Aluminum Can Power Film Capacitors

C9T Series, 415 – 440 VAC, 3–Phase PFC

Overview

Polypropylene metallized film with cylindrical aluminium can type filled with oil, 3 phase terminal delta and safety device FPU.

Applications

Typical applications include power factor correction.

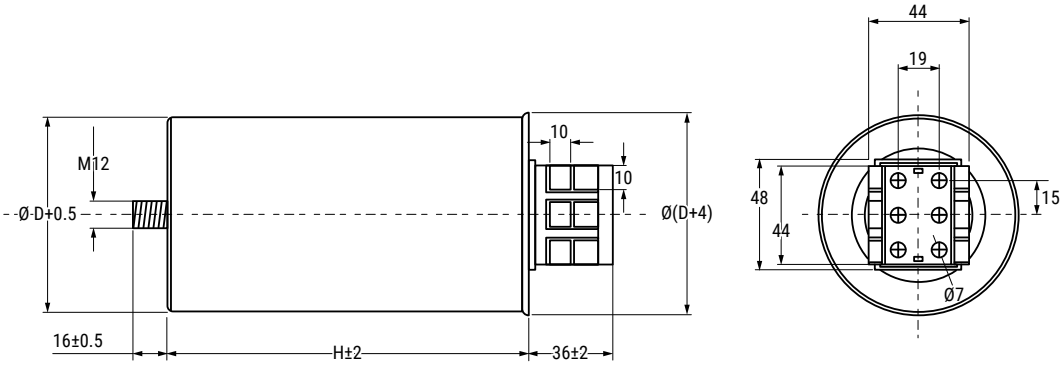
Benefits

- Overpressure safety device
- High capacitance density
- Long lifetime
- Available with delta connections

Part Number System

C9T	S	5	M	D	6137	AAR = Standard	X
Series	Type	Rated Voltage (VAC)	Terminal Style	Internal Connection	Capacitance Code (pF)	Internal Code	Tolerance
C9T = Cylindrical Three-Phase Capacitors	S = Slim	5 = 415 6 = 440	M = Screw clamp Terminal	D = Delta	Digits 2–4 indicate the first three digits of the capacitance value. First digit indicates the number of zeros to be added.	AAR = Standard	X = −5%/+10%

Dimensions – Millimeters



D	H	Mounting Stud (M)
±0.5	±2	
75	160	M12x16
75	230	M12x16
75	280	M12x16
85	160	M12x16
85	230	M12x16
85	280	M12x16

Qualifications

Reference Standards	IEC 831-1/2
Protected 10,000 AFC	–25°C to +70°C

General Technical Data

Reference Standards	IEC 60831–1/2
	UL810 compliant
Dielectric	Polypropylene film
	Non–Inductive type winding
Climatic Category	–25/D - IEC 60831–1
	Maximum: 55°C
	Highest mean over any period of 24 hours: 45°C
	Highest mean over any period of 1 year: 35°C
Maximum Hot Spot Temperature	+70°C
Endurance Test IEC 60831-2	IEC 60831–2 clause 17.1–17.2

Electrical Characteristics

Rated Voltage	Un = (see table) Vrms
Over Voltage	IEC 60831–1 clause 20:
	1,10*UN – 8 hours in every 24 hours
	1,15* UN – 30 minutes in every 24 hours
	1,20* UN – 5 minutes in the lifetime
	1,30* UN – 1 minutes in the lifetime
Capacitance Tolerance	–5% +10% (X)

Mechanical Characteristics

Maximum Torque:	6 [N*m] for Terminal screw
	12 [N*m] for M12 Bolt
Installation	Whatever position
Tinned brass deck with self estinguish UL94 V0 plastic cover	

Life Expectancy

Life Expectancy	100.000 hours at Urms with Ths ≤ 70°C
Capacitance drop at end of life	–5% (typical)
Failure rate IEC 61709	300*10–9 components/hours

Test Method

Test voltage term to term (Utt)	2,15*Urms for 2 seconds at 25°C
Test voltage term to case (Utc)	3600V~ 50Hz for 2 seconds
Relative Humidity	Annual average £ 80% at 24°C
	On 30 days/year permanently 100%. On other days occasionally 90%.
	Dewing not admitted
Capacitance Deviation in Temperature Range (–40..+50°C)	±1.5% maximum on capacitance value at 20°C
Damp Heat	IEC 60068–2–78
Change of Temperature	IEC 60068–2–14
Vibration Strength	IEC 60068–2–6

NOTICE: *Care should be taken to ensure that there still is electrical clearance of 15 mm between terminations and other live or earthed parts above the capacitor, in case of safety device activation.*

