Type ACF, Metallized Polypropylene Capacitors for AC Filtering

High Current, High Capacitance, Low ESR, Low Inductance

Type ACF capacitors offer several robust terminal options for AC Filtering applications. ACF is designed to give high capacitance in a small package for high current and low ESR requirements. The metallized polypropylene construction inherently gives the advantage of low DF and stable performance over the rated temperature range.

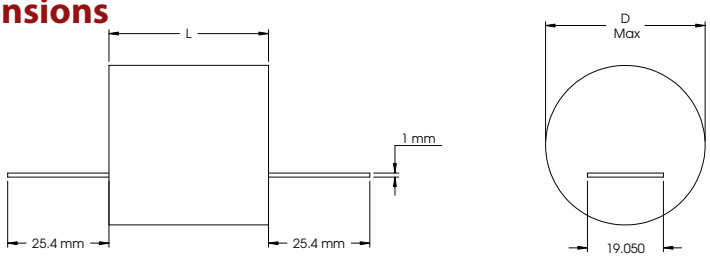
Highlights

- High capacitance
- High current
- Low ESR
- Low inductance
- Terminal/mounting options
- Self healing

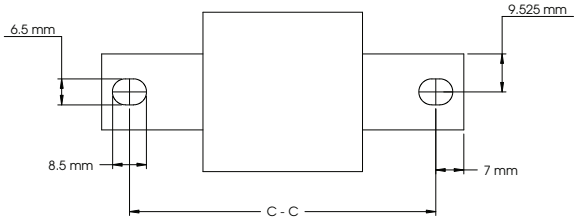
Specifications

Capacitance Range	5.0 to 250 µF
Capacitance Tolerance	±10% (K) standard, ±5% (J) optional
Rated Voltage	300 to 900 Vac, 50/60 Hz
Operating Temperature Range	-55 ºC to 85 ºC
Climate Catagory	55/85/56. IEC60068-1, 40 ºC/93% RH/56 days
Maximum rms Current	Check tables for values
Insulation Resistance	25,000 MΩ x µF @ 25 ºC, after 5 minutes of charge
Test Voltage between Terminals @ 25 ºC	130% rated DC voltage for 60 s
Test Voltage between Terminals & Case @ 25 ºC	3 kVac 50/60Hz for 60 s
Life Expectancy	60,000 h with 94% survival rate
RoHS Compliant	

Dimensions

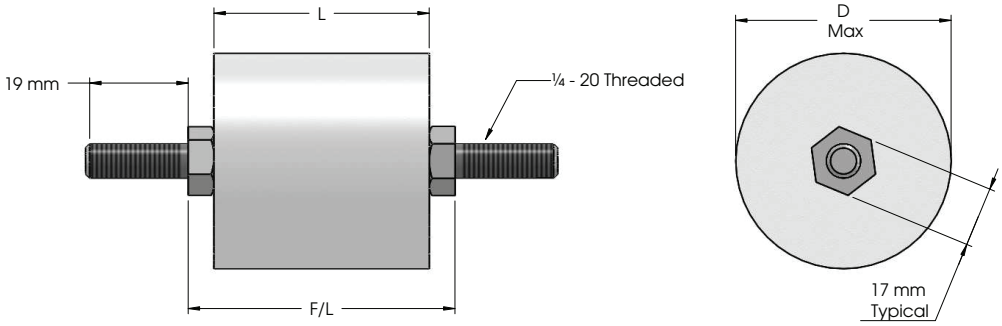


Construction Details	
Case Material	UL510 Polyester Tape Wrap
Resin Material	UL94V-0 Epoxy Fill
Terminal Material	L1 Style Tin Plated Copper S Style Tin Plated Brass



L1
6.5 x 8.5 mm
Slots

S
Style
1/4-20 Studs



Type ACF, Metallized Polypropylene Capacitors for AC Filtering

High Current, High Capacitance, Low ESR, Low Inductance

Part Numbering System

ACF	550	K	301	L1/S	–F
Type	Capacitance	Tolerance	Voltage	Terminals	RoHS
ACF	**505** = 5 µF	**K** = ±10 %	**301** = 300 Vac	**L1** = Lugs	Compliant
	106 = 10 µF	**J** = ±5 %	**531** = 530 Vac	**S** = Studs	
	107 = 100 µF		**901** = 900 Vac		

