C44U, 600 – 1,300 VDC, for DC Link

Overview

The C44U series is a polypropylene segmented metallized film capacitor with a cylindrical, aluminium can-type design filled with resin. It uses screw terminals and a plastic deck.

Applications

Typical applications include DC filtering and energy storage.

Benefits

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

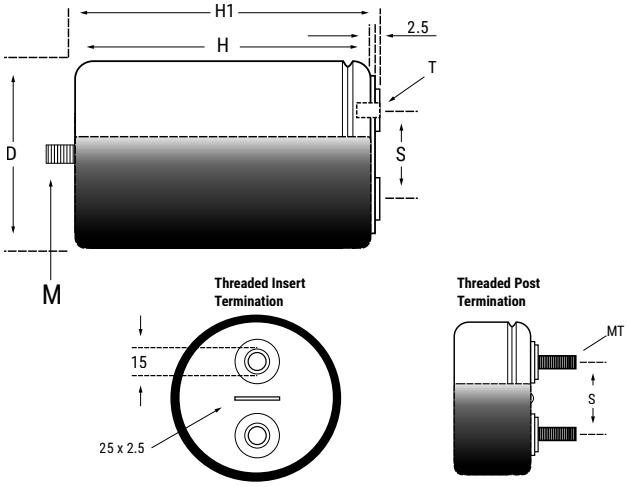


Part Number System

C4	4	U	Q	G	T	6	5	0	0	F	8	S	K
Series			DC Voltage	Case and Fixing	Terminals Code	Capacitance Code (pF)				Variants	Case Diameter	Film Type	Tolerance
C4 = MKP Capacitors for Power Applications	4 = Cylindrical types	U = DC link	H = 600 V J = 700 V O = 900 V Q = 1,100 V U = 1,300 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 nine, ten, and eleven indicate the first three digits of capacitance value. Digit eight indicates the number of zeros to be added.				A = 85°C hot spot temperature series F/G = 70°C hot spot temperature series	7 = 76 mm 8 = 85 mm	T = Standard film S = Segmented film	J = 5% K = 10%

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Dimensions – Millimeters



D	H	H1	S	Threaded Insert Terminations (T)	Threaded Post Terminations (MT)	Mounting Stud (M)
+1/-0	+0.5/-0	±1	±0.2			
76	55	61	31.7	M6 x 12	M8 x 22.5	M12 x 16
76	70	76	31.7	M6 x 12	M8 x 22.5	M12 x 16
76	95	101	31.7	M6 x 12	M8 x 22.5	M12 x 16
76	120	126	31.7	M6 x 12	M8 x 22.5	M12 x 16
76	140	146	31.7	M6 x 12	M8 x 22.5	M12 x 16
85	55	61	31.7	M6 x 12	M8 x 22.5	M12 x 16
85	70	76	31.7	M6 x 12	M8 x 22.5	M12 x 16
85	95	101	31.7	M6 x 12	M8 x 22.5	M12 x 16
85	120	126	31.7	M6 x 12	M8 x 22.5	M12 x 16
85	124.5	126	32	M6 x 10	M8 x 22.5	M12 x 16
85	140	146	31.7	M6 x 12	M8 x 22.5	M12 x 16
85	155	161	31.7	M6 x 12	M8 x 22.5	M12 x 16
85	174	180	31.7	M6 x 12	M8 x 22.5	M12 x 16
85	264	270	31.7	M6 x 12	M8 x 22.5	M12 x 16

Qualifications

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

General Technical Data

Dielectric	Polypropylene Metallized Film, non-inductive type, self-healing property
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 Directive 2002/95/EC and Directive 2011/65/EU of the European Parliament and of the Council on 8 June 2011, including Commission Delegated Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Electrical Characteristics

Capacitance Tolerance	±10% at +25°C
Dissipation Factor (DF)	≤ 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 lifetime
Insulation Resistance	IR x C ≥ 30,000 seconds at 100 VDC 1 minute at +25°C
Capacitance Deviation in Operation	±1.5% maximum on capacitance value measured at +25°C
Permissible Relative Humidity	Annual average ≤ 70%; 85% on 30 days/year randomly distributed throughout the year. Dewing not admissible.

