

Type AHD

SMT Aluminum Electrolytic Capacitors - Long Life, 105 °C

Long Life Filtering, Bypassing and Power Supply Decoupling



In smaller capacitance values usually rated for 1000 to 2000 hours load life, the Type AHD delivers 5000 hour load life capability. While not a low-impedance type, the Type AHD is the choice for long life in small capacitance, general filtering applications. The vertical cylindrical cases facilitate automatic mounting and reflow soldering and Type AHD offers significant cost savings over tantalum capacitors.

Highlights

- ◆ +105 °C, 5000 Hour Load Life
- ◆ Capacitance Range: 0.47 μ F to 330 μ F
- ◆ Voltage Range: 10 Vdc to 100 Vdc

Specifications

Operating Temperature:	-40 °C to +105 °C
Rated Voltage:	10, 16, 25, 35, 50, 63 & 100 Vdc
Capacitance:	0.47 μ F to 330 μ F
Capacitance Tolerance:	$\pm$ 20% @ 120 Hz and +20 °C
Leakage Current:	0.01 CV or 3 μ A @ +20 °C, after two minutes (whichever is greater)
Ripple Current Multiplier:	Frequency

50/60 Hz	120 Hz	1 kHz	10 kHz	100 kHz
0.7	1.0	1.3	1.7	1.7

Dissipation Factor:

Voltage	10 V	16 V	25 V	35 V	50 V	63 V	100 V
4 to 6.3 mm	—	0.2	0.16	0.13	0.12	—	—
8 to 10 mm	0.3	0.23	0.18	0.16	0.14	0.18	0.18

Load Life: 5000 H @ +105 °C

Δ Capacitance: $\pm$ 30%

DF: $\leq$ 300% of limit

DCL: $\leq$ 100% of limit

Shelf Life: 1000 H @ +105 °C

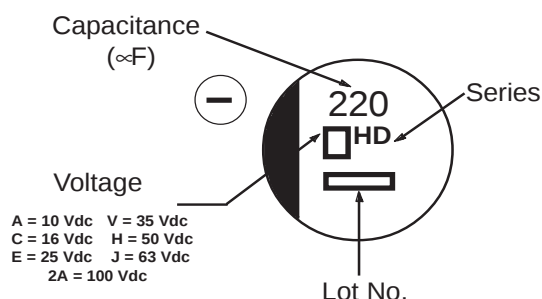
Δ Capacitance: $\pm$ 20%

DF: $\leq$ 200% of limit

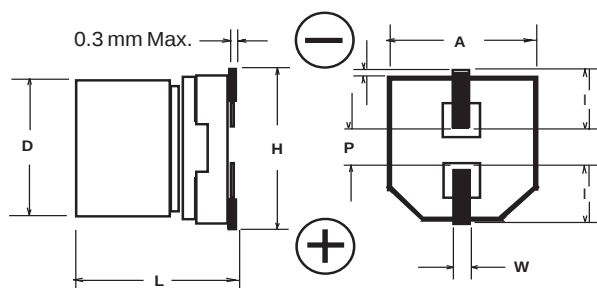
DCL: $\leq$ 100% of limit

Low Temperature Stability	Vdc	10	16	25	35	50 - 100
Impedance Ratio @ 120 Hz	-22 ° / +20 °C	6	2	2	2	2
	-40 ° / +20 °C	12	5	3	3	3

AHD Series Marking



Outline Drawing



Case Dimensions

Case Code	D $\pm$ 0.5	L	A $\pm$ 0.2	H (max)	I (ref)	W	P (ref)	K
B	4.0	5.8 +1, -2	4.3	5.5	1.8	0.65 $\pm$ 0.1	1.0	0.35 + 0.15/-0.20
C	5.0	5.8 +1, -2	5.3	6.5	2.2	0.65 $\pm$ 0.1	1.5	0.35 + 0.15/-0.20
D	6.3	5.8 +1, -2	6.6	7.8	2.4	0.65 $\pm$ 0.1	1.8	0.35 + 0.15/-0.20
E	8.0	6.2 $\pm$ 3	8.3	9.5	3.4	0.65 $\pm$ 0.1	2.2	0.35 + 0.15/-0.20
F	8.0	10.2 $\pm$ 3	8.3	10.0	3.4	0.90 $\pm$ 0.2	3.2	0.70 $\pm$ 0.20
G	10.0	10.2 $\pm$ 3	10.3	13.0	3.5	0.90 $\pm$ 0.2	4.6	0.70 $\pm$ 0.20

