Aluminum Can Power Film Capacitors

C44U-M, 600 – 1,800 VDC, for DC Link

Overview

The C44U-M series is a polypropylene 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

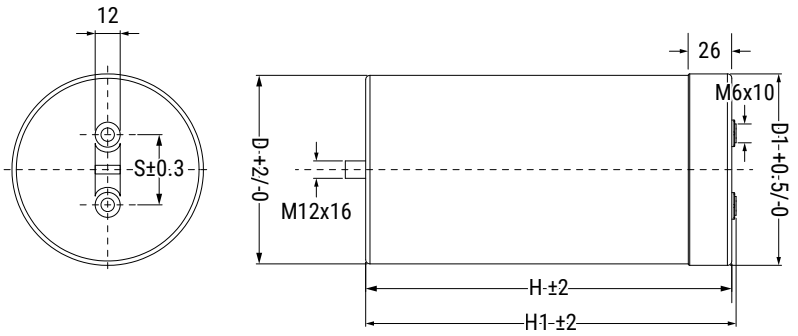
Part Number System

C4	4	U	Q	G	T	6	2	4	0	M	8	1	K
Series			DC Voltage	Case and Fixing	Terminals Code	Capacitance Code (pF)				Variants	Case Diameter	Case Height	Tolerance
C4 = MKP Capacitors for Power Applications	4 = Cylindrical types	U = DC Link	H = 600 V O = 900 V Q = 1,100 V U = 1,300 V S = 1,500 V V = 1,800 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 8 indicates the number of zeros to be added.				M = Standard N . . . Z = Special	8 = 85 mm 5 = 116 mm 3 = 136 mm	1 . . . Z	J = ±5% K = ±10%

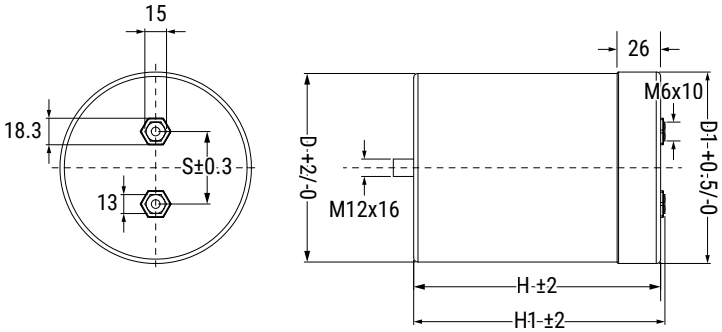
 # For configuration female terminals M8 the height H1 has to be increased of 2 mm.
It is not possible to manufacture every part number that can be created from the coding description. Please refer to the table of standard part numbers above and contact KEMET for other possibilities.

Dimensions – Millimeters

Style 1: D = 85 mm



Style 2: D = 116 mm and 136 mm



D	D1	H	H1	S	Threaded Insert Terminations	Threaded Post Terminations	Mounting Stud
+2/−0	+0.5/−0	±2	±2	±0.3			
85	88	99.5	101	32	M6 x 10	M8 x 20	M12 x 16
85	88	114.5	116	32	M6 x 10	M8 x 20	M12 x 16
85	88	124.5	126	32	M6 x 10	M8 x 20	M12 x 16
85	88	134.5	136	32	M6 x 10	M8 x 20	M12 x 16
85	88	144.5	146	32	M6 x 10	M8 x 20	M12 x 16
85	88	178.5	180	32	M6 x 10	M8 x 20	M12 x 16
85	88	268.5	270	32	M6 x 10	M8 x 20	M12 x 16
116	119	133	136	50	M6 x 10	M8 x 20	M12 x 16
116	119	153	156	50	M6 x 10	M8 x 20	M12 x 16
116	119	233	236	50	M6 x 10	M8 x 20	M12 x 16
116	119	273	276	50	M6 x 10	M8 x 20	M12 x 16
136	139	131	134	50	M6 x 10	M8 x 20	M12 x 16
136	139	232	235	50	M6 x 10	M8 x 20	M12 x 16
136	139	282	285	50	M6 x 10	M8 x 20	M12 x 16
136	139	347	350	50	M6 x 10	M8 x 20	M12 x 16