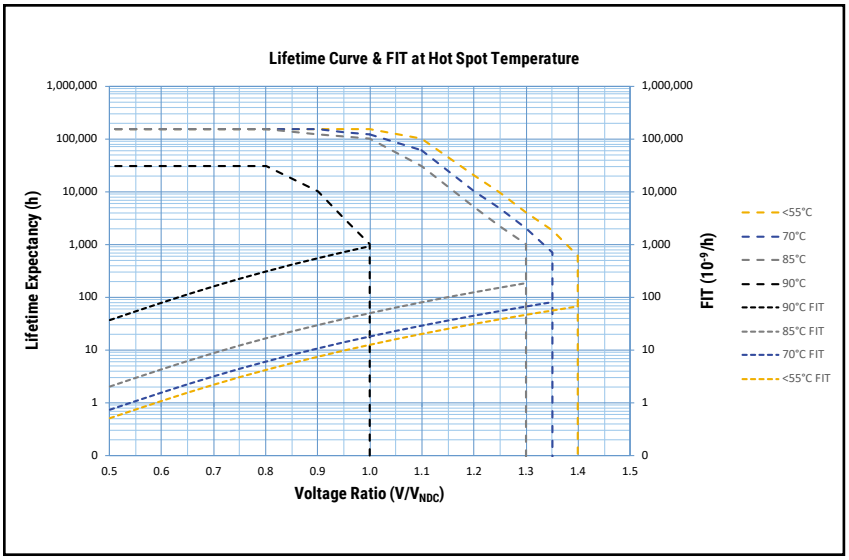
Life Expectancy

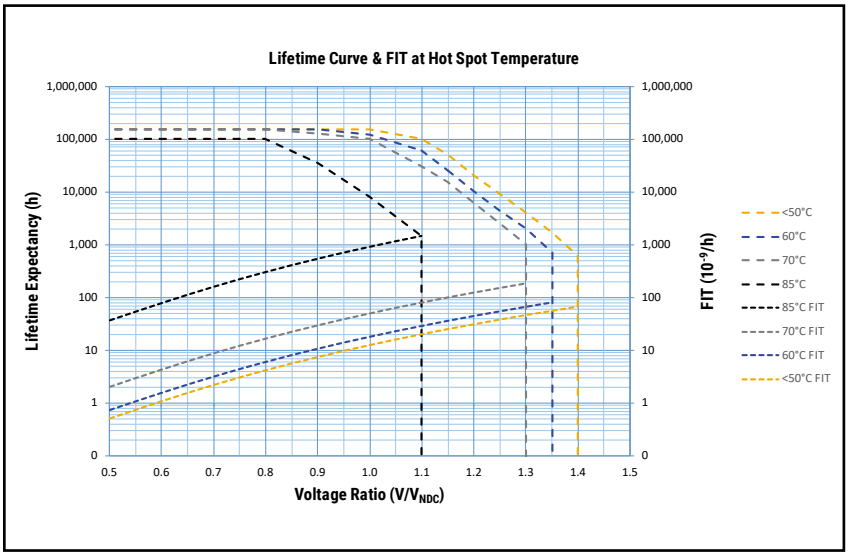
Life Expectancy – Group A	100,000 hours at V_{NDC} at Hot-Spot temperature T_{HS} = 85°C
Life Expectancy – Group B	100,000 hours at V_{NDC} at Hot-Spot temperature T_{HS} = 70°C
Capacitance drop at end of life	–10% (typical)
Failure Rate IEC 61709	50 FIT at V_{NDC} at reference T_{HS} (see FIT curves)

Test Method

Test voltage between terminals	1.5 x V_{NDC} for 10 seconds or 1.65 V_{NDC} for 2 seconds at 25°C
Test voltage between terminals and case	3.2 kVAC 50 Hz for 2 seconds
Damp Heat	IEC 60068–2–78
Change of temperature	IEC 60068–2–14

Lifetime Expectancy/Failure Quota Graphs





Notes:
$T_{HS} = T_{AMB} + \Delta T$
$\Delta T = ESR * I_{rms}^2 * Rth$
I_{rms} should be limited to values granting $\Delta T \leq 30°C$

