

Type AFC -55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Low Impedance, 105 °C

Low Impedance and Long-Life for Filtering, Bypassing and Power Supply Decoupling



Type AFC Capacitors are the choice for high-frequency filtering. At 100 kHz, most ratings can handle more than twice the ripple current of type AHA. With solid performance at temperatures down to -55 °C, Type AFC has more than 90% capacitance retention at -20 °C and 1 kHz. With low impedance to beyond 100 kHz, it is ideal for higher power DC/DC converters. The vertical cylindrical cases make for easy automatic mounting and reflow soldering, and offer big savings and higher capacitance compared to tantalum capacitors.

Highlights

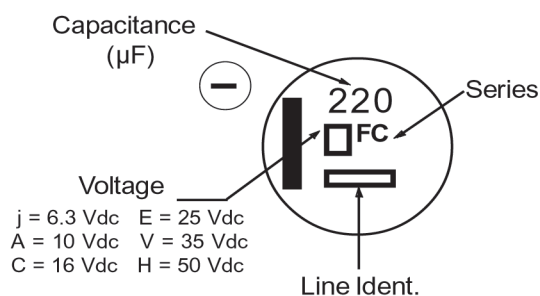
- +105 °C, Up to 1000 Hour Load Life
- Capacitance Range: 1 µF to 1500 µF
- Voltage Range: 6.3 Vdc to 50 Vdc
- AEC-Q200 Compliant

Specifications

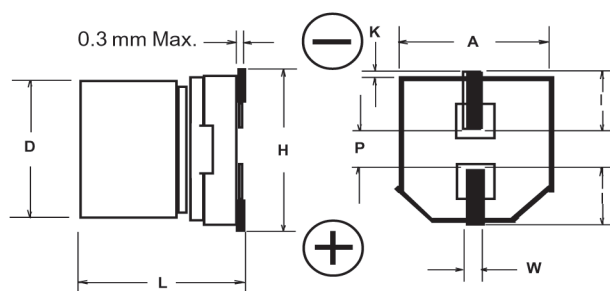
Capacitance Range	1.0 μF to 1500 μF														
Capacitance Tolerance	±20% @ 120 Hz and +20 °C														
Rated Voltage	6.3, 10, 16, 25, 50 Vdc														
Operating Temperature Range	–55 °C to +105 °C														
Leakage Current	I = 0.01 CV or 3 (μA) whichever is greater after 2 minutes														
Dissipation Factor	See ratings table														
Ripple Curent Multipliers (Frequency)	<table><tr><td>50/60 Hz</td><td>120 Hz</td><td>1 kHz</td><td>10 kHz</td><td>100 kHz</td></tr><tr><td>0.70</td><td>.075</td><td>0.90</td><td>0.95</td><td>1.00</td></tr></table>					50/60 Hz	120 Hz	1 kHz	10 kHz	100 kHz	0.70	.075	0.90	0.95	1.00
50/60 Hz	120 Hz	1 kHz	10 kHz	100 kHz											
0.70	.075	0.90	0.95	1.00											
Load Life	1000 h @ +105 °C Δ Capacitance ±20% DF: ≤200% of limit DCL: ≤100% of limit														
Shelf Life	1000 h @ +105 °C Δ Capacitance ±20% DF: ≤200% of limit DCL: ≤100% of limit														
RoHS Compliant															

RoHS Compliant

AFC Series Marking



Outline Drawing



Case Dimensions

Case	Dimensions in (mm)							
Code	D ± 0.5	L	A ± 0.2	H (max)	I (ref)	W	P (ref)	K
B	4.0	5.4 +1,-2	4.3	5.5	1.8	0.65 ± 0.1	1.0	0.35 + 0.15/-0.20
C	5.0	5.4 +1,-2	5.3	6.5	2.2	0.65 ± 0.1	1.5	0.35 + 0.15/-0.20
D	6.3	5.4 +1,-2	6.6	7.8	2.4	0.65 ± 0.1	1.8	0.35 + 0.15/-0.20
E	8.0	6.2 ± 3	8.3	9.5	3.4	0.65 ± 0.1	2.2	0.35 + 0.15/-0.20
F	8.0	10.2 ± 3	8.3	10.0	3.4	0.90 ± 0.2	3.2	0.70 ± 0.20
G	10.0	10.2 ± 3	10.3	12.0	3.5	0.90 ± 0.2	4.6	0.70 ± 0.20

Type AFC -55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Low Impedance, 105 °C