Maximum Driving Torque [Nm]		
	Female	Male
Terminals	M6	M8
	4	7
Bolt M12	12	

Qualifications

Reference Standards	IEC 61071 - EN61071 - VDE0560 – UL810 Construction only
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
Special features	UL 810 Construction Only qualified - E208772
Climatic Category	40/85/21 IEC 60068–1
Endurance test	500 hours + 500 hours at 1.3 x VNDC and 70°C
Maximum T_{HS}, Ø ≤ 116 mm	85°C
Maximum T_{HS}, Ø = 136 mm	75°C
Standard	IEC 61071 - EN61071 - VDE0560 – UL810 Construction only
Protection	Aluminium case with or without, threaded bolt M12
	Plastic deck flame retardant execution UL 94 V–0
	Plastic cap flame retardant execution UL 94 V–0
	Thermosetting resin sealing
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 ±5°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 ±5°C
Over-Voltage (IEC 61071)	1.15 x V_{NDC} for maximum 30 minutes, once per day
	1.3 x V_{NDC} for maximum 1 minutes, 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 ±5°C
Capacitance Deviation in Operation	±1.5% maximum on capacitance value measured at +25°C
Storage Temperature	Diameter 85 and 116 mm: –40 to +85°C Diameter = 136 mm: –40 to 75°C
Permissible Relative Humidity - Storage	Annual average ≤ 70%; 85% on 30 days/year randomly distributed throughout the year. Dewing not admissible.

Life Expectancy

Life expectancy	≥ 200.000 hours (1)
Capacitance drop at end of life	−10% (typical)
Failure rate IEC 61709	50 FIT at V_{NDC} at Hot-Spot temperature T_{HS} = 70°C (see FIT curves)

Test Method

Test voltage between terminals	1.5 x V_{NDC} for 10 seconds or 1.65 x V_{NDC} for 2 seconds at 25°C
Test voltage between terminals and case	4.0 kVAC 50 Hz for 2 seconds
Damp Heat	IEC 60068-2-78
Change of temperature	IEC 60068-2-14
Vibration strength	IEC 60068-2-6