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Ratings

Cap (µF)	Catalog Part Number	Max. DCL (µA/2 min)	Max. Dissipation Factor @ 120 Hz 20 °C	Max. ESR @ 120 Hz 20 °C (Ω)	Impedance @ 100 kHz 20 °C (Ω)	Max. Ripple Current @ 105°C 120 Hz (mA)	Case Code	Size (mm) D x L	Quantity per Reel
10 Vdc (13 Vdc Surge)									
100	AHD107M10E16T	10.00	0.30	5.0	2.0	62	E	8 x 6.2	1000
220	AHD227M10F24T	22.00	0.30	2.3	1.5	93	F	8 x 10.2	500
330	AHD337M10G24T	33.00	0.30	1.5	0.8	118	G	10 x 10.2	500
16 Vdc (20 Vdc Surge)									
10	AHD106M16B12T	3.00	0.20	33.2	12.0	20	B	4 x 5.8	2000
22	AHD226M16C12T	3.50	0.20	15.1	7.2	33	C	5 x 5.8	1000
47	AHD476M16D16T	7.50	0.20	7.1	4.0	55	D	6.3 x 5.8	1000
100	AHD107M16F24T	16.00	0.23	3.8	1.5	89	F	8 x 10.2	500
220	AHD227M16G24T	35.20	0.23	1.7	0.8	113	G	10 x 10.2	500
25 Vdc (31 Vdc Surge)									
4.7	AHD475M25B12T	3.00	0.16	56.4	12.0	15	B	4 x 5.8	2000
10	AHD106M25C12T	3.00	0.16	26.5	7.2	26	C	5 x 5.8	1000
22	AHD226M25D16T	5.50	0.16	12.1	4.0	42	D	6.3 x 5.8	1000
33	AHD336M25D16T	8.30	0.16	8.0	2.0	52	D	6.3 x 5.8	1000
47	AHD476M25E16T	11.80	0.18	6.3	1.5	56	E	8 x 6.2	1000
100	AHD107M25F24T	25.00	0.18	3.0	0.8	84	F	8 x 10.2	500
35 Vdc (44 Vdc Surge)									
4.7	AHD475M35B12T	3.00	0.13	45.9	12.0	17	B	4 x 5.8	2000
10	AHD106M35C12T	3.50	0.13	21.6	7.2	28	C	5 x 5.8	1000
22	AHD226M35D16T	7.70	0.13	9.8	4.0	47	D	6.3 x 5.8	1000
33	AHD336M35E16T	11.60	0.16	8.0	2.0	53	E	8 x 6.2	1000
47	AHD476M35F24T	16.50	0.16	5.6	1.5	79	F	8 x 10.2	500
100	AHD107M35G24T	35.00	0.16	2.7	0.8	101	G	10 x 10.2	500
50 Vdc (63 Vdc Surge)									
0.47	AHD474M50B12T	3.00	0.12	424.0	12.0	5	B	4 x 5.8	2000
1	AHD105M50B12T	3.00	0.12	199.0	12.0	7	B	4 x 5.8	2000
2.2	AHD225M50B12T	3.00	0.12	90.4	12.0	12	B	4 x 5.8	2000
3.3	AHD335M50B12T	3.00	0.12	60.3	12.0	16	B	4 x 5.8	2000
4.7	AHD475M50C12T	3.00	0.12	42.3	7.2	21	C	5 x 5.8	1000
10	AHD106M50D16T	5.00	0.12	19.9	4.0	33	D	6.3 x 5.8	1000
22	AHD226M50E16T	11.00	0.14	10.6	2.0	50	E	8 x 6.2	1000
33	AHD336M50F24T	16.50	0.14	7.0	1.5	74	F	8 x 10.2	500
47	AHD476M50G24T	23.50	0.14	4.9	0.8	94	G	10 x 10.2	500
63 Vdc (75 Vdc Surge)									
10	AHD106M63E16T	6.30	0.18	29.8	2.0	45	E	8 x 6.2	1000
22	AHD226M63F24T	13.86	0.18	13.6	1.5	65	F	8 x 10.2	500
33	AHD336M63G24T	20.79	0.18	9.0	0.8	80	G	10 x 10.2	500
100 Vdc (125 Vdc Surge)									
3.3	AHD335M2AE16T	3.30	0.18	90.4	2.0	30	E	8 x 6.2	1000
4.7	AHD475M2AF24T	4.70	0.18	63.5	1.5	50	F	8 x 10.2	500
10	AHD106M2AF24T	10.00	0.18	29.8	1.5	55	F	8 x 10.2	500
22	AHD226M2AG24T	22.00	0.18	13.6	0.8	70	G	10 x 10.2	500