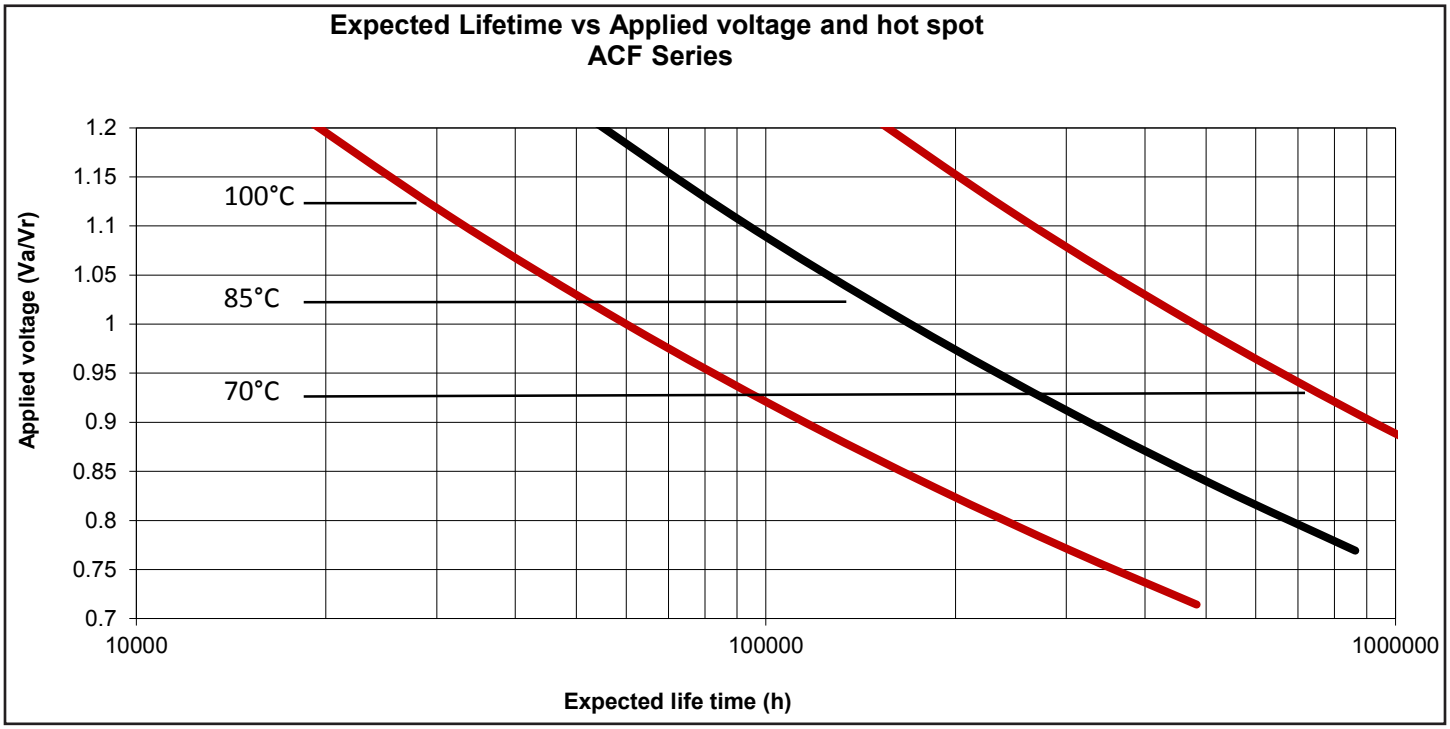
Ratings

Other ratings available upon request, as well as other terminations

Catalog Number	Cap (µF)	Diameter (mm) Max	Length (mm) ±2.5	F/L or C-C Dimension (mm) ±1.5	Surface Area (in^2)	Max Power (W) 25 °C	45 °C	65 °C	85°C	Typical ESR (mΩ)	Typical ESL (nH)	Rth (°C/W)	fr (kHz)	Ipk (A)	dV/dt (V/µs)
300 Vrms 50/60Hz 450 Vdc															
ACF506K301L1-F	50	63	50	86.5	25.0	5.7	4.1	2.6	1.0	1.4	40	12.45	112	2571	52
ACF756K301L1-F	75	62	68	104	29.9	6.7	4.9	2.9	1.0	1.8	59	10.51	75	2465	33
ACF107K301L1-F	100	71	68	104	35.8	7.8	5.6	3.3	1.2	1.5	59	8.75	65	3286	33
ACF157K301L1-F	150	73	88	124	44.3	9.3	6.7	3.8	1.0	1.8	79	7.05	46	3490	23
ACF207K301L1-F	200	72	112	149	51.9	10.2	6.9	3.7	0.4	2.2	105	5.94	34	3409	17
ACF257K301L1-F	250	82	112	149	61.1	10.7	8.0	4.0	0.2	1.9	105	5.03	31	5261	17
530 Vrms 50/60Hz 750 Vdc															
ACF505K531S-F	5	38	63	82.5	15.2	3.5	2.6	1.6	0.6	3.6	54	21.16	306	822	164
ACF106K531S-F	10	51	63	82.5	22.0	5.0	3.7	2.3	0.9	2.1	54	14.19	216	1643	164
ACF206K531S-F	20	71	63	82.5	34.1	7.9	5.7	3.5	1.4	1.4	54	9.18	153	3286	164
ACF306K531S-F	30	68.5	87	106.5	40.4	9.3	6.6	4.2	1.6	1.9	79	7.72	103	3036	89
ACF406K531S-F	40	73.5	96	115.5	47.5	11.0	8.0	4.9	1.8	1.9	88	6.54	84	3542	89
ACF506K531S-F	50	81.3	96	115.5	54.1	8.9	6.5	4.5	2.3	1.5	88	5.69	75	3629	73
ACF606K531S-F	60	81.5	112	130.5	60.6	10.3	7.9	5.3	2.7	1.7	110	4.93	62	3811	64
ACF756K531S-F	75	82.5	137	130.5	71.6	15.9	11.1	6.7	2.1	2.2	130	4.35	50	4231	56
ACF107K531S-F	100	93.5	137	130.5	83.7	18.0	12.7	7.6	2.2	1.8	130	3.69	44	5642	56
900 Vrms 50/60Hz 1300 Vdc															
ACF505K901S-F	5	34.5	137	156.5	25.9	5.9	4.1	2.6	1.0	10.2	130	12.28	197	661	132
ACF106K901S-F	10	46.5	137	156.5	36.3	8.4	6.0	3.7	1.4	5.5	130	8.63	139	1322	132
ACF206K901S-F	20	64	137	156.5	52.7	11.9	8.7	5.2	1.9	3.1	130	5.90	98	2644	132
ACF306K901S-F	30	79.5	137	156.5	68.4	15.5	11.3	6.7	2.4	2.3	130	4.51	80	3966	132