(1): ≥ 100,000 hours at V_{NDC} at Hot-Spot temperature T_{HS} = 70°C

Lifetime Expectancy/Failure Quota Graphs

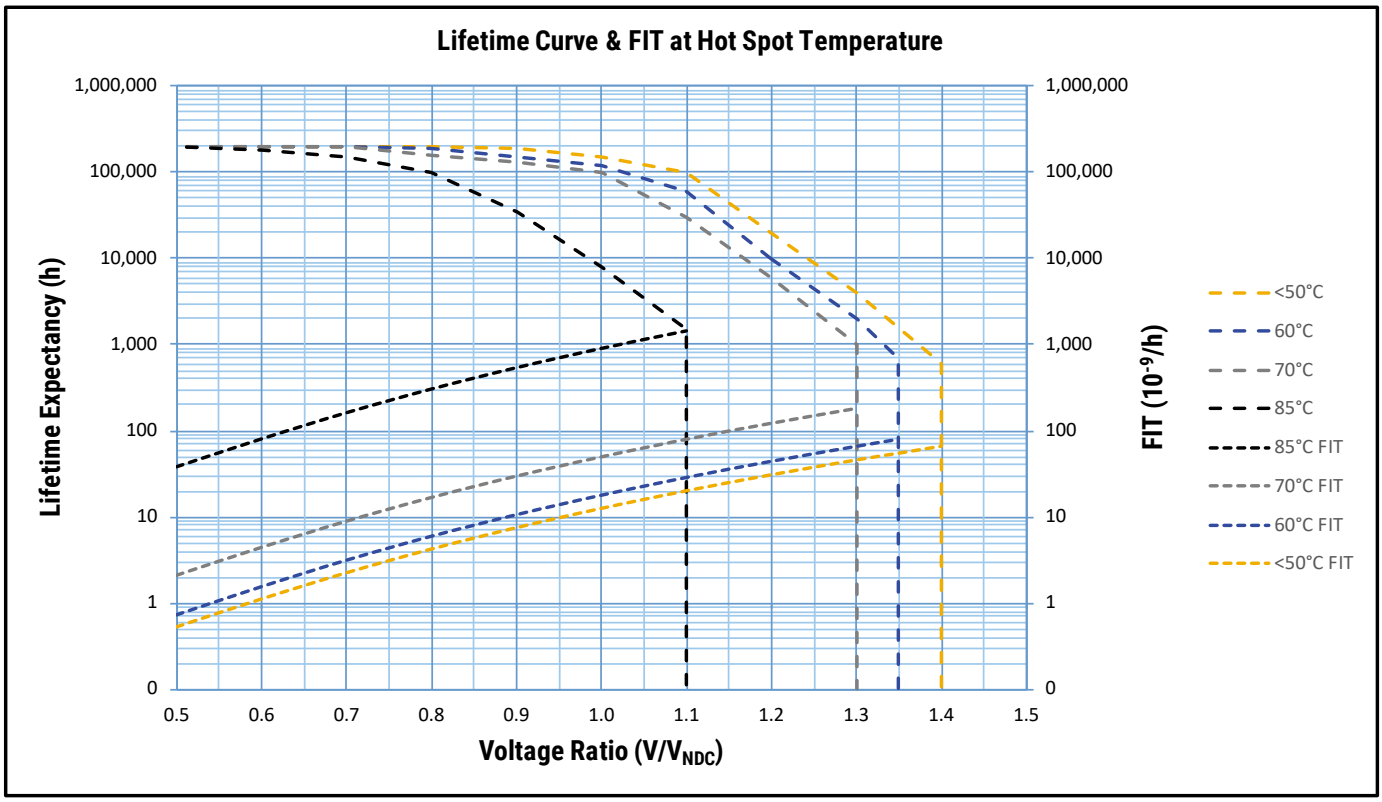


Table 1 – Ratings & Part Number Reference

Part Number C44U-M D = 85 mm and 116 mm	C	U_{NDC}	dV/dt	I_{pkr}	ESL	ESR	I_{rms}*	R_{th}	Dimensions (mm)			SPQ	Weight**
	(µF)	(VDC)	(V/µs)	(Apk)	(nH)	at 10 kHz (mΩ)	40°C at 10 kHz (A_{rms})	(°C/W)	Ø	H	H1	(pcs)	(kg)
C44UHGT6650M81K	650	600	5	3,540	45	1.2	59	7.1	85	99.5	101	5	4.4
C44UHGT6800M82K	800	600	4	3,575	50	1.4	57	6.4	85	114.5	116	5	4.8
C44UHGT6900M83K	900	600	4	3,590	50	1.6	56	5.8	85	124.5	126	5	5.1
C44UHGT7100M84K	1,000	600	4	3,600	55	1.7	56	5.6	85	134.5	136	5	5.4
C44UHGT7110M85K	1,100	600	3	3,615	55	1.8	57	5.1	85	144.5	146	5	5.6
C44UHGT7130M86K	1,300	600	5	7,080	60	1.1	84	3.8	85	178.5	180	5	6.6
C44UHGT7210M87K	2,100	600	3	6,900	80	1.7	82	2.6	85	268.5	270	5	9.2
C44UOGT6375M81K	375	900	10	3,630	45	1.5	53	7.1	85	99.5	101	5	4.4
C44UOGT6450M82K	450	900	8	3,570	50	1.8	51	6.4	85	114.5	116	5	4.8
C44UOGT6500M83K	500	900	7	3,545	50	2	50	5.8	85	124.5	126	5	5.1
C44UOGT6550M84K	550	900	6	3,520	55	2.2	49	5.6	85	134.5	136	5	5.3
C44UOGT6600M85K	600	900	6	3,505	55	2.4	49	5.1	85	144.5	146	5	5.6
C44UOGT6700M86K	700	900	10	6,775	60	1.3	77	3.8	85	178.5	180	5	6.7
C44UOGT7120M87K	1,200	900	6	7,010	80	2	76	2.6	85	268.5	270	5	9.1
C44UOGT6900M51K	900	900	7	6,380	45	1.2	82	3.7	116	133	136	4	7.2
C44UOGT7110M52K	1,100	900	6	6,425	55	1.4	81	3.2	116	153	156	4	8
C44UOGT7180M53K	1,800	900	7	12,765	75	1.2	100	2.1	116	233	236	4	11.4
C44UOGT7210M54K	2,100	900	6	12,265	80	1.5	100	1.8	116	273	276	4	13.1
C44UQGT6240M81K	240	1,100	12	2,905	45	1.8	48	7.1	85	99.5	101	5	4.4
C44UQGT6290M82K	290	1,100	10	2,880	50	2.1	47	6.4	85	114.5	116	5	4.8
C44UQGT6320M83K	320	1,100	9	2,835	50	2.4	46	5.8	85	124.5	126	5	5.1
