

# Radial Leaded Aluminum Conductive Polymer Electrolytic Capacitors

## RPA Series



### FEATURES

- Super Low ESR, High ripple current capability
- Endurance: 105°C, 5000 hours
- RoHS and Halogen Free Compliance

### APPLICATIONS

- Servers, APC/UPS power supply, power inverter, etc.

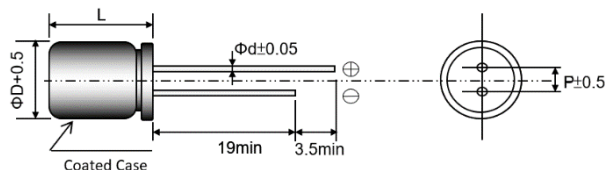


### HOW TO ORDER

|                                                                                                                                               |          |           |             |            |          |            |          |          |                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------|-------------|------------|----------|------------|----------|----------|------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                               | <b>R</b> | <b>PA</b> | <b>0812</b> | <b>471</b> | <b>M</b> | <b>016</b> | <b>K</b> | <b>-</b> |                                                                                                                                    |
| <b>Product Type</b><br>Aluminum                                                                                                               |          |           |             |            |          |            |          |          | <b>Special</b><br>No Code = std                                                                                                    |
| <b>Series Type</b>                                                                                                                            |          |           |             |            |          |            |          |          | <b>Packaging</b><br>K = Ammo Pack<br>B = Bulk Pack                                                                                 |
| <b>Case Size</b><br>See table below                                                                                                           |          |           |             |            |          |            |          |          | <b>Rated DC Voltage</b><br>002 = 2.5Vdc    025 = 25Vdc<br>006 = 6.3Vdc    035 = 35Vdc<br>010 = 10Vdc    050 = 50Vdc<br>016 = 16Vdc |
| <b>Capacitance Code</b><br>µF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow) |          |           |             |            |          |            |          |          |                                                                                                                                    |
| <b>Tolerance</b><br>M = ±20%                                                                                                                  |          |           |             |            |          |            |          |          |                                                                                                                                    |

### CASE DIMENSIONS millimeters (inches)

| Code | D±0.50 (0.020) | L±1.50 (0.060) | d±0.05 (0.002) | P±0.50 (0.020) | Typical Weight (g) |
|------|----------------|----------------|----------------|----------------|--------------------|
| 0606 | 6.30 (0.248)   | 6.00 (0.236)   | 0.45 (0.018)   | 2.50 (0.098)   | 0.25               |
| 0608 | 6.30 (0.248)   | 8.00 (0.315)   | 0.50 (0.020)   | 2.50 (0.098)   | 0.43               |
| 0609 | 6.30 (0.248)   | 9.00 (0.354)   | 0.50 (0.020)   | 2.50 (0.098)   | 0.45               |
| 0808 | 8.00 (0.315)   | 8.00 (0.315)   | 0.60 (0.024)   | 3.50 (0.138)   | 0.66               |
| 0812 | 8.00 (0.315)   | 12.00 (0.472)  | 0.60 (0.024)   | 3.50 (0.138)   | 0.85               |
| 1010 | 10.00 (0.394)  | 10.00 (0.394)  | 0.60 (0.024)   | 5.00 (0.197)   | 1.10               |
| 1012 | 10.00 (0.394)  | 12.00 (0.472)  | 0.60 (0.024)   | 5.00 (0.197)   | 1.25               |

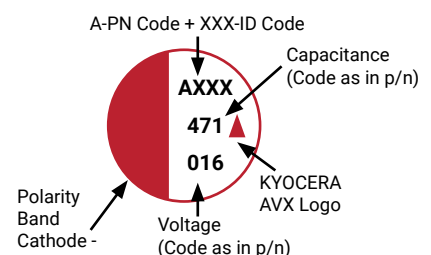


### TECHNICAL SPECIFICATIONS

|                                    |                                                   |                                                              |
|------------------------------------|---------------------------------------------------|--------------------------------------------------------------|
| <b>Category Temperature Range:</b> | -55°C to +105°C                                   |                                                              |
| <b>Capacitance Range</b>           | At 25°C, 120Hz                                    | 10µF to 2200µF                                               |
| <b>Capacitance Tolerance:</b>      | At 25°C, 120Hz                                    | ±20%                                                         |
| <b>Dissipation Factor (%)</b>      | Measurement Frequency: 120Hz at 25°C              | Please see the ratings and part number reference table below |
| <b>Leakage Current:</b>            | After 2 minutes at rated working voltage at 25°C* | I ≤ 0.2CV or 300µA, 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 105°C.