ACF406K901S-F	40	90.5	137	156.5	80.3	18.2	13.1	7.8	2.6	1.9	130	3.83	70	5288	132
ACF506K901S-F	50	100	137	156.5	91.1	17.0	15.0	9.1	2.9	1.7	130	3.36	62	6610	132

Performance Notes

I max: Maximum rms current value for continuous operation (A)
I peak: Maximum current amplitude for continuous operation (A)
R_s: Equivalent series resistance – Ohmic resistances (Ohm)
Dielectric Dissipation Factor: tan δ (Polypropylene: 0.0002)
T_{hs}: Hot spot temperature within the capacitor: $T_{hs} = T_a + (P_{total} \cdot 298 / SA)$
T_a: Ambient temperature
R_{th}: Thermal resistance: °C/ Watt, indicates hot spot temperature rise due to power dissipation losses
P_{max}: Maximum power dissipation: $P_{max} = (T_{hs} - T_a) / R_{th}$ (Watts) $T_{hs} < 100°C$
P_R: Power generated by Ohmic losses: $PR = I^2 \cdot (RS + (X_c \cdot DF))$ (Watts)
PD: Power generated by Dielectric losses: $P_D = V_{peak}^2 \cdot C \cdot \pi \cdot F \cdot DF$ (Watts)
P_{total}: Total power generated: $P_{total} = P_{Fund} + P_{Harm1} + P_{Harm2} + \ldots + P_{harm\ \infty}$
Design life: 60,000 hours 94% survival T_{hs}: 100 °C



Notice and Disclaimer: All product drawings, descriptions, specifications, statements, information and data (collectively, the "Information") in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other 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 any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements ("Cornell Dubilier") has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. 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 Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of 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 or other appropriate protective measures) 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 in such warnings, cautions and notes, or that other safety measures may not be required.