C44UQGT6360M84K	360	1,100	8	2,880	55	2.6	45	5.6	85	134.5	136	5	5.3
C44UQGT6400M85K	400	1,100	7	2,920	55	2.8	45	5.1	85	144.5	146	5	5.6
C44UQGT6460M86K	460	1,100	12	5,565	60	1.5	72	3.8	85	178.5	180	5	6.6
C44UQGT6760M87K	760	1,100	7	5,550	80	2.3	70	2.6	85	268.5	270	5	9.1
C44UQGT6560M51K	560	1,100	9	4,965	45	1.5	73	3.7	116	133	136	4	7.2
C44UQGT6700M52K	700	1,100	7	5,110	55	1.7	74	3.2	116	153	156	4	8
C44UQGT7110M53K	1,100	1,100	9	9,750	75	1.4	100	2.1	116	233	236	4	11.5
C44UQGT7140M54K	1,400	1,100	7	10,220	80	1.6	100	1.8	116	273	276	4	13.1
C44UUGT6165M81K	165	1,300	15	2,395	45	2.1	44	7.1	85	99.5	101	5	4.4
C44UUGT6200M82K	200	1,300	12	2,380	50	2.5	43	6.4	85	114.5	116	5	4.8
C44UUGT6220M83K	220	1,300	11	2,340	50	2.8	42	5.8	85	124.5	126	5	5.1
C44UUGT6250M84K	250	1,300	10	2,400	55	3	42	5.6	85	134.5	136	5	5.3
C44UUGT6270M85K	270	1,300	9	2,365	55	3.3	42	5.1	85	144.5	146	5	5.6
C44UUGT6320M86K	320	1,300	15	4,645	60	1.7	68	3.8	85	178.5	180	5	6.6
C44UUGT6530M87K	530	1,300	9	4,640	80	2.6	66	2.6	85	268.5	270	5	9.1
C44UUGT6400M51K	400	1,300	11	4,255	45	1.7	69	3.7	116	133	136	4	7.2
C44UUGT6470M52K	470	1,300	9	4,120	55	2	68	3.2	116	153	156	4	8.1
C44UUGT6780M53K	780	1,300	11	8,295	75	1.5	97	2.1	116	233	236	4	11.4
C44UUGT6950M54K	950	1,300	9	8,325	80	1.8	96	1.8	116	273	276	4	13.1
Part Number	**C**	**U_{NDC}**	**dV/dt**	**I_{pkr}**	**ESL**	**ESR**	**I_{rms}**	**R_{th}**	**Dimensions**			**SPQ**	**Weight**

** I_{rms} value that leads to a ΔT so to have ~70°C in the Hot Spot » $T_{HS} = T_{AMB} + \Delta T = 70°C$*
ΔT_{max} = 30°C. The ambient temperature can be higher than 40°C, but the hot spot temperature must not be higher than the limit of 85°C for can diamenters 85 mm and 116 mm or 75°C for can diameter 136 mm.
*** Approximative packaging weight*

Table 1 – Ratings & Part Number Reference cont.