### MARKING



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

TDS-ALUM-0018 | Rev 1

— ALUMINUM CAPACITORS —

# Radial Leaded Aluminum Conductive Polymer Electrolytic Capacitors

## RPA Series



### CAPACITANCE AND RATED VOLTAGE RANGE (FIGURES DENOTES CASE SIZE)

| Capacitance |      | Rated Voltage DC (V <sub>R</sub> ) |            |      |            |      |      |            |
|-------------|------|------------------------------------|------------|------|------------|------|------|------------|
| μF          | Code | 2.5V                               | 6.3V       | 10V  | 16V        | 25V  | 35V  | 50V        |
| 10          | 100  |                                    |            |      |            |      |      | 0606       |
| 22          | 220  |                                    |            |      |            |      | 0606 |            |
| 33          | 330  |                                    |            |      |            |      |      | 0608       |
| 47          | 470  |                                    |            |      |            | 0606 |      | 0808       |
| 68          | 680  |                                    |            |      |            |      | 0608 | 0812       |
| 82          | 820  |                                    |            |      | 0606       |      |      |            |
| 100         | 101  |                                    | 0606       |      | 0608       | 0609 |      | 1010, 1012 |
| 120         | 121  |                                    |            | 0606 |            |      | 0808 |            |
| 150         | 151  |                                    |            |      |            |      | 0812 |            |
| 180         | 181  |                                    | 0606       |      |            | 0808 |      |            |
| 220         | 221  | 0606                               |            |      | 0608       | 0812 | 1010 |            |
| 270         | 271  |                                    |            |      |            |      | 1012 |            |
| 330         | 331  |                                    |            | 0608 | 0808       | 1010 |      |            |
| 470         | 471  |                                    | 0608       |      | 0812, 1012 | 1012 |      |            |
| 560         | 561  | 0608                               | 0608, 0808 | 0808 |            |      |      |            |
| 680         | 681  |                                    | 0808       | 0812 | 1010       |      |      |            |
| 820         | 821  |                                    |            |      | 1012       |      |      |            |
| 1000        | 102  | 0808                               | 0812       | 1010 | 1012       |      |      |            |
| 1200        | 122  | 0812                               | 1010       | 1012 |            |      |      |            |
| 1800        | 182  | 1012                               | 1012       |      |            |      |      |            |
| 2200        | 222  | 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) |
|-----------------|-----------|------------------|-------------------|---------------|-------------|-----------------------|-------------------------|
| 2.5 V           |           |                  |                   |               |             |                       |                         |
| RPA0606221M002* | 0606      | 220              | 2.5               | 300           | 12          | 24                    | 2400                    |
| RPA0608561M002* | 0608      | 560              | 2.5               | 300           | 12          | 15                    | 3200                    |
| RPA0808102M002* | 0808      | 1000             | 2.5               | 500           | 12          | 15                    | 3640                    |
| RPA0812122M002* | 0812      | 1200             | 2.5               | 600           | 12          | 10                    | 5200                    |
| RPA1012182M002* | 1012      | 1800             | 2.5               | 900           | 12          | 10                    | 5200                    |
| RPA1012222M002* | 1012      | 2200             | 2.5               | 1100          | 12          | 10                    | 5500                    |
| 6.3 Volt        |           |                  |                   |               |             |                       |                         |
| RPA0606101M006* | 0606      | 100              | 6.3               | 300           | 12          | 24                    | 2400                    |
| RPA0606181M006* | 0606      | 180              | 6.3               | 300           | 12          | 24                    | 2400                    |
| RPA0608471M006* | 0608      | 470              | 6.3               | 592           | 12          | 15                    | 3500                    |
| RPA0608561M006* | 0608      | 560              | 6.3               | 706           | 12          | 15                    | 3500                    |
| RPA0808561M006* | 0808      | 560              | 6.3               | 706           | 12          | 15                    | 4100                    |
| RPA0808681M006* | 0808      | 680              | 6.3               | 856           | 12          | 15                    | 4300                    |
| RPA0812102M006* | 0812      | 1000             | 6.3               | 1260          | 12          | 12                    | 5000                    |
| RPA1010122M006* | 1010      | 1200             | 6.3               | 1512          | 12          | 15                    | 5200                    |
| RPA1012182M006* | 1012      | 1800             | 6.3               | 2268          | 12          | 12                    | 5500                    |
| 10 Volt         |           |                  |                   |               |             |                       |                         |
| RPA0606121M010* | 0606      | 120              | 10                | 300           | 12          | 24                    | 2400                    |
| RPA0608331M010* | 0608      | 330              | 10                | 660           | 12          | 15                    | 3500                    |
| RPA0808561M010* | 0808      | 560              | 10                | 1120          | 12          | 15                    | 4000                    |
| RPA0812681M010* | 0812      | 680              | 10                | 1360          | 12          | 15                    | 4800                    |
| RPA1010102M010* | 1010      | 1000             | 10                | 2000          | 12          | 15                    | 4800                    |
| RPA1012122M010* | 1012      | 1200             | 10                | 2400          | 12          | 12                    | 5500                    |
| 16V             |           |                  |                   |               |             |                       |                         |
| RPA0606820M016* | 0606      | 82               | 16                | 300           | 12          | 24                    | 2400                    |
| RPA0608101M016* | 0608      | 100              | 16                | 320           | 12          | 15                    | 3500                    |
| RPA0608221M016* | 0608      | 220              | 16                | 704           | 12          | 15                    | 3500                    |
| RPA0808331M016* | 0808      | 330              | 16                | 1056          | 12          | 15                    | 4200                    |
| RPA0812471M016* | 0812      | 470              | 16                | 1504          | 12          | 12                    | 4500                    |
| RPA1012471M016* | 1012      | 470              | 16                | 1504          | 12          | 10                    | 5100                    |

