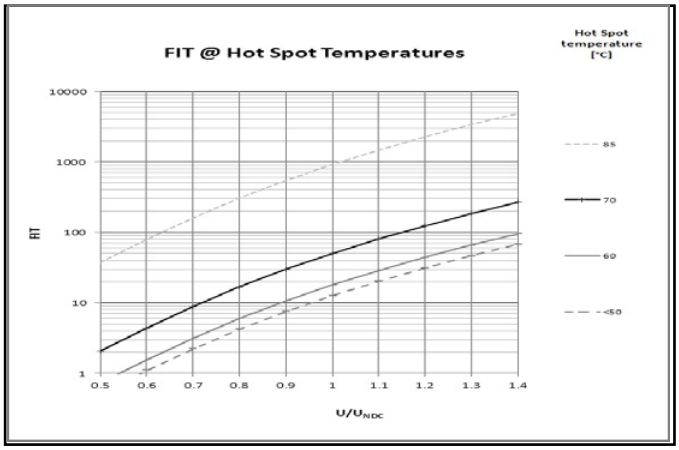
FIT Group A – Heavy Duty



Lifetime Curve Group B – Standard Duty



FIT Group B – Standard Duty



Notes :

$T_{HS} = T_{AMB} + \Delta T$ with $\Delta T = ESR * I_{rms}2 * Rth$

I_{rms} should be limited to always grant $\Delta T \leq 45°C$

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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Paris, France
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Sasso Marconi, Italy
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Milan, Italy
Tel: 39-02-57518176

Rome, Italy
Tel: 39-06-23231718

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Tel: 49-8191-3350800

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Kwidzyn, Poland
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Färjestaden, Sweden
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Northeast Asia
Hong Kong
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Shenzhen, China
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Beijing, China
Tel: 86-10-5829-1711

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

Taipei, Taiwan
Tel: 886-2-27528585

Southeast Asia
Singapore
Tel: 65-6586-1900

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

Contact	
Resource	Location
Website	www.kemet.com
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Investor Relations	http://www.kemet.com/ir
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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.