Part Number C44U-M D = 85 mm and 116 mm	C	U_{NDC}	dV/dt	I_{pkr}	ESL	ESR	I_{rms}*	R_{th}	Dimensions (mm)			SPQ	Weight**
	(µF)	(VDC)	(V/µs)	(Apk)	(nH)	at 10 kHz (mΩ)	40°C at 10 kHz (A_{rms})	(°C/W)	Ø	H	H1	(pcs)	(kg)
C44USGT6120M81K	120	1,500	17	2,030	50	2.5	41	7.1	85	99.5	101	5	4.4
C44USGT6145M82K	145	1,500	14	2,015	50	2.9	40	6.4	85	114.5	116	5	4.8
C44USGT6165M83K	165	1,500	12	2,045	50	3.2	40	5.8	85	124.5	126	5	5.1
C44USGT6180M84K	180	1,500	11	2,015	55	3.5	39	5.6	85	134.5	136	5	5.4
C44USGT6200M85K	200	1,500	10	2,045	55	3.8	39	5.1	85	144.5	146	5	5.6
C44USGT6230M86K	230	1,500	17	3,895	60	1.9	64	3.8	85	178.5	180	5	6.7
C44USGT6400M87K	400	1,500	10	4,085	80	2.8	64	2.6	85	268.5	270	5	9.1
C44USGT6300M51K	300	1,500	12	3,720	50	1.9	65	3.7	116	133	136	4	7.2
C44USGT6350M52K	350	1,500	10	3,575	55	2.3	63	3.2	116	153	156	4	8.1
C44USGT6550M53K	550	1,500	12	6,825	75	1.7	91	2.1	116	233	236	4	11.7
C44USGT6700M54K	700	1,500	10	7,155	80	1.9	93	1.8	116	273	276	4	13.1
C44UVGT5900M81K	90	1,800	19	1,740	50	2.8	38	7.1	85	99.5	101	5	4.4
C44UVGT6110M82K	110	1,800	16	1,745	50	3.3	37	6.4	85	114.5	116	5	4.8
C44UVGT6125M83K	125	1,800	14	1,770	50	3.6	37	5.8	85	124.5	126	5	5.1
C44UVGT6140M84K	140	1,800	13	1,795	55	3.9	37	5.6	85	134.5	136	5	5.4
C44UVGT6150M85K	150	1,800	12	1,750	55	4.3	37	5.1	85	144.5	146	5	5.7
C44UVGT6175M86K	175	1,800	19	3,385	60	2.1	61	3.8	85	178.5	180	5	6.7
C44UVGT6300M87K	300	1,800	12	3,505	80	3.2	60	2.6	85	268.5	270	5	9.1
C44UVGT6220M51K	220	1,800	14	3,120	50	2.2	60	3.7	116	133	136	4	7.3
C44UVGT6275M52K	275	1,800	12	3,210	55	2.5	61	3.2	116	153	156	4	8.1
C44UVGT6450M53K	450	1,800	14	6,380	75	1.8	89	2.1	116	233	236	4	11.4
C44UVGT6550M54K	550	1,800	12	6,425	80	2.1	89	1.8	116	273	276	4	13.1
Part Number	**C**	**U_{NDC}**	**dV/dt**	**I_{pkr}**	**ESL**	**ESR**	**I_{rms}**	**R_{th}**	**Dimensions**			**SPQ**	**Weight**

** I_{rms} value that leads to a ΔT so to have ~70°C in the Hot Spot » $T_{HS} = T_{AMB} + \Delta T = 70°C$*
ΔT_{max} = 30°C. The ambient temperature can be higher than 40°C, but the hot spot temperature must not be higher than the limit of 85°C for can diamenters 85 mm and 116 mm or 75°C for can diameter 136 mm.
*** Approximative packaging weight*