Ratings Table

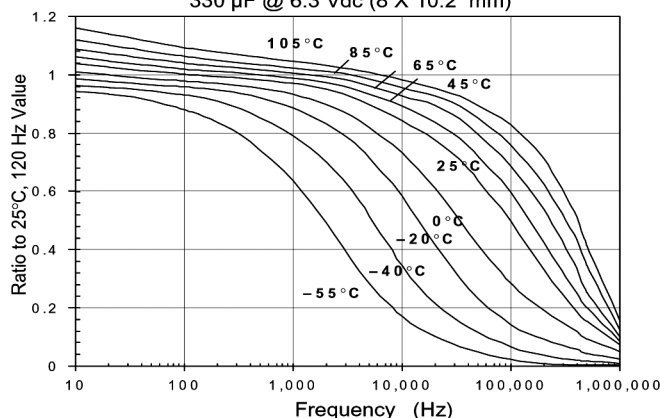
Cap (μF)	Catalog Part Number	Max. DCL 2 min (mA)	Max. Dissipation Factor @ 120 Hz 20 °C	Max. ESR @ 120 Hz20 °C (Ω)	Impedance @ 100 kHz 20 °C (Ω)	Max. Ripple Current @ 105 °C 100 kHz (mA)	Case Code	Size (mm) D x L	Quantity per Reel
6.3 Vdc (8 Vdc Surge)									
22.0	AFC226M06B12T-F	3.0	0.26	19.60	3.00	60	B	4 x 5.4	2000
47.0	AFC476M06C12T-F	3.0	0.26	9.20	1.80	95	C	5 x 5.4	1000
100.0	AFC107M06D16T-F	6.3	0.26	4.30	1.00	140	D	6.3 x 5.4	1000
220.0	AFC227M06E16T-F	13.9	0.26	2.00	0.40	230	E	8 x 6.2	1000
330.0	AFC337M06F24T-F	20.8	0.26	1.30	0.30	450	F	8 x 10.2	500
1000.0	AFC108M06G24T-F	63.0	0.26	0.43	0.15	670	G	10 x 10.2	500
1500.0	AFC158M06G24T-F	94.5	0.26	0.29	0.15	670	G	10 x 10.2	500
10 Vdc (13 Vdc Surge)									
33.0	AFC336M10C12T-F	3.3	0.19	9.60	1.80	95	C	5 x 5.4	1000
100.0	AFC107M10E16T-F	10.0	0.19	3.20	0.40	230	E	8 x 6.2	1000
150.0	AFC157M10E16T-F	15.0	0.19	2.10	0.40	230	E	8 x 6.2	1000
220.0	AFC227M10F24T-F	22.0	0.19	1.40	0.30	450	F	8 x 10.2	500
470.0	AFC477M10G24T-F	47.0	0.19	0.67	0.15	670	G	10 x 10.2	500
1000.0	AFC108M10G24T-F	100.0	0.22	0.36	0.15	670	G	10 x 10.2	500
16 Vdc (20 Vdc Surge)									
10.0	AFC106M16B12T-F	3.0	0.16	26.50	3.00	60	B	4 x 5.4	2000
22.0	AFC226M16C12T-F	3.5	0.16	12.10	1.80	95	C	5 x 5.4	1000
47.0	AFC476M16D16T-F	7.5	0.16	5.70	1.00	140	D	6.3 x 5.4	1000
68.0	AFC686M16E16T-F	10.9	0.16	3.90	0.40	230	E	8 x 6.2	1000
100.0	AFC107M16E16T-F	16.0	0.16	2.70	0.40	230	E	8 x 6.2	1000
220.0	AFC227M16G24T-F	35.2	0.16	1.20	0.15	670	G	10 x 10.2	500
330.0	AFC337M16G24T-F	52.8	0.16	0.80	0.15	670	G	10 x 10.2	500
470.0	AFC477M16G24T-F	75.2	0.16	0.60	0.15	670	G	10 x 10.2	500
680.0	AFC687M16G24T-F	108.8	0.16	0.40	0.15	670	G	10 x 10.2	500
25 Vdc (31 Vdc Surge)									
6.8	AFC685M25B12T-F	3.0	0.14	34.10	3.00	60	B	4 x 5.4	2000
22.0	AFC226M25D16T-F	5.5	0.14	10.60	1.00	140	D	6.3 x 5.4	1000
33.0	AFC336M25D16T-F	8.3	0.14	7.00	1.00	140	D	6.3 x 5.4	1000
47.0	AFC476M25E16T-F	11.8	0.14	4.90	0.40	230	E	8 x 6.2	1000
68.0	AFC686M25F24T-F	17.0	0.14	3.40	0.30	450	F	8 x 10.2	500
100.0	AFC107M25F24T-F	25.0	0.14	2.30	0.30	450	F	8 x 10.2	500
220.0	AFC227M25G24T-F	55.0	0.14	1.10	0.15	670	G	10 x 10.2	500
330.0	AFC337M25G24T-F	82.5	0.14	0.70	0.15	670	G	10 x 10.2	500
470.0	AFC477M25G24T-F	117.5	0.14	0.50	0.15	670	G	10 x 10.2	500
35 Vdc (44 Vdc Surge)									
1.0	AFC105M35B12T-F	3.0	0.12	199.00	3.00	60	B	4 x 5.4	2000
2.2	AFC225M35B12T-F	3.0	0.12	90.40	3.00	60	B	4 x 5.4	2000
3.3	AFC335M35B12T-F	3.0	0.12	60.30	3.00	60	B	4 x 5.4	2000
4.7	AFC475M35B12T-F	3.0	0.12	42.40	3.00	60	B	4 x 5.4	2000
6.8	AFC685M35C12T-F	3.0	0.12	29.30	1.80	95	C	5 x 5.4	1000
10.0	AFC106M35C12T-F	3.5	0.12	19.90	1.80	95	C	5 x 5.4	1000
22.0	AFC226M35D16T-F	7.7	0.12	9.10	1.00	140	D	6.3 x 5.4	1000
33.0	AFC336M35E16T-F	11.6	0.12	6.00	0.40	230	E	8 x 6.2	1000
47.0	AFC476M35E16T-F	16.5	0.12	4.20	0.40	230	E	8 x 6.2	1000
100.0	AFC107M35G24T-F	35.0	0.12	2.00	0.20	670	G	10 x 10.2	500
220.0	AFC227M35G24T-F	77.0	0.12	0.90	0.15	670	G	10 x 10.2	500
330.0	AFC337M35G24T-F	115.5	0.12	0.60	0.15	670	G	10 x 10.2	500
50 Vdc (63 Vdc Surge)									
1.0	AFC105M50B12T-F	3.0	0.12	199.00	5.00	30	B	4 x 5.4	2000
2.2	AFC225M50B12T-F	3.0	0.12	90.50	5.00	30	B	4 x 5.4	2000
3.3	AFC335M50B12T-F	3.0	0.12	60.30	5.00	30	B	4 x 5.4	2000
4.7	AFC475M50C12T-F	3.0	0.12	42.40	3.00	50	C	5 x 5.4	1000
10.0	AFC106M50D16T-F	5.0	0.12	19.90	2.00	70	D	6.3 x 5.4	1000
22.0	AFC226M50E16T-F	11.0	0.12	9.10	0.70	120	E	8 x 6.2	1000
33.0	AFC336M50F24T-F	16.5	0.12	6.00	0.60	300	F	8 x 10.2	500
47.0	AFC476M50G24T-F	23.5	0.12	4.20	0.30	500	G	10 x 10.2	500
100.0	AFC107M50G24T-F	50.0	0.12	2.00	0.30	500	G	10 x 10.2	500
220.0	AFC227M50G24T-F	110.0	0.12	0.90	0.30	500	G	10 x 10.2	500

