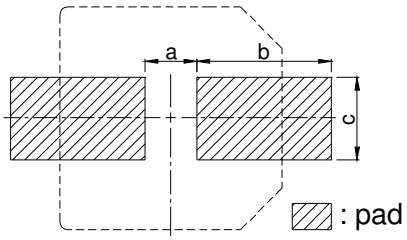
SMD Aluminum Electrolytic Capacitors

Reflow Condition

Recommended pad pattern and size



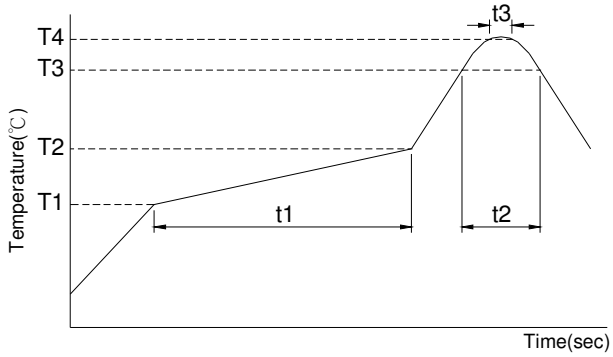
Unit: mm

Case size	Land size			Case size	Land size		
	a	b	c		a	b	c
3φ	0.8	2.2	1.6	8φ	3.0	3.5	2.5
4φ	1.0	2.6	1.6	10φ	4.0	4.0	2.5
5φ	1.4	3.0	1.6	12.5φ	4.0	6.0	3.2
6.3φ	1.9	3.5	1.6	16φ	6.0	7.0	3.2
8×6.5	2.1	4.0	1.6	18φ	6.0	8.0	3.2

Recommended soldering methods

Method	Reflow soldering	Soldering iron	Flow soldering
Advisability	○ Recommended	○ Recommended	× Not Recommended

● Pb-free type



● Test conditions

Type		Non-solid capacitor					OP-CAP		
W. V.		4 ~ 50	4 ~ 50V		63V up	4V up	---		
Case size (φ)		4~6.3φ ×4.5L	3 ~ 6.3		3 ~ 6.3	8 ~ 16	---		
Preheat	Temp.(T1 ~ T2, ℃)	150 ~ 180							
	Time(t1) (Max, secs)	120	100				90		
Duration	Temp.(T3, ℃)	230	217	230	217	217	200	217	230
	Time(t2) (Max, secs)	30	90	60	60	40	60	50	40
Peak	Temp.(T4, ℃)	250	260		250	240	250	260	
	Time(t3, secs)	5							
Reflow cycles		1			2 or less		2	1	

* Please contact our representative if your condition is higher.
* Please ensure that the capacitor became cold enough to the room temperature (5 ~ 35℃) before the second reflow.

(1) Method is as follows.
Reflow soldering condition.
The following temperature profile condition should be observed for soldering. (For higher temperature, pleases contact us after measuring the capacitor's product temperature profile at your side.
Product temperature will rise slower as the product size gets bigger. It is not necessary to adjust the reflow furnace temperature setting according to the product size, for example, φ4 and φ10 products can be mixed on one PCB for reflowing.

(2) Soldering precautions
1. Elements related to the reflow soldering temperature
* Product size: The temperature rises slower as the size gets bigger.
* Product location: The center part of the PCB tends to have a lower temperature than the PCB edges.
* PCB size: The PCB temperature rises slower as the area and/or thickness of the PCB gets greater.

2. Repeated reflowing
* Avoid reflowing twice if possible.
* If repeated reflowing is unavoidable, contact us after measuring the first and the second reflow profiles and reflow interval at your side.
* Do not attempt to reflow three times.

3. Soldering with soldering iron
Observe the following conditions.
* The iron tip temperature: 350±5℃
* Soldering time: 3+1/-0 seconds.

● Attention for OP-CAP

Reflow soldering may reduce the capacitance of products before or after soldering even if soldering conditions stipulated in Recommendable Reflow Condition are met.

Though the actual reflow conditions are subject to change depending on the kind of reflow soldering method, please be aware that the peak temperature at the top of Al-case and electrode terminals should not exceed peak temperature.

Particular notice should be given to the time that OP-CAP is heated at 200℃ or higher during reflow.

If your reflow conditions (temperature and/or duration) exceed the above, OP-CAP may be damaged exhibiting; 50% decrease in capacitance, an increase of leakage current, (up to several mA) as well as damage to the exterior of the capacitor.