SMD Aluminum Electrolytic Capacitors

AEH Series

FEATURES

- Endurance: 125°C, 2000 to 5000hours
- Designed for surface mounting on high density PC board
- RoHS Compliance

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

APPLICATIONS

- DC/DC convectors, for high density SMD boards and higher operation temperature environment applications

HOW TO ORDER

A EH 1010 470 M 010 R -

Product Type
Aluminum

Series Type

Case Size
See table below

Capacitance Code
µF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

Tolerance
M = ±20%

Special
No Code = std

Packaging
R = Pure Tin
13" Reel (D≤12.50mm)
15" Reel (D≥10.00mm)

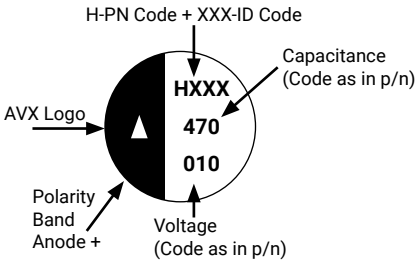
Rated DC Voltage

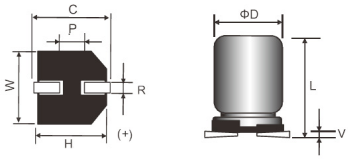
010 = 10Vdc	063 = 63Vdc
016 = 16Vdc	080 = 80Vdc
025 = 25Vdc	250 = 250Vdc
035 = 35Vdc	400 = 400Vdc
050 = 50Vdc	

CASE DIMENSIONS millimeters (inches)

Code	D±0.50 (0.020)	L±0.50 (0.020)	A±0.20 (0.008)	B±0.20 (0.008)	C±0.20 (0.008)	R	P±0.30 (0.012)	V max
0608	6.30 (0.248)	8.00 (0.315)	6.60 (0.260)	6.60 (0.260)	7.30 (0.287)	0.50-0.80 (0.020-0.031)	2.00 (0.080)	0.30 (0.012)
0810	8.00 (0.315)	10.50 (0.413)	8.30 (0.327)	8.30 (0.327)	9.00 (0.354)	0.70-1.10 (0.028-0.043)	3.20 (0.126)	0.30 (0.012)
1010	10.00 (0.394)	10.50 (0.413)	10.30 (0.406)	10.30 (0.406)	11.00 (0.433)	0.70-1.30 (0.028-0.051)	4.50 (0.177)	0.30 (0.012)
1012	10.00 (0.394)	12.50 (0.492)	10.30 (0.406)	10.30 (0.406)	11.00 (0.433)	0.70-1.30 (0.028-0.051)	4.50 (0.177)	0.30 (0.012)
1013	10.00 (0.394)	13.50 (0.531)	10.30 (0.406)	10.30 (0.406)	11.00 (0.433)	0.70-1.30 (0.028-0.051)	4.50 (0.177)	0.30 (0.012)
1016	10.00 (0.394)	16.50 (0.650)	10.30 (0.406)	10.30 (0.406)	11.00 (0.433)	0.70-1.30 (0.028-0.051)	4.50 (0.177)	0.30 (0.012)
1213	12.50 (0.492)	13.50 (0.531)	13.00 (0.512)	13.00 (0.512)	13.70 (0.539)	1.10-1.40 (0.043-0.055)	4.50 (0.177)	0.40 (0.016)
1216	12.50 (0.492)	16.00 (0.630)	13.00 (0.512)	13.00 (0.512)	13.70 (0.539)	1.10-1.40 (0.043-0.055)	4.50 (0.177)	0.40 (0.016)

MARKING





TECHNICAL SPECIFICATIONS

Category Temperature Range:	-55°C to +125°C (10-80V), -40°C to +125°C (250-400V)			
Capacitance Range	At 20°C,120Hz	2.2µF to 470µF		
Capacitance Tolerance:	At 20°C,120Hz	±20%		
Dissipation Factor (%)	Measurement Frequency: 120Hz at 20°C	Please see the ratings and part number reference table below		
Leakage Current	Rated voltage at 20°C	10-80V		250-400V
		0608-1013	1213-1616	
		I ≦ 0.01CV or 3µA, whichever is greater (2min)	I ≦ 0.03CV or 4µA, whichever is greater (2min)	I ≦ 0.04CV + 100µA (1minute)