# Radial Leaded Aluminum Conductive Polymer Electrolytic Capacitors

## RPA Series



### 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) |
|-----------------|-----------|------------------|-------------------|---------------|-------------|-----------------------|-------------------------|
| RPA1010681M016* | 1010      | 680              | 16                | 2176          | 12          | 15                    | 5100                    |
| RPA1012821M016* | 1012      | 820              | 16                | 2624          | 12          | 15                    | 5400                    |
| RPA1012102M016* | 1012      | 1000             | 16                | 3200          | 12          | 15                    | 5400                    |
| <b>25 Volt</b>  |           |                  |                   |               |             |                       |                         |
| RPA0606470M025* | 0606      | 47               | 25                | 300           | 12          | 40                    | 1500                    |
| RPA0609101M025* | 0609      | 100              | 25                | 500           | 12          | 30                    | 2500                    |
| RPA0808181M025* | 0808      | 180              | 25                | 900           | 12          | 30                    | 3260                    |
| RPA0812221M025* | 0812      | 220              | 25                | 1100          | 12          | 30                    | 3520                    |
| RPA1010331M025* | 1010      | 330              | 25                | 1650          | 12          | 20                    | 3850                    |
| RPA1012471M025* | 1012      | 470              | 25                | 2350          | 12          | 25                    | 4020                    |
| <b>35 Volt</b>  |           |                  |                   |               |             |                       |                         |
| RPA0606220M035* | 0606      | 22               | 35                | 300           | 12          | 70                    | 1450                    |
| RPA0608680M035* | 0608      | 68               | 35                | 476           | 12          | 60                    | 1520                    |
| RPA0808121M035* | 0808      | 120              | 35                | 840           | 12          | 30                    | 2100                    |
| RPA0812151M035* | 0812      | 150              | 35                | 1050          | 12          | 26                    | 2800                    |
| RPA1010221M035* | 1010      | 220              | 35                | 1540          | 12          | 30                    | 3050                    |
| RPA1012271M035* | 1012      | 270              | 35                | 1890          | 12          | 26                    | 3650                    |
| <b>50 Volt</b>  |           |                  |                   |               |             |                       |                         |
| RPA0606100M050* | 0606      | 10               | 50                | 300           | 12          | 90                    | 900                     |
| RPA0608330M050* | 0608      | 33               | 50                | 330           | 12          | 60                    | 1500                    |
| RPA0808470M050* | 0808      | 47               | 50                | 470           | 12          | 32                    | 2000                    |
| RPA0812680M050* | 0812      | 68               | 50                | 680           | 12          | 28                    | 2200                    |
| RPA1010101M050* | 1010      | 100              | 50                | 1000          | 12          | 32                    | 2350                    |
| RPA1012101M050* | 1012      | 100              | 50                | 1000          | 12          | 28                    | 2550                    |

\* Used to denote packing type: "K" for Ammo Pack or "B" for Bulk.

