

SMD Aluminum Hybrid Electrolytic Capacitors

AHC Series



FEATURES

- Low ESR
- High Ripple Current Resistance
- 125°C, 4000 hours
- RoHS compliant

APPLICATIONS

- Commercial/Industrial power supply applications requiring high capacitance in energy-dense, in small-volume packages with a low ESR



HOW TO ORDER

Product Type
Aluminum

A HC 0811 221 M 025 R -

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

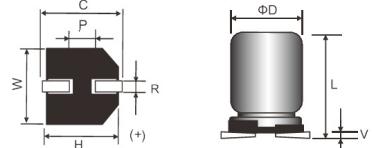
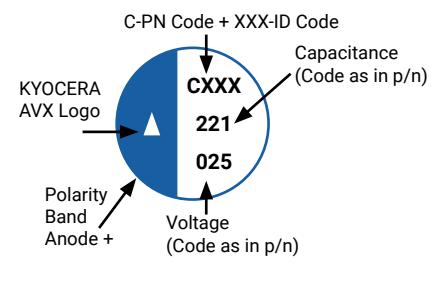
Packaging
R = Pure Tin 15"Reel

Rated DC Voltage
025 = 25Vdc
035 = 35Vdc
050 = 50Vdc
063 = 63Vdc
080 = 80Vdc

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 |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------------|-------------------|-----------------|
| 0609 | 6.30 (0.248) | 9.30 (0.366) | 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) |
| 0811 | 8.00 (0.315) | 11.50 (0.453) | 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) |
| 0812 | 8.00 (0.315) | 12.00 (0.472) | 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) |
| 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) |

MARKING



TECHNICAL SPECIFICATIONS

| | | |
|------------------------|---|--|
| Category | Temperature Range: | -55°C to +125°C |
| Capacitance Range: | At 20°C, 120Hz | 15µF 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: | After 2 minutes at rated working voltage at 20°C* | $I \leq 0.01CV$ or 3µA, whichever is greater |

* Note: In the case of an anomalous reading, re-measure the leakage current after following voltage treatment:

Voltage treatment: DC rated voltage to be applied to the capacitors for 120 minutes at 125°C.



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

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AHC Series

CAPACITANCE AND RATED VOLTAGE RANGE (FIGURES DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V _r) | | | | |
|-------------|------|------------------------------------|------|------|------|------|
| μF | Code | 25V | 35V | 50V | 63V | 80V |
| 15 | 150 | | | | 0609 | |
| 22 | 220 | | | 0609 | 0609 | |
| 33 | 330 | | | 0609 | | |
| 47 | 470 | | 0609 | 0811 | | 0812 |
| 68 | 680 | | 0609 | | | |
| 100 | 101 | 0609 | | | | |
| 220 | 221 | 0811 | 1012 | | | |
| 470 | 471 | 1012 | | | | |

Released ratings

RATINGS & PART NUMBER REFERENCE

| Part No. | Case Size | Capacitance (μF) | Rated Voltage (V) | DCL Max. (μA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (mA)/125°C |
|-----------------|-----------|------------------|-------------------|---------------|-------------|------------------------|-------------------------------|
| 25 Volt | | | | | | | |
| AHC0609101M025R | 0609 | 100 | 25 | 25 | 12 | 30 | 1400 |
| AHC0811221M025R | 0811 | 220 | 25 | 55 | 12 | 27 | 1400 |
| AHC1012471M025R | 1012 | 470 | 25 | 117.5 | 12 | 20 | 2000 |
| 35 Volt | | | | | | | |
| AHC0609470M035R | 0609 | 47 | 35 | 16.5 | 12 | 60 | 900 |
| AHC0609680M035R | 0609 | 68 | 35 | 23.8 | 12 | 40 | 1200 |
| AHC1012221M035R | 1012 | 220 | 35 | 77 | 12 | 30 | 1800 |
| 50 Volt | | | | | | | |
| AHC0609220M050R | 0609 | 22 | 50 | 11 | 12 | 90 | 900 |
| AHC0609330M050R | 0609 | 33 | 50 | 16.5 | 12 | 40 | 1100 |
| AHC0811470M050R | 0811 | 47 | 50 | 23.5 | 12 | 35 | 1100 |
| 63 Volt | | | | | | | |
| AHC0609150M063R | 0609 | 15 | 63 | 9.5 | 12 | 100 | 800 |
| AHC0609220M063R | 0609 | 22 | 63 | 13.9 | 12 | 80 | 800 |
| 80 Volt | | | | | | | |
| AHC0812470M080R | 0812 | 47 | 80 | 37.6 | 12 | 40 | 1000 |