SMD Aluminum Electrolytic Capacitors

AEH Series

A KYOCERA GROUP COMPANY

CAPACITANCE AND RATED VOLTAGE RANGE (FIGURES DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R)								
µF	Code	10V	16V	25V	35V	50V	63V	80V	250V	400V
2.2	2R2									0810
4.7	4R7								1010	1010
6.8	6R8									1013
10	100									1016
22	220					0608				
33	330					0608				
47	470			0608	0608	0810		1010		
100	101	0608	0608, 0810	0810	0810	1010	1012			
220	221			1010	1010	1213				
330	331			1010		1216				
470	471	1010	1012	1213	1216					

Released ratings

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DF Max. (%)	100kHz RMS Current (mA)
10 Volt					
AEH0608101M010R	0608	100	10	24	110
AEH1010471M010R	1010	470	10	24	296
16 Volt					
AEH0608101M016R	0608	100	16	20	110
AEH0810101M016R	0810	100	16	20	220
AEH1012471M016R	1012	470	16	20	340
25 Volt					
AEH0608470M025R	0608	47	25	16	110
AEH0810101M025R	0810	100	25	16	220
AEH1010221M025R	1010	220	25	16	296
AEH1010331M025R	1010	330	25	16	296
AEH1213471M025R	1213	470	25	16	750
35 Volt					
AEH0608470M035R	0608	47	35	14	110
AEH0810101M035R	0810	100	35	14	220
AEH1010221M035R	1010	220	35	14	296
AEH1216471M035R	1216	470	35	14	900
50 Volt					
AEH0608220M050R	0608	22	50	14	83
AEH0608330M050R	0608	33	50	14	83
AEH0810470M050R	0810	47	50	14	160
AEH1010101M050R	1010	100	50	14	247
AEH1213221M050R	1213	220	50	14	550
AEH1216331M050R	1216	330	50	14	700
63 Volt					
AEH1012101M063R	1012	100	63	12	270
80 Volt					
AEH1010470M080R	1010	47	80	12	245
250 Volt					
AEH10104R7M250R	1010	4.7	250	24	59
400 Volt					
AEH08102R2M400R	0810	2.2	400	30	30
AEH10104R7M400R	1010	4.7	400	30	65
AEH10136R8M400R	1013	6.8	400	30	90
AEH1016100M400R	1016	10	400	30	102

All technical data relates to an ambient temperature of +25C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2 volts.
DCL is measured at rated voltage after 5 minutes.

FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

Rated Voltage (Vdc)	Capacitance (μF)	120 - 1K (Hz)	1K - 10K (Hz)	10K - 100K (Hz)	100K(Hz)
10-80	Cap.<220	0.4	0.75	0.9	1
	220≤Cap.< 470	0.5	0.85	0.94	1
250-400	Cap.≤33	0.55	0.83	0.97	1
	Cap.>33	0.66	0.86	0.93	1

Internal heating produced by ripple current will reduce the lifetime of capacitors, at a rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use the rms ripple current should be minimized.