Table 1A – Ratings & Part Number Reference

Cap Value (µF)	VDC	Maximum Dimensions (mm)			Ripple Current	Peak Current	ESR	ESL	Thermal Res	dV/dt (V/µs)	Pkg Qty	Weight (grams)	Part Number Group A Heavy Duty
		D	H	H1	10 kHz 40°C (A)[1]	(A)	10 kHz (mΩ)	(nH)	(°C/W)				
120	700	76	55	61	63	2,520	1.1	36	9.9	21	18	280	C44UJGT6120A7TK
160	700	85	55	61	73	3,360	0.9	36	8.6	21	10	354	C44UJGT6160A8TK
175	700	76	70	76	62	2,450	1.4	40	8.2	14	18	348	C44UJGT6175A7TK
225	700	85	70	76	70	3,150	1.2	40	7.2	14	10	414	C44UJGT6225A8TK
350	700	76	120	126	55	2,450	2.8	50	5.3	7	9	569	C44UJGT6350A7SK
425	700	76	140	146	55	2,550	3.2	60	4.6	6	9	656	C44UJGT6425A7SK
450	700	85	120	126	65	3,150	2.3	50	4.6	7	5	723	C44UJGT6450A8SK
550	700	85	140	146	65	3,300	2.6	60	4.1	6	5	831	C44UJGT6550A8SK
75	900	76	55	61	57	1,950	1.4	36	9.9	26	18	283	C44UOGT5750A7TK
100	900	85	55	61	65	2,600	1.2	36	8.6	26	10	355	C44UOGT6100A8TK
110	900	76	70	76	57	1,870	1.6	40	8.2	17	18	324	C44UOGT6110A7TK
150	900	85	70	76	65	2,550	1.4	40	7.2	17	10	437	C44UOGT6150A8TK
220	900	76	120	126	50	1,980	3.3	50	5.3	9	9	574	C44UOGT6220A7SK
275	900	76	140	146	50	1,925	3.8	60	4.6	7	9	654	C44UOGT6275A7SK
300	900	85	120	126	60	2,700	2.7	50	4.6	9	5	711	C44UOGT6300A8SK
350	900	85	140	146	60	2,450	3.0	60	4.1	7	5	833	C44UOGT6350A8SK
50	1,100	76	55	61	52	1,550	1.6	36	9.9	31	18	265	C44UQGT5500A7TK
70	1,100	85	55	61	62	2,170	1.3	36	8.6	31	10	356	C44UQGT5700A8TK
75	1,100	76	70	76	58	1,575	1.6	40	8.2	21	18	352	C44UQGT5750A7TK
100	1,100	85	70	76	60	2,100	1.7	40	7.2	21	10	414	C44UQGT6100A8TK
150	1,100	76	120	126	45	1,650	4.1	50	5.3	11	9	577	C44UQGT6150A7SK
190	1,100	76	140	146	47	1,710	4.3	60	4.6	9	9	654	C44UQGT6190A7SK
200	1,100	85	120	126	55	2,200	3.2	50	4.6	11	5	723	C44UQGT6200A8SK
250	1,100	85	140	146	55	2,250	3.6	60	4.1	9	5	824	C44UQGT6250A8SK
Cap Value	**VDC**	**D**	**H**	**H1**	**Ripple Current**	**Peak Current**	**ESR**	**ESL**	**Thermal Res**	**dV/dt (V/µs)**	**Pkg Qty**	**Weight**	**Part Number**

[1] *Current values that lead to a ΔT of ~85°C in the Hot Spot $T_{HS} = T_{AMB} + \Delta T = 85°C$*

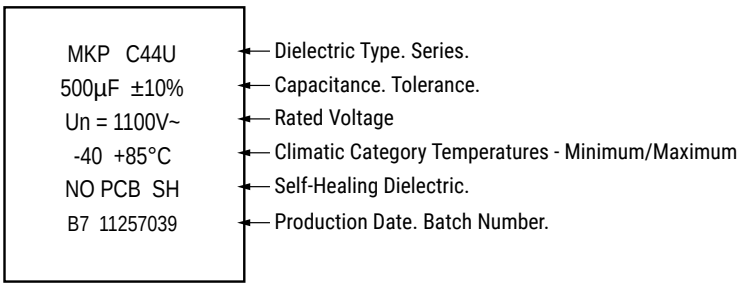
For Packaging quantities not listed, please contact KEMET.