All technical data relates to an ambient temperature of +25°C. 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

| Frequency | 120Hz ≤ F(Hz) < 1K | 1K ≤ F(Hz) < 10K | 10K ≤ F(Hz) < 100K | 100K(Hz) ≤ F |
|-------------|--------------------|------------------|--------------------|--------------|
| Coefficient | 0.05 | 0.30 | 0.70 | 1.00 |

QUALIFICATION TABLE

| Test | AHC series (Temperature range -55°C to +125°C) | | | | |
|-------------------------------|--|--------------------|---------------------------------------|--|--|
| | Condition | | Characteristics | | |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to normal temperature after storing them for 2000 hours under no-load at 125±2°C. The rated voltage with ripple current is applied for 4000 hours at 125°C. | Visual Examination | no visible damage | | |
| | | ΔC/C | ≤ ±30% of the initial limit | | |
| | | DF | ≤ 200% of the initial specified limit | | |
| | | ESR | ≤ 200% of the initial specified limit | | |
| | | DCL | ≤ Initial specified limit or less | | |
| Humidity Resistance (On-Load) | The following specifications shall be satisfied when the rated voltage is applied for 2000 hours at 85±2°C and 85 to 90% RH. | Visual Examination | ≤ no visible damage | | |
| | | ΔC/C | ≤ ±30% of the initial limit | | |
| | | DF | ≤ 200% of the initial specified limit | | |
| | | ESR | ≤ 200% of the initial specified limit | | |
| | | DCL | ≤ Initial specified limit or less | | |

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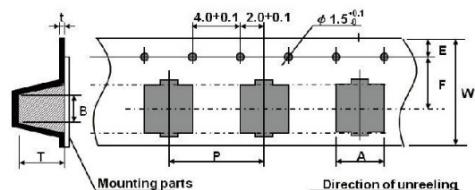
AHC Series

STORAGE

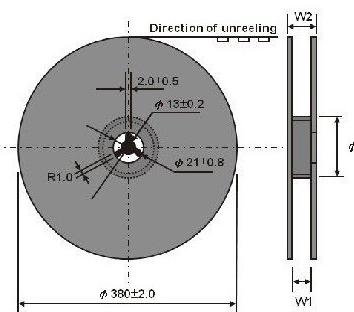
1. It is recommended to keep capacitors between the ambient temperatures of 5°C to 35°C (If between 35 to 85°C, it should be less than three months), and the relative humidity of 75% or below.
2. Confirm that the environment does not have any of the following conditions:
 - Damp conditions such as water, saltwater spray, or oil spray or fumes. High humidity or humidity condensation situations.
 - In an atmosphere filled with toxic gasses (such as hydrogen sulfide, sulfuric acid, nitrous acid, chlorine, ammonia, etc.).
 - Being exposed to direct sunlight, ozone, ultraviolet ray, or radiation.
 - Being exposed to acidic or alkaline solutions.
 - Under severe conditions where vibration and / or mechanical shock exceed the applicable ranges of the specification.
3. Storage time:
 - Before unseal: within 1 year after delivery
 - After seal: within 1 month from opening

PACKAGE TAPE DIMENSIONS units (mm)

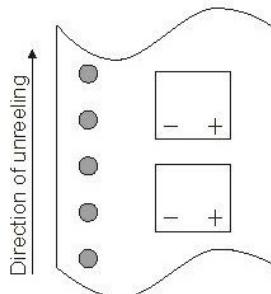
| Size Code | A ± 0.20 | B ± 0.20 | W ± 0.30 | F ± 0.10 | E ± 0.10 | P ± 0.10 | t ± 0.10 | T ± 0.20 |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 0609 | 7.0 | 7.0 | 16.0 | 7.5 | 1.75 | 12.0 | 0.4 | 10.0 |
| 0811 | 8.7 | 8.7 | 24.0 | 11.5 | 1.75 | 16.0 | 0.4 | 12.0 |
| 0812 | 8.7 | 8.7 | 24.0 | 11.5 | 1.75 | 16.0 | 0.4 | 13.0 |
| 1012 | 10.7 | 10.7 | 24.0 | 11.5 | 1.75 | 16.0 | 0.4 | 13.0-13.5 |



REEL



POLARITY



DIMENSIONS units (mm)

| Size Code | W1 ± 1.00 | W2 ± 1.00 | Qty./Reel |
|-----------|---------------|---------------|-----------|
| 0609 | 18.0 | 22.0 | 800 |
| 0811 | 26.0 | 31.0 | 500 |
| 0812 | 26.0 | 31.0 | 500 |
| 1012 | 26.0 | 31.0 | 500 |