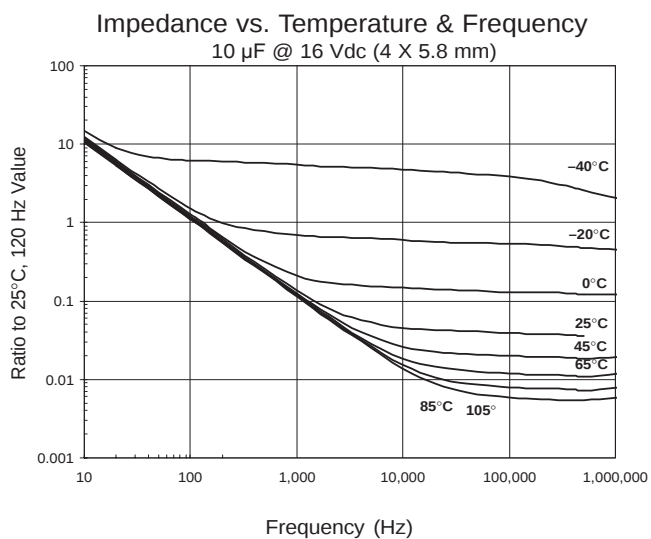
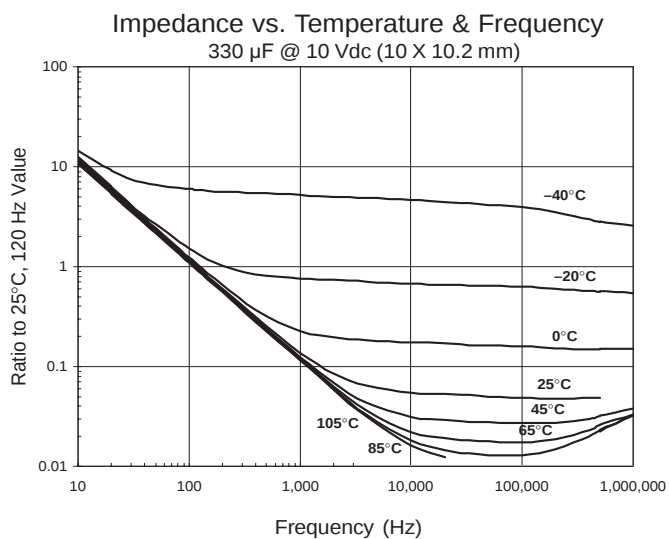
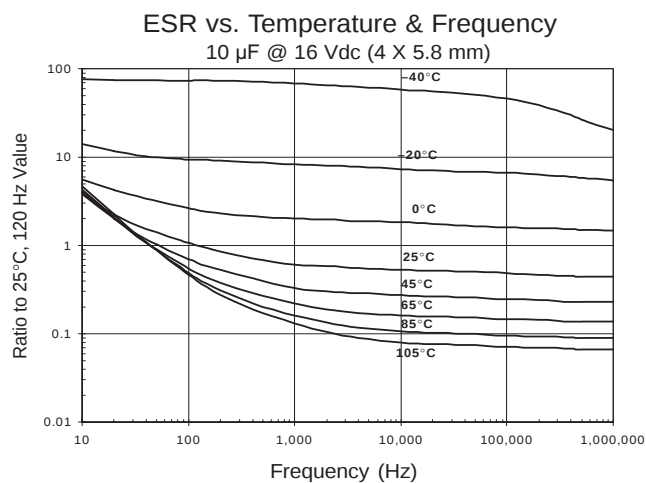