Table 2 – Ratings & Part Number Reference

Part Number C44U-M D = 136 mm	C	U_{NDC}	dV/dt	I_{pkr}	ESL	ESR	I_{rms}*	R_{th}	Dimensions (mm)			SPQ	Weight**
	(µF)	(VDC)	(V/µs)	(Apk)	(nH)	at 1 kHz (mΩ)	40°C at 1 kHz (A_{rms})	(°C/W)	Ø	H	H1	(pcs)	(kg)
C44UOGT7150M31K	1,500	900	5	7,400	40	0.95	60	3.4	136	131	134	4	8.5
C44UOGT7274M32K	2,740	900	4	11,000	80	1	100	2.6	136	232	235	4	15
C44UOGT7340M33K	3,400	900	4	13,200	85	1.16	100	1.6	136	282	285	2	10.1
C44UOGT7450M34K	4,500	900	4	14,000	90	0.95	100	1.5	136	347	350	2	12.1
C44UOGT7400M35K	4,000	900	6	14,000	90	0.75	100	1.5	136	347	350	2	12.1
C44UQGT6910M31K	910	1,100	6	5,400	40	0.85	60	4.3	136	131	134	4	8.5
C44UQGT7178M32K	1,780	1,100	6	9,700	80	1	100	2.5	136	232	235	4	15
C44UQGT7220M33K	2,200	1,100	5	9,400	85	1.17	100	1.6	136	282	285	2	10.1
C44UQGT7285M34K	2,850	1,100	5	13,000	90	0.95	100	1.8	136	347	350	2	12.1
C44UQGT7255M35K	2,550	1,100	8	14,000	85	0.75	100	1.8	136	347	350	2	12.1
C44UUGT6600M31K	600	1,300	7	4,000	40	1.2	60	4.6	136	131	134	4	8.5
C44UUGT7119M32K	1,190	1,300	7	7,000	80	1.15	100	2.6	136	232	235	4	15
C44UUGT7142M33K	1,420	1,300	7	8,400	85	1.35	100	2.1	136	282	285	2	10.1
C44UUGT7185M34K	1,850	1,300	8	13,600	85	1	100	1.9	136	347	350	2	12.1
C44UUGT7180M35K	1,800	1,300	11	19,100	85	0.78	100	1.9	136	347	350	2	12.1
C44USGT6460M31K	460	1,500	9	3,900	40	1.2	60	4.7	136	131	134	4	8.5
C44USGT6950M32K	950	1,500	9	8,100	80	1.15	100	2.6	136	232	235	4	15
C44USGT7113M33K	1,130	1,500	8	8,000	80	1.3	100	2.2	136	282	285	2	10.1
C44USGT7145M34K	1,450	1,500	9	12,000	80	1	100	1.9	136	347	350	2	12.1
C44USGT7140M35K	1,400	1,500	13	13,000	80	0.78	100	1.8	136	347	350	2	12.1
C44UVGT6350M31K	350	1,800	10	3,500	40	1.35	60	4.8	136	131	134	4	8.5
C44UVGT6700M32K	700	1,800	10	6,800	80	1.25	90	2.7	136	232	235	4	15
C44UVGT6860M33K	860	1,800	8	6,800	75	1.45	90	2.2	136	282	285	2	10.1
C44UVGT7105M34K	1,050	1,800	9	9,000	80	1.1	95	1.9	136	347	350	2	12.1
C44UVGT7105M35K	1,020	1,800	12	11,800	75	0.82	95	1.7	136	347	350	2	12.1
Part Number	**C**	**U_{NDC}**	**dV/dt**	**I_{pkr}**	**ESL**	**ESR**	**I_{rms}**	**R_{th}**	**Dimensions**			**SPQ**	**Weight**

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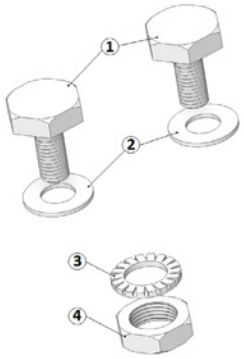
ΔT_{max} = 30°C. The ambient temperature can be higher than 40°C, but the hot spot temperature must not be higher than the limit of 75°C for can diameter 136 mm.
*** Approximative packaging weight*

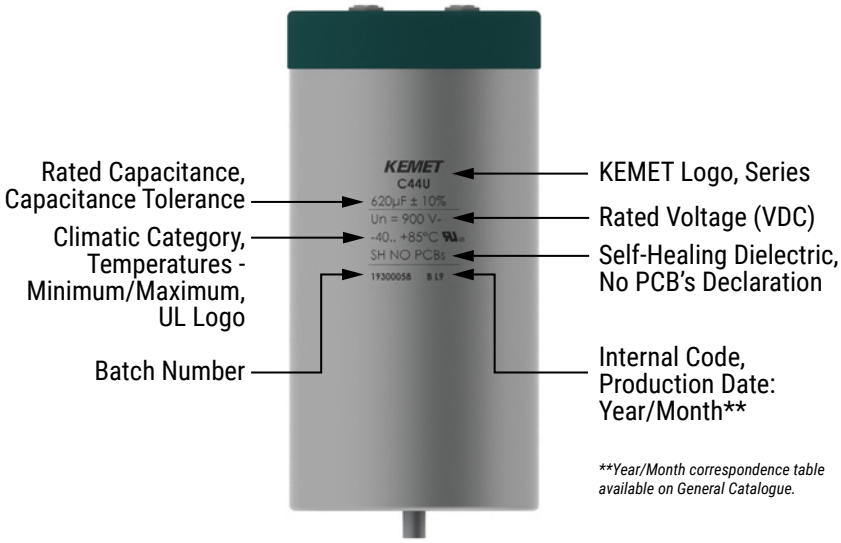
Mounting Accesories

Mounting accessories delieved in plastic bag with each capacitor.