Table 1A – Ratings & Part Number Reference

Capacitance Value	Voltage	Dimensions (mm)		Rated Current	Qn	Operating Frequency	dV/dt	Packaging Quantity	Part Number
µF	VAC	Ø	H	A	kVAr	Hz	V/µs		
31.1	415	75	160	9	5.0	50	30	12	C9TS5MD5311AARX
46.0	415	75	160	14	7.5	50	30	12	C9TS5MD5460AARX
61.5	415	85	160	18	10.0	50	30	9	C9TS5MD5615AARX
77.0	415	75	230	23	12.5	50	30	12	C9TS5MD5770AARX
92.2	415	85	230	27	15.0	50	30	9	C9TS5MD5920AARX
108.0	415	75	280	32	17.5	50	30	12	C9TS5MD6108AARX
123.0	415	75	280	36	20.0	50	30	12	C9TS5MD6123AARX
154.0	415	85	280	45	25.0	50	30	9	C9TS5MD6154AARX
27.4	440	75	160	9	5.0	50	30	12	C9TS6MD5274AARX
41.1	440	75	160	13	7.5	50	30	12	C9TS6MD5411AARX
54.8	440	85	160	17	10.0	50	30	9	C9TS6MD5548AARX
68.5	440	75	230	21	12.5	50	30	12	C9TS6MD5685AARX
83.0	440	85	230	26	15.0	50	30	9	C9TS6MD5830AARX
96.0	440	75	280	30	17.5	50	30	12	C9TS6MD5960AARX
110.0	440	75	280	34	20.0	50	30	12	C9TS6MD6110AARX
137.0	440	85	280	43	25.0	50	30	9	C9TS6MD6137AARX

(*) Max admissible RMS current. Ths ≤ 70°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, 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 on a global basis and make any necessary changes to its products whenever needed.

Some customer segments including medical, military 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.

Because of customer requirements, additional markings such as LF for Lead Free or LFW for Lead Free Wires may appear on the packaging label.

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.

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 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.

Sealing

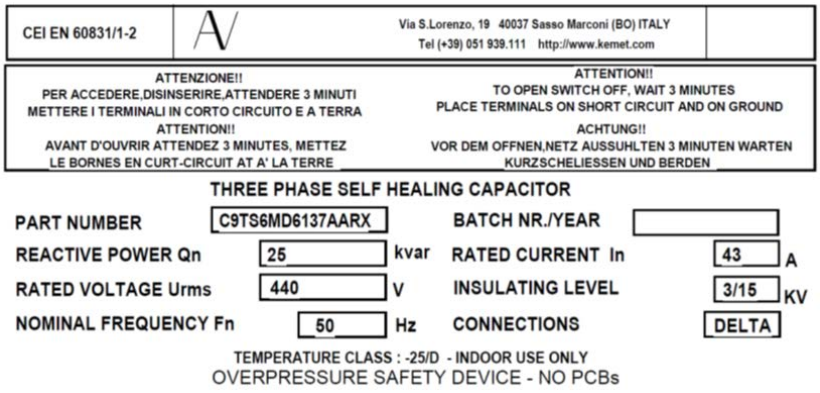
Hermetically Sealed Capacitors
When the temperature increases, the pressure inside the capacitor increases. If the internal pressure is high enough, it can cause a breach in the capacitor which can result in leakage, impregnation, filling fluid or moisture susceptibility.

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 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.

Marking


CEI EN 60831/1-2
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ATTENZIONE!!
PER ACCEDERE,DISINSERIRE,ATTENDERE 3 MINUTI
METTERE I TERMINALI IN CORTO CIRCUITO E A TERRA
ATTENTION!!
AVANT D'OUVRIR ATTENDEZ 3 MINUTES, METTEZ
LE BORNES EN CURT-CIRCUIT AT A' LA TERRE
ATTENTION!!
TO OPEN SWITCH OFF, WAIT 3 MINUTES
PLACE TERMINALS ON SHORT CIRCUIT AND ON GROUND
ACHTUNG!!
VOR DEM OFFNEN,NETZ AUSSUHLTEN 3 MINUTEN WARTEN
KURZSCHELIESSEN UND BERDEN
THREE PHASE SELF HEALING CAPACITOR
PART NUMBER
C9TS6MD6137AARX
BATCH NR./YEAR
REACTIVE POWER Qn
25
kvar
RATED CURRENT In
43
A
RATED VOLTAGE Urms
440
V
INSULATING LEVEL
3/15
KV
NOMINAL FREQUENCY Fn
50
Hz
CONNECTIONS
DELTA
TEMPERATURE CLASS : -25/D - INDOOR USE ONLY
OVERPRESSURE SAFETY DEVICE - NO PCBs

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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 indicted or that other measures may not be required.

Mouser Electronics

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