



ALUMINUM ELECTROLYTIC CAPACITORS

PRECAUTIONS IN USING ALUMINUM ELECTROLYTIC CAPACITORS

When using aluminum electrolytic capacitors, pay attention to the following:

- (1) DC electrolytic capacitors are used in polarization.
Dc electrolytic capacitors, which can be used only for DC circuit, have polarity. If used in reversed polarity, the capacitors may be damaged, It is recommended to use non-polar capacitors for a DC circuit where polarity is to be reversed. "LTEC" capacitors with diameters*6.3mm are made with a safety case vent design to minimize the possibility of accidental explosion in case of reversed polarity.
- (2) Do not apply a voltage exceeding the capacitor's rated voltage.
The result of exceeding voltage application is the destruction of the capacitor.
- (3) Surge voltage.
Surge voltage is the maximum DC over-voltage to which the capacitor may be subject for short periods not exceeding approximately 30 seconds at infrequent intervals of not more than 5 minutes.
- (4) Do not allow excessive ripple current to be applied to the capacitor. Use the electrolytic capacitor at current value within the permissible ripple range. Exceeding ripple current generates rapid heat which reduces capacitance and result in a shortened life of the capacitor.
- (5) The electrolytic capacitor is not suitable for circuits in which charge and discharge are frequently repeated. The rapid generation of heat in a circuit caused by sudden and frequently repeated discharge may damage the capacitor.
- (6) Cautions in soldering capacitors.
High soldering temperature of long-time dipping in soldre will damage the capacitors. It should note that capacitors should be dipped in solder of 260* or below for 10 seconds or less.
Defective insulation may result if soldering iron comes in contact with vinyl sleeve of the capacitors.
- (7) Hints for using capacitors after prolonged storage.
If electrolytic capacitors are stored for a long time, increased leakage current is a common phenomenon. It is advisable to apply voltage treatment to the capacitors by gradually increasing voltage up to the rated voltage before application.
Be care to avoid exposure to direct sunlight and high humidity to electrolytic capacitors.
- (8) Do not apply excessive force to the lead wires or terminals of capacitor.
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If excessive force is applied to the lead wires or terminals, they may be broken or disconnected, or the capacitor may be damaged.
- (9) Cleaning conditions.
Exposure of capacitors to halogenated hydrocarbon contained organic solvents such as Freon TF, TES & 1.1.1. Trichlorethane cleaning and defluxing solvents are not recommended, However the following "LTEC" series capacitors can withstand cleaning by some halogenated solvents.
Applicable series: SM, SR, LK, NP, UK, LN, TK, TH, LTA, LZP, LZG, LZU, LHR, SS, SL, SP, ST, MS, MX, ML, MP, & MT
Cleaning methods: 5 minutes either by immersion, ultrasonic or vapor cleaning.
- (10) Testing conditions.
The capacitance tolerance and tan * should be tested at 120Hz 25* the leakage current to be measured at 25*, with working voltage applied in specified time.
The specification of products are according to JIS C5141W, for methods of testing for reliability in according with JIS C5102
- (11) Ripple current & life expectancy
The capacitor should be used within specified permissible ripple current in each standard products table (The sum of DC voltage and peak voltage shall not exceed the rated DC working voltage)
The specified maximum permissible ripple current is defined at +85* and 120Hz(unless otherwise specified).
In other condition of ambient temperature and frequency, ripple current multiplied by following multiplier can be applied as maximum permissible ripple current.

TEMPERATURE COEFFICIENT

TEMPERATURE	85*	70*	60*	50*	40*
MULTIPLIER	1.0	1.7	2.0	2.6	2.8

FREQUENCY COEFFICIENT

W.V.	Frequency(Hz)				
	Cap.(°F)	120	300	1K	10K~
6.3 - 100	0.1~47	1.00	1.35	1.57	2.00
	100~470	1.00	1.23	1.34	1.50
	1000~22000	1.00	1.10	1.13	1.15
160-450	1~220	1.00	1.25	1.14	1.60
	330~470	1.00	1.10	1.13	1.15