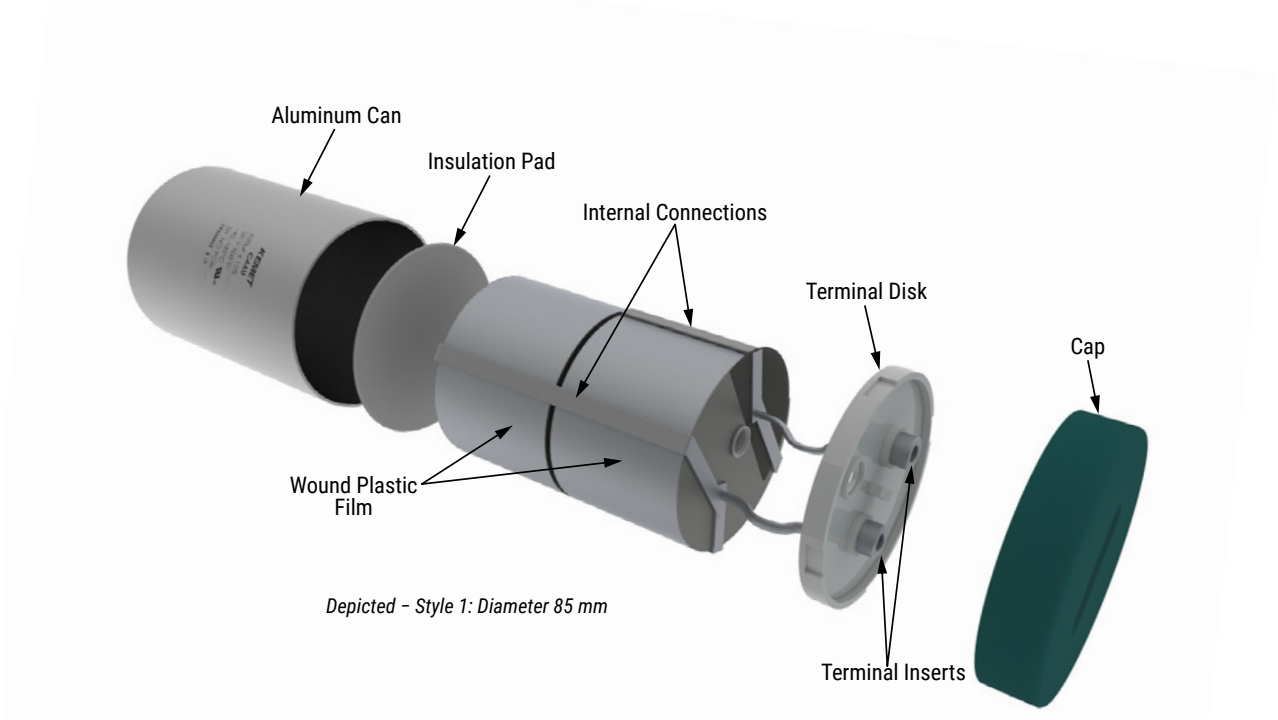
Mounting Accessories Delivered	
Position	Description
1	Bolts for the terminals
2	Washers for the terminals
3	Washer for the mouting bolt M12x16
4	Nut for the mouting bolt M12x16