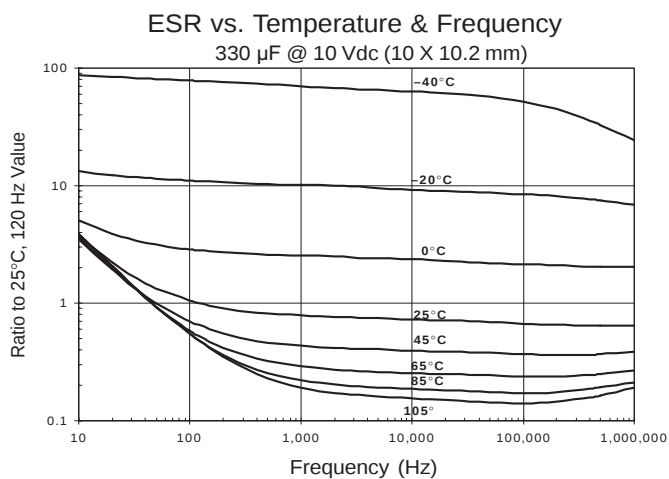
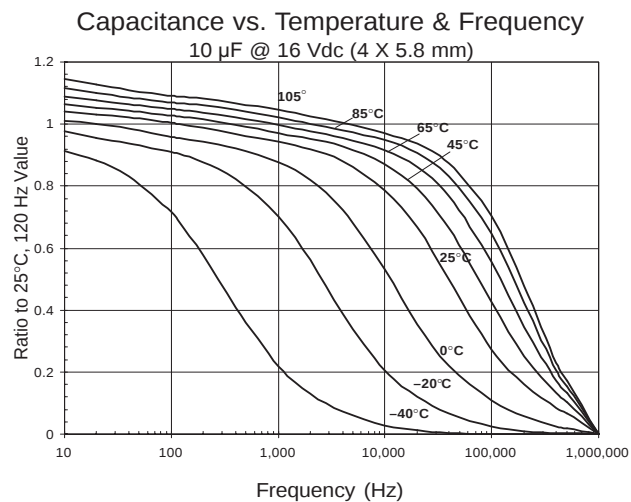
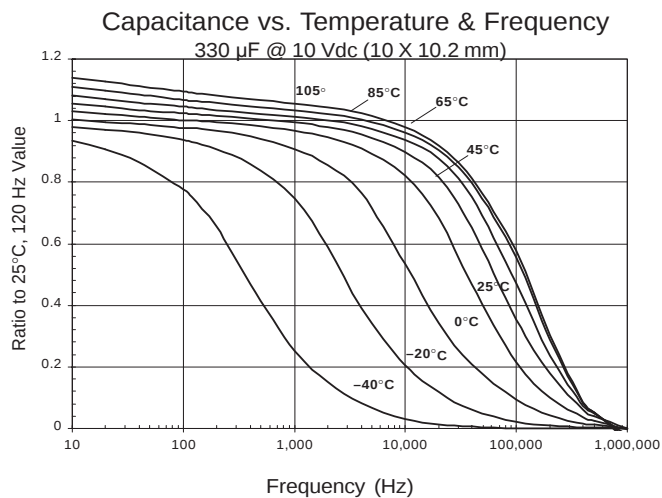
Part Numbering System