Part Numbering System

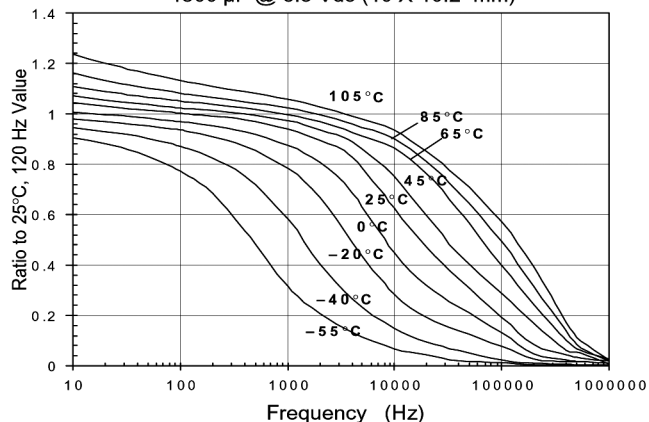
AFC I	106 I	M I	16 I	B I	12T I	-F I
Type	Capacitance	Capacitance	Voltage	Case Code	Packaging Information	RoHS Compliant
	105 = 1.0 μF	Tolerance	06 = 6.3 Vdc	25 = 25 Vdc		
	106 = 10.0 μF	M = ±20%	10 = 10 Vdc	35 = 35 Vdc	12 = Carrier tape	
	107 = 100.0 μF		16 = 16 Vdc	50 = 50 Vdc	Width (mm)	
	108 = 1000 μF				T = Tape & Reel	
					B = bulk	