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 2 minutes

### FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

| Frequency   | 120 ≤ F(Hz) <1k | 1k ≤ F(Hz) <10k | 10k ≤ F(Hz) <100k | 100k ≤ F < 500kHz |
|-------------|-----------------|-----------------|-------------------|-------------------|
| Coefficient | 0.05            | 0.30            | 0.70              | 1.00              |

### QUALIFICATION TABLE

| Test                     | RPA Series (Temperature Range -55°C to +105°C)                                                                                                                                                                        |                                       |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
|                          | Condition                                                                                                                                                                                                             | Characteristics                       |
| Endurance                | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 5000 hours at 105°C.                                                                  | Visual examination                    |
|                          |                                                                                                                                                                                                                       | no visible damage                     |
|                          |                                                                                                                                                                                                                       | ΔC/C                                  |
|                          |                                                                                                                                                                                                                       | ≤ ±20% of the initial limit           |
|                          |                                                                                                                                                                                                                       | DF:                                   |
| Damp Heat (Steady State) | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to store at 60°C, 90 to 95% RH for 1000 hours, without DC applied.                                     | ≤ 150% of the initial specified limit |
|                          |                                                                                                                                                                                                                       | ESR:                                  |
|                          |                                                                                                                                                                                                                       | ≤ 150% of the initial specified limit |
|                          |                                                                                                                                                                                                                       | DCL:                                  |
|                          |                                                                                                                                                                                                                       | ≤ Initial specified limit             |
| Surge Voltage            | The capacitors shall be subjected to 1000 cycles each consisting of charge with the surge voltages specified at 105°C for 30 seconds through a protective resistor (R = 1 kΩ) and discharge for 5 minutes 30 seconds. | Visual examination                    |
|                          |                                                                                                                                                                                                                       | no visible damage                     |
|                          |                                                                                                                                                                                                                       | ΔC/C                                  |
|                          |                                                                                                                                                                                                                       | ≤ ±20% of the initial limit           |
|                          |                                                                                                                                                                                                                       | DF:                                   |
|                          |                                                                                                                                                                                                                       | ≤ 150% of the initial specified limit |
|                          |                                                                                                                                                                                                                       | ESR:                                  |
|                          |                                                                                                                                                                                                                       | ≤ 150% of the initial specified limit |
|                          |                                                                                                                                                                                                                       | DCL:                                  |
|                          |                                                                                                                                                                                                                       | ≤ Initial specified limit             |

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## RPA Series



### STORAGE

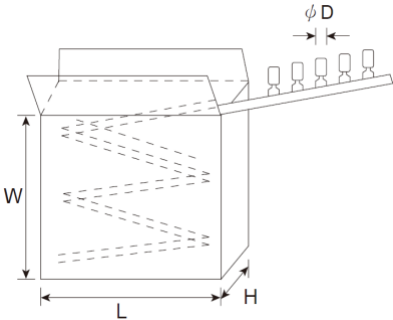
1. It is recommended to keep capacitors between the ambient temperatures of 5°C to 35°C and a relative humidity of 75% or below.
2. Confirm that the environment does not have any of the following conditions:
  - Damp conditions such as water, saltwater spray, or oil spray or fumes. High humidity or humidity condensation situations.
  - In an atmosphere filled with toxic gasses (such as hydrogen sulfide, sulfurous 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.

| Category         | Description    | Storage Life                                                              |
|------------------|----------------|---------------------------------------------------------------------------|
| Mid-High Voltage | 160V and above | 2yrs, after 1yr, needs to check characteristics, if NG, needs to do aging |
| Low Voltage      | 120V and below | 2yrs                                                                      |

### PACKAGE TAPE DIMENSIONS units (mm)

### AMMO PACKING

| Ammo Pack |     |     |     |            |             |             |
|-----------|-----|-----|-----|------------|-------------|-------------|
| Size Code | W±5 | L±5 | H±5 | Qty. (pcs) | G.W. kg/box | Box /Carton |
| 0606-0609 | 235 | 327 | 54  | 1500       | 1.12        | 10          |
| 0808-0812 | 265 | 327 | 51  | 1000       | 1.48        | 10          |
| 1010-1012 | 235 | 330 | 57  | 600        | 1.29        | 10          |



### BULK PACKING

| Package Box |                |                |                    |                              |
|-------------|----------------|----------------|--------------------|------------------------------|
| Size Code   | Bags Inner box | Layer Quantity | Quantity (pcs/bag) | Total quantity (pcs/ carton) |
| 0606        | 10             | 2              | 1000               | 20,000                       |
| 0608-0609   | 9              | 2              | 1000               | 18,000                       |
| 0808-0812   | 10             | 2              | 500                | 10,000                       |
| 1010-1012   | 11             | 2              | 200                | 4400                         |

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