AHD	106	M	16	B	12T
Type	Capacitance	Capacitance Tolerance	Voltage	Case Code	Packaging Information
	104 = 0.1 µF 105 = 1.0 µF 106 = 10.0 µF 107 = 100.0 µF	M = ±20%	10 = 10 Vdc 16 = 16 Vdc 25 = 25 Vdc 35 = 35 Vdc		12 = Carrier tape Width (mm) T = Tape & Reel B = bulk

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Typical Performance Curves

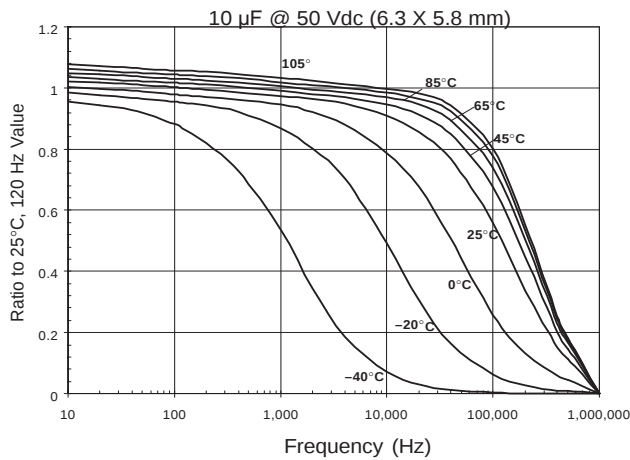


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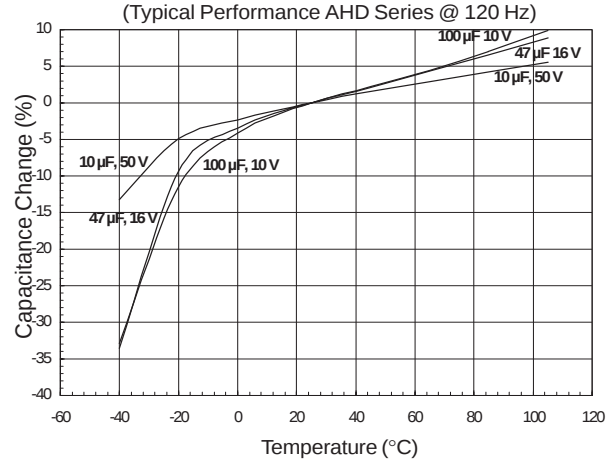
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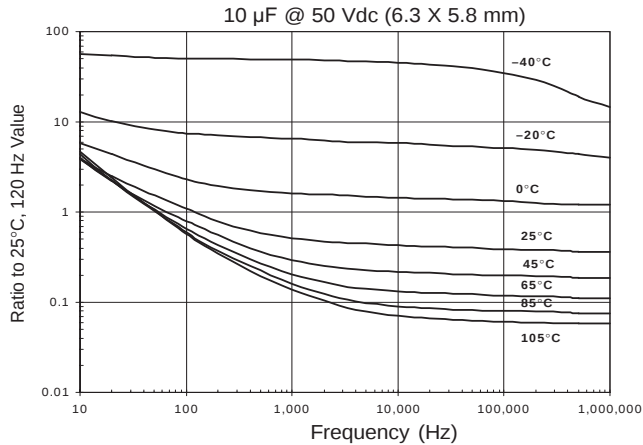
Capacitance vs. Temperature & Frequency



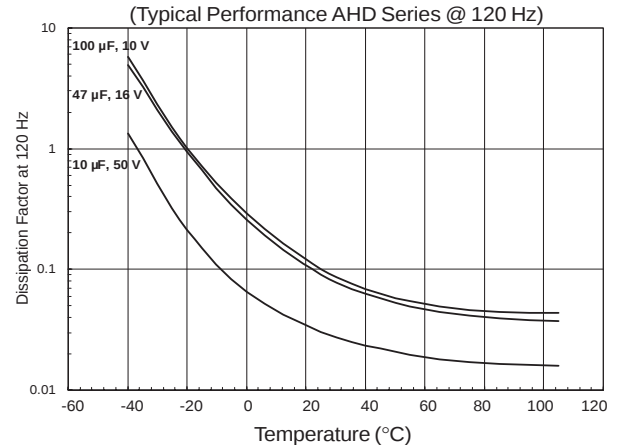
Capacitance Change vs. Temperature



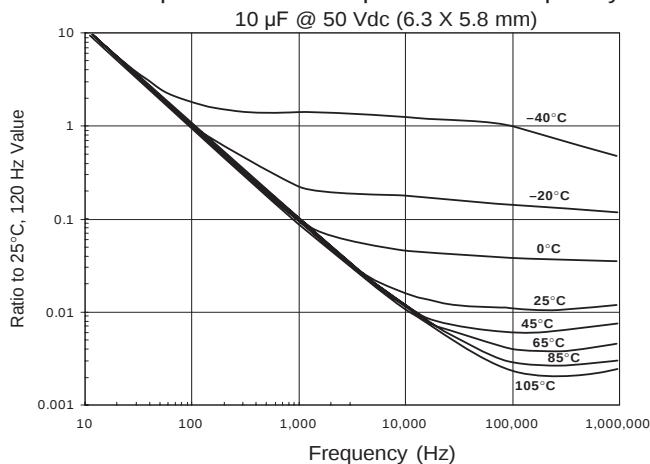
ESR vs. Temperature & Frequency



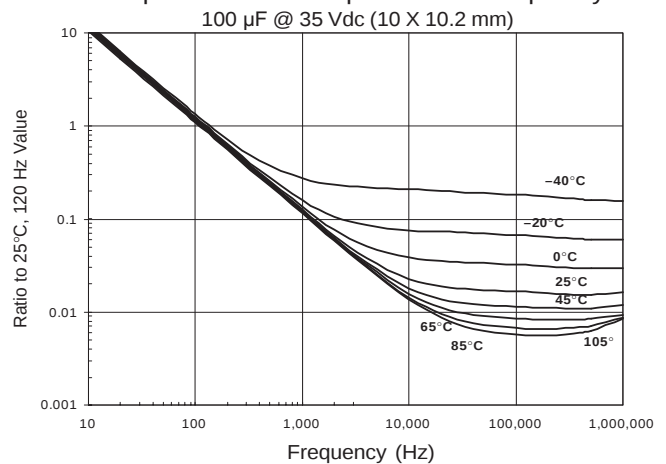
Dissipation Factor vs. Temperature



Impedance vs. Temperature & Frequency



Impedance vs. Temperature & Frequency



SMT & Chip
Capacitors