Typical Performance Curves

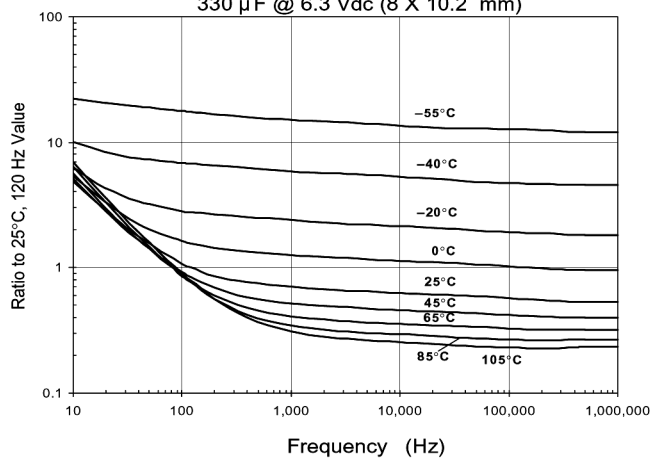
Capacitance vs. Temperature & Frequency
330 μ F @ 6.3 Vdc (8 X 10.2 mm)



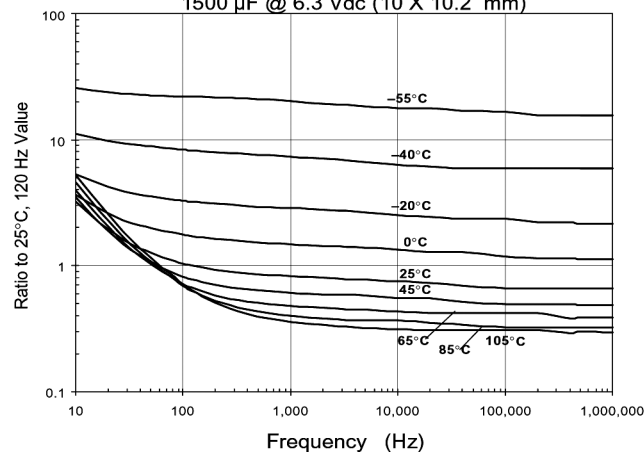
Capacitance vs. Temperature & Frequency
1500 μ F @ 6.3 Vdc (10 X 10.2 mm)



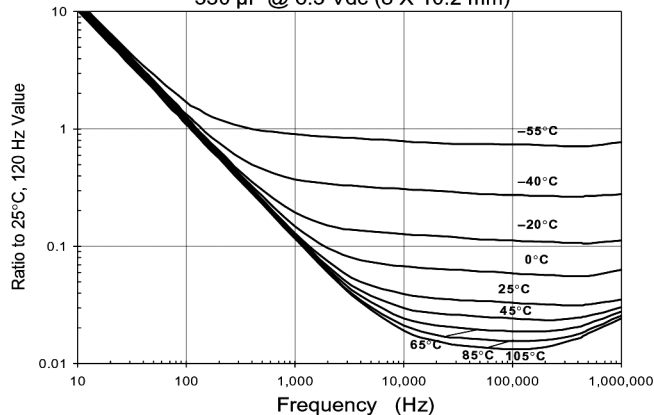
ESR vs. Temperature and Frequency
330 μ F @ 6.3 Vdc (8 X 10.2 mm)



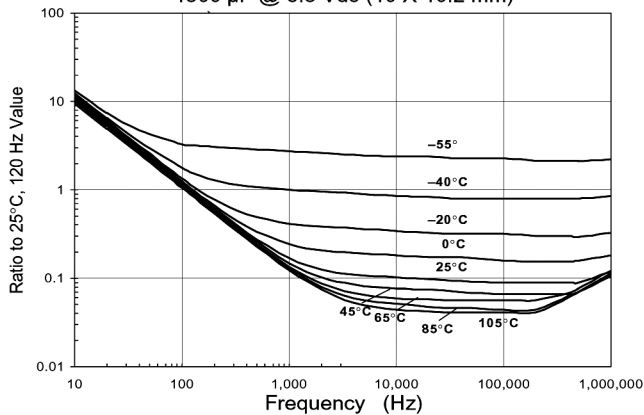
ESR vs. Temperature and Frequency
1500 μ F @ 6.3 Vdc (10 X 10.2 mm)