Table 1B – Ratings & Part Number Reference

Cap Value (µF)	VDC	Maximum Dimensions (mm)			Ripple Current	Peak Current	ESR	ESL	Thermal Res	dV/dt (V/µs)	Pkg Qty	Weight (grams)	Part Number Group B Standard Duty
		D	H	H1	10 kHz 40°C (A)[1]	(A)	10 kHz (mΩ)	(nH)	(°C/W)				
600	600	85	124.5	126	83	8,200	0.75	50	5.8	14	5	940	C44UHGT6600G8TK
200	900	76	95	101	45	2,000	2.3	36	6.4	10	9	645	C44UOGQ6200F7SK
270	900	76	95	101	50	2,700	1.8	36	6.4	10	9	610	C44UOGQ6270F7SK
370	900	85	95	101	60	3,700	1.4	40	5.6	10	5	715	C44UOGQ6370F8SK
510	900	85	120	126	60	3,570	1.8	40	4.6	7	5	840	C44UOGQ6510F8SK
600	900	85	140	146	58	4,200	2.2	40	4.1	7	5	950	C44UOGQ6600F8SK
130	1,100	76	95	101	40	1,560	2.8	36	6.4	12	9	580	C44UQGQ6130F7SK
175	1,100	76	95	101	46	2,100	2.2	36	6.4	12	9	610	C44UQGQ6175F7SK
240	1,100	85	95	101	56	2,880	1.7	40	5.6	12	5	710	C44UQGQ6240F8SK
280	1,100	76	140	146	43	1,960	3.4	40	4.6	7	9	805	C44UQGQ6280F7SK
330	1,100	85	140	146	50	2,310	2.9	40	4.1	7	5	990	C44UQGQ6330F8SK
420	1,100	85	155	161	60	2,940	2.1	60	3.7	7	5	1120	C44UQGT6420G8SK
500	1,100	85	174	180	90	6,000	1.1	80	3.4	12	5	1120	C44UQGQ6500F8SK
90	1,300	76	95	101	37	1,350	3.3	36	6.4	15	9	580	C44UUGQ5900F7SK
120	1,300	76	95	101	43	1,800	2.5	36	6.4	15	9	610	C44UUGQ6120F7SK
165	1,300	85	95	101	52	2,475	2.0	40	5.6	15	5	716	C44UUGQ6165F8SK
195	1,300	76	140	146	40	1,755	4.0	50	4.6	9	9	797	C44UUGQ6195F7SK
250	1,300	85	140	146	47	2,250	3.3	50	4.1	9	5	957	C44UUGQ6250F8SK
320	1,300	85	174	180	82	4,800	1.3	80	3.4	15	5	1130	C44UUGQ6320F8SK
550	1,300	85	264	270	82	4,950	1.9	100	2.3	9	5	1600	C44UUGQ6550F8SK
Cap Value	**VDC**	**D**	**H**	**H1**	**Ripple Current**	**Peak Current**	**ESR**	**ESL**	**Thermal Res**	**dV/dt (V/µs)**	**Pkg Qty**	**Weight**	**Part Number**

[1] Current values that lead to a ΔT of ~70°C in the Hot Spot à $T_{HS} = T_{AMB} + \Delta T = 70°C$
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Dissipation Factor

Dissipation factor is a complex function involved with capacitor inefficiency. The tgδ may vary up and down with increased temperature. For more information, refer to Performance Characteristics.

Sealing

Hermetically Sealed Capacitors
As the temperature increases, the pressure inside the capacitor increases. If the internal pressure is high enough, it can cause a breach in the capacitor. Such a breach can result in leakage, impregnation, filling fluid, or moisture susceptibility.

Barometric Pressure
The altitude at which hermetically sealed capacitors are operated controls the capacitor's voltage rating. 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. These effects can be in the form of capacitance changes, dielectric arc-over, and/or low insulation resistance. Altitude can also affect heat transfer. Heat that is generated in an operation cannot be dissipated properly, and high RI^2 losses and eventual failure can result.

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