Marking

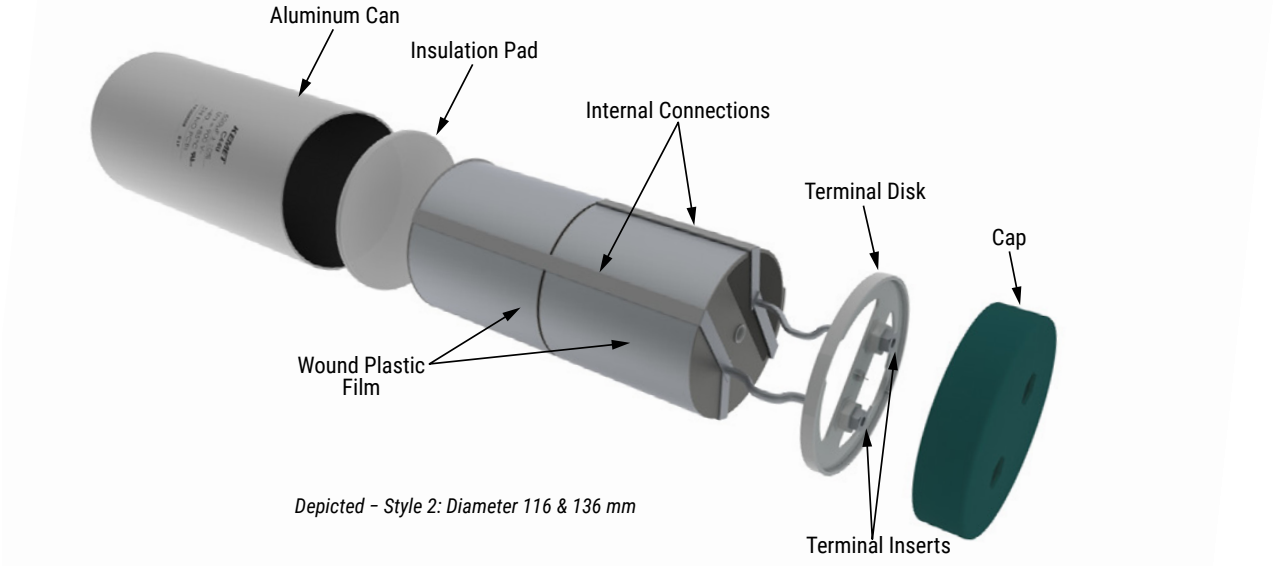


***Year/Month correspondence table available on General Catalogue.*

Construction



Depicted – Style 1: Diameter 85 mm



Depicted – Style 2: Diameter 116 & 136 mm

Environmental Compliance

As a leading global supplier of electronic components and an environmentally conscious company, KEMET continually aspires to improve the environmental effects of our manufacturing processes and our finished electronic components.

In Europe (RoHS Directive) and in some other geographical areas such as China (China RoHS), legislation has been enacted to prevent or otherwise limit the use of certain hazardous materials, including lead (Pb), in electronic equipment. KEMET monitors legislation globally to ensure compliance and endeavors to adjust our manufacturing processes and/or electronic components as may be required by applicable law.

For military, medical, automotive, and some commercial applications, the use of lead (Pb) in the termination is necessary and/or required by design. KEMET is committed to communicating RoHS compliance to our customers. Information related to RoHS compliance will be provided in data sheets and using specific identifiers on the packaging labels.

All KEMET power film capacitors are RoHS compliant.

Materials & Environment

The selection of raw materials that KEMET uses for the production of its electronic components is the result of extensive experience. KEMET directs specific attention toward environmental protection. KEMET selects its suppliers according to ISO 9001 standards and performs statistical analyses on raw materials before acceptance for use in manufacturing our electronic components. All materials are, to the best of KEMET's knowledge, non-toxic and free from cadmium; mercury; chrome and compounds; polychlorine triphenyl (PCB); bromide and chlorinedioxins bromurate clorurate; CFC and HCFC; and asbestos.

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.

KEMET Electronics Corporation Sales Offices

For a complete list of our global sales offices, please visit www.kemet.com/sales.

Disclaimer

YAGEO Corporation and its affiliates do not recommend the use of commercial or automotive grade products for high reliability applications or manned space flight.

All product specifications, statements, information and data (collectively, the "Information") in this datasheet are subject to change. The customer is responsible for checking and verifying the extent to which the Information contained in this publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without guarantee, warranty, or responsibility of any kind, expressed or implied.

Statements of suitability for certain applications are based on KEMET Electronics Corporation's ("KEMET") knowledge of typical operating conditions for such applications, but are not intended to constitute – and KEMET specifically disclaims – any warranty concerning suitability for a specific customer application or use. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by KEMET with reference to the use of KEMET's products is given gratis, and KEMET assumes no obligation or liability for the advice given or results obtained.

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.

Additional information about production site flexibility can be found <here>