Impedance vs. Temperature and Frequency
330 μ F @ 6.3 Vdc (8 X 10.2 mm)



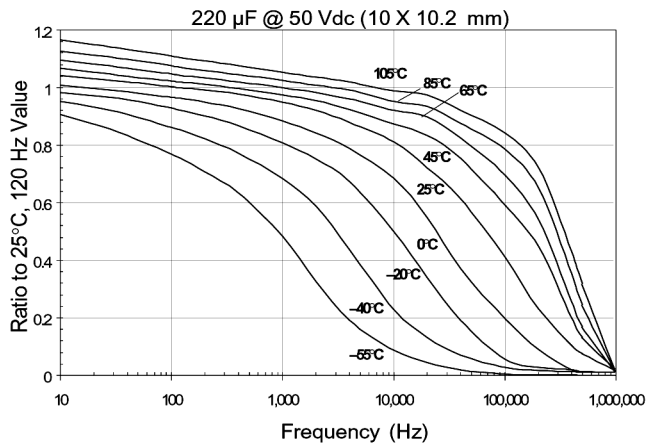
Impedance vs. Temperature and Frequency
1500 μ F @ 6.3 Vdc (10 X 10.2 mm)



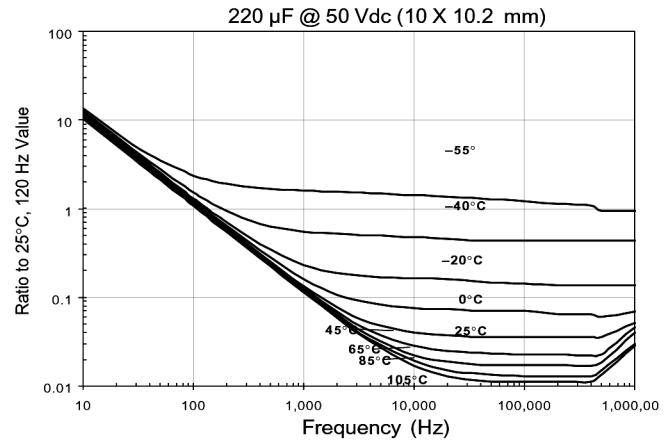
Type AFC -55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Low Impedance, 105 °C

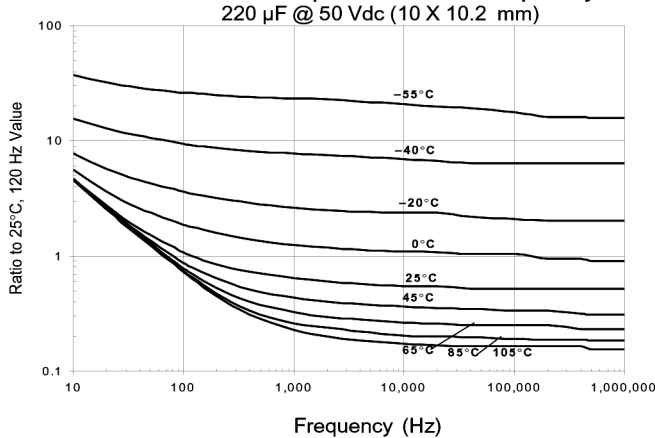
Capacitance vs. Temperature & Frequency



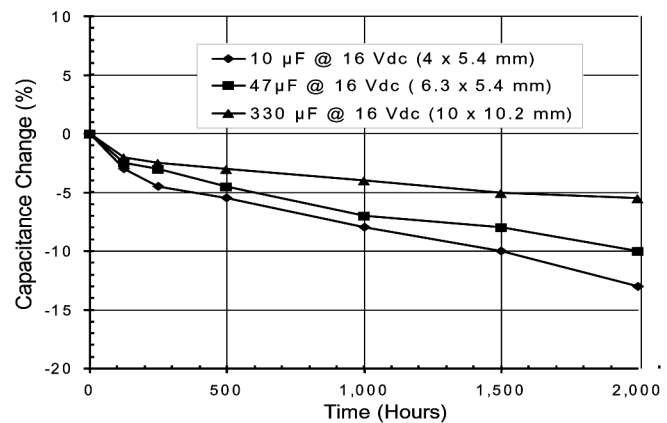
Impedance vs. Temperature and Frequency



ESR vs. Temperature and Frequency



Capacitance Change vs Time



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.