QUALIFICATION TABLE

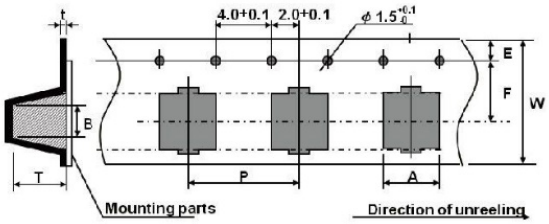
Test	AEH series										
	Condition	Characteristics									
Low Temperature Characteristics (Max. Impedance Ratio)	At 120Hz	Rated Voltage (V)		10	16	25	35	50	63	80	250	400
		0608-1016	Z(-25°C)/Z(+20°C)	3	2	2	2	2	2	2	6	6
			Z(-40°C)/Z(+20°C)	6	4	4	3	3	3	3	10	18
		1213-1216	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	6	6
			Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	3	10	18
Endurance	The specifications shall be met when the capacitors are restored to 20°C after rated voltage is applied for a specified period of time at 125°C. Load life: 0608(10-50V) 1000hours 0810-1016(10-80V) 2000hours 1213-1216(10-80V) 5000hours 0810-1216(250-400V) 3000hours	ΔC/C		≦ ±30% of the initial limit								
		DF		≦ 300% of the initial specified limit								
		DCL		≦ Initial specified limit								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 125°C for 1,000 hours (400V: 500 hours).	ΔC/C		≦ ±30% of the initial limit								
		DF		≦ 300% of the initial specified limit								
		DCL		≦ 500% of the initial specified limit								

STORAGE

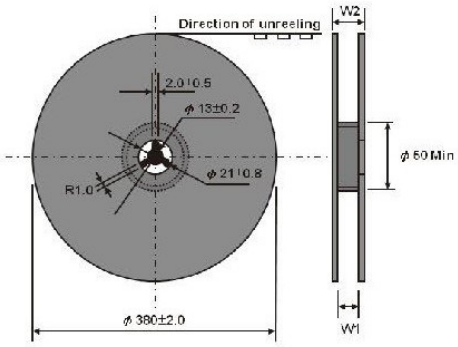
1. It is recommended to keep capacitors between the ambient temperatures of 5°C to 35°C and a relative humidity of 75%.
   (A) Storage life: ≤ 12 months
   (B) Expiry date: calculating from the date marked on the sleeve
   (C) Please keep capacitors in the original package
   (D) Avoid storing the capacitors under such circumstances
   - with water and oil or damp & dewing location
   - with gas and oil
   - with toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, bromine and methane
   - with direct sunlight, ozone, ultraviolet rays or radiation
2. Leakage current tends to increase when capacitors have been stored for long period of time. The higher storage Temp. Rise, the higher leakage current increase. Please take caution when selecting the storage location. The leakage current will decrease gradually as voltage is applied to the capacitor. The capacitor is subjected to aging before using where increased leakage may cause problems in the circuit.

PACKAGE TAPE DIMENSIONS units (mm)

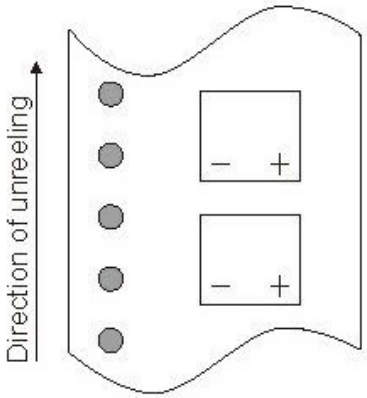
Size Code	A±0.20	B±0.20	W±0.30	F±0.10	E±0.10	P±0.10	t±0.10	T±0.20
0608	7.0	7.0	16.0	7.5	1.75	12.0	0.4	8.0
0810	8.7	8.7	24.0	11.5	1.75	16.0	0.4	11.0
1010	10.7	10.7	24.0	11.5	1.75	16.0	0.4	11.0
1012	10.7	10.7	24.0	11.5	1.75	16.0	0.4	13.0-13.5
1013	10.7	10.7	24.0	11.5	1.75	16.0	0.4	15.0
1016	10.7	10.7	24.0	11.5	1.75	16.0	0.4	17.5
1213	13.4	13.4	32.0	14.2	1.75	24.0	0.4	14.5
1216	13.4	13.4	32.0	14.2	1.75	24.0	0.4	16.5



REEL



POLARITY



DIMENSIONS units (mm)

Size Code	W1±1.00	W2±1.00	Qty./Reel
0608	18.0	22.0	1000
0810	18.0	22.0	550
1010	26.0	31.0	550
1012	26.0	31.0	500
1013	26.0	31.0	450
1016	26.0	31.0	350
1213	34.0	39.0	200
1216	34.0	39.0	150