IC	Aluminum polymer General specifications

1. Prohibited circuits
   1.1. Do not use aluminum polymers capacitors in the following circuits because the leakage current may increase
      1.1.1. Time constant circuits
      1.1.2. Coupling circuits
      1.1.3. High impedance voltage retention circuits
      1.1.4. Circuits affected by leakage current

2. Polarity
   2.1. Aluminum polymer capacitors have positive and negative electrodes. Do not apply reverse voltage to the capacitors. It may cause the leakage current increase or the life expectancy will decrease.

3. Applied voltage
   3.1. Any applied voltage to the capacitor is to be equal to the applied voltage plus the peak value of the transitional instantaneous voltage and the peak of the ripple voltage.
      3.1.1. Do not apply any voltage greater than the rated voltage of the selected capacitor
      3.1.2. Do not applying any reverse voltage
      3.1.3. When low DC voltage is applied the peak negative ripple voltage cannot exceed 10% of the rated voltage of the capacitor

4. Sudden charge or discharge
   4.1. Sudden charge or discharge may result in short circuits or large leakage currents. Protection circuits are needed when the following conditions are present
      4.1.1. Inrush current exceeding 10A
      4.1.2. Inrush currents exceeding 10 times the ripple current of the capacitor

5. Ripple current
   5.1. The applied the ripple current is not to exceed the ripple current rating of the capacitors. Excessive ripple currents may cause the leakage current to increase and short circuits may develop due to self-heating

6. Leakage current
   6.1. If the capacitors are exposed to any of the following the leakage current may increase
      6.1.1. After soldering or reflow soldering
      6.1.2. No load high temperature
      6.1.3. No load high temperature/high humidity
      6.1.4. Sudden temperature changes

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7. Capacitor insulation
   7.1. The sleeve on the capacitors is not to be used as an insulator The space between the metal can and the negative lead is not insulated
   7.2. The case and the circuit board patterns are to be separated from each other.

8. Precautions of using aluminum polymer capacitors
   8.1. Aluminum polymer capacitors are not to be usesd in the following environments
      8.1.1. Direct contact with salt water, oil or chemically active gases.
      8.1.2. Exposure to direct sunlight
      8.1.3. High humidity where condensation can form on the surface of the capacitor
      8.1.4. Acidic or alkaline environments
      8.1.5. High frequency induction
      8.1.6. Excessive vibration and shock
      8.1.7. Next to heat generating components or on the underside of the PCB

9. Failure rate and life span
   9.1. Failure rate of aluminum polymer capacitors is 0.5%/1000 hours (60% reliability) based on JIS-C-5003

10. Storage Conditions

   10.1. Do not store Aluminum polymer capacitors in high temperature or high humidity or direct sunlight.
   10.2. Recommended storage conditions are 5 to 35°C and R.H.≤ 75%
   10.3. Store capacitors in their original packaging to maintain the solderability of the capacitors.
   10.4. Store the capacitors in their sealed packaging per the table below.

Capacitor type	Before unsealing	After Opening
Radial leaded in bags	Must be used within 24 months after delivery	Must be used within a week
Radial leaded on tape		Must be used within a week
SMD		Must be used within a month

   10.5. Do not open the packaging until ready to use the capacitors. Use the entire package quantity at once when possible.
      10.5.1. Return all unused radial leaded parts into plastic bags and seal the bags.

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10.5.2. Place SMD capacitors into aluminum laminate bags and seal the bags.

10.5.3. Store unused parts per the table above.

11. Compliance to RoHS

11.1. Our aluminum polymer capacitors do not contain the following materials exceeding the limits specified in the RoHS regulations

Material	PPM
Lead (Pb)	≤1000
Mercury(Hg)	≤1000
Cadmium (Cd)	≤100
Hexavalent Chromium (Cr^{6+})	≤1000
Polybrominated Biphenyls (PBBs)	≤1000
Polybrominated Diphenyl Ethers (PBDEs)	≤1000

12. Halogen Free compliant

12.1. Our aluminum polymer capacitors do not contain the following materials exceeding the maximum limits.

Material	Maximum limits (PPM)
Bromine (Br)	900 (0.09%)
Chlorine (Cl)	900 (0.09%)
Total concentration or Bromine (Br) and chlorine (Cl)	1500 (0.15%)

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