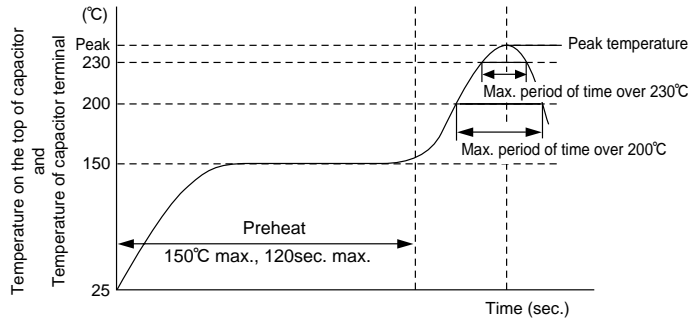


RECOMMENDED REFLOW SOLDERING CONDITION

NPCAP™-PXC/PXA/PXH Series

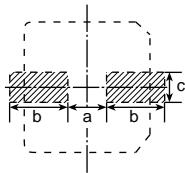
The following conditions are recommended for air or infrared reflow soldering PXC/PXA/PXH series onto a glass epoxy circuit board of 90X50X0.8mm (with resist) by cream solder. The temperatures shown are the surface temperature values on the top of the can and temperature of capacitor terminal.



Series	Peak temp.	Max.Period of time over 230°C	Max.Period of time over 200°C	Remarks
PXC PXA PXH	250°C (240°C)	40sec (30sec)	60sec (50sec)	The times of reflow soldering : once
	250°C (240°C)	30sec	50sec	The times of reflow soldering : twice

() : Applies for 20V 82μF(J80) and 25V 39μF(J80)

●Recommended Solder Land on PC Board



Solder land on PC board

Size code	a	b	c
E60	1.4	3.0	1.6
F55	1.9	3.5	1.6
F60	1.9	3.5	1.6
H70, HC0	3.1	4.2	2.2
J80, JC0	4.5	4.4	2.2

◆PRECAUTIONS FOR USERS

Soldering method

The capacitors of NPCAP™-PXC/PXA/PXH series have no capability to withstand such dip or wave soldering as totally immersing components into a solder bath.

Reflow soldering

Reflow the capacitors within Recommended Reflow Soldering Conditions. Verify no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult us if other reflow conditions are employed.

1. Location of components ; Temperature increases at the edge of PC board more than the center.
2. Population of PC board ; The less the component population is, the more temperature rises.
3. Material of PC board ; A ceramic-made board needs more heat than a glass epoxy-made board. The heat increase may cause damage of the capacitors.
4. Thickness of PC board ; A thicker board needs heat than a thinner board. The heat may damage the capacitors.
5. Size of PC board ; A larger board needs heat than a smaller board. The heat may damage the capacitors.
6. Location of infrared ray lamps ; IR reflow as well as hot plate reflow applies heat only on the reverse side of the PC board to lessen heat stress to the capacitors.

Rework of soldering

Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10°C and an exposure time of 3±0.5 seconds.

Mechanical stress

Do not grab the capacitors to lift the PC board and give stress to the capacitor. Avoid bending the PC board. These may damage the capacitors.

Cleaning assembly board

Immediately after solvent cleaning, remove residual solvent for at least 10 minutes with an air knife. The solvent is so insufficiently dry that the capacitors may be corroded.

Coating on assembly board

1. Before curing coating material, remove the cleaning solvents from the assembly board.
2. Before conformal coating, a chloride free pre-coat material is recommended to use for lessening stress to the capacitors.

Molding with resin

Internal chemical reaction gradually produces gas in the capacitor; then, internal pressure is increasing. If the end seal of the capacitor is completely molded with a resin, the gas stays inside the capacitor. It will face dangerous situation. The chlorine in resin will penetrate into the end seal, reach the inside element, and cause damage of the capacitor.

Glue

The followings are requirements of glue.

1. A low curing temperature for short period of time
2. Strong adhesion and heat resistance after curing
3. Long shelf life
4. No corrosion

Others

Precautions for users for Aluminum Electrolytic Capacitors shall be referred.

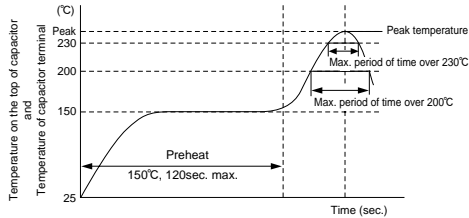
RECOMMENDED REFLOW SOLDERING CONDITIONS

Alchip[®]-MF/MFK/MFK-Large

The following conditions are recommended for air or infrared reflow soldering of the surface mount capacitors onto a glass epoxy circuit board of 90X50X0.8mm (with resist) by cream solder. The temperatures shown are the surface temperature values on the top of the can and temperature of capacitor terminal.

●Reflow Profile

Method : Air or Infrared Reflow

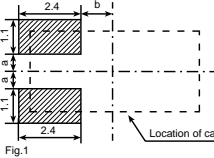


Supplement code (Global code : 18th)	Size code	Preheat	Peak temperature	Max.period of time over 230°C	Max.period of time over 200°C
G	B50 to DC5	150 to 180°C 90sec	250°C	30sec	60sec
	HF0 to HR0	150°C	230°C	—	20sec
N	All	120sec	230°C	—	20sec

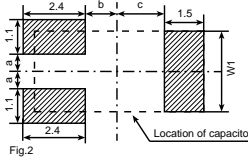
●Recommended Solder Land on PC Board

Series : MF/MFK/MFK-Large (Horizontal SMT)

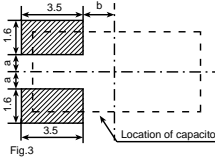
Terminal Code : C



Terminal Code : D



MFK-large



▨ : Solder land on PC board

Case code	a	b	c	W1	Fig.
A50	0.75	1.2	1.65	3.1	Fig.1 or Fig.2
B50	1.0	1.2	1.65	3.6	
C50	1.3	1.2	1.65	4.1	Fig.2
D50	1.5	1.2	1.65	4.6	
D70	1.5	2.2	2.65	4.6	Fig.3
D90	1.5	3.2	3.65	4.6	
DC5	1.5	4.7	5.15	4.6	Fig.3
HF0	2.9	5.4	—	—	
HL0	2.9	7.9	—	—	
HR0	2.9	10.4	—	—	

◆PRECAUTIONS FOR USERS

Soldering method

The capacitors of Alchip-series have no capability to withstand such dip or wave soldering as totally immerses components into a solder bath.

Reflow soldering

Reflow the capacitors within Recommended Reflow Soldering Conditions. Verify no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult us if other reflow conditions are employed.

- 1.Location of components ; Temperature increases at the edge of PC board more than the center.
- 2.Population of PC board ; The less the component population is, the more temperature rises.
- 3.Material of PC board ; A ceramic made board needs more heat than a glass epoxy made board. The heat increase may cause damage of the capacitors.
- 4.Thickness of PC board ; A thicker board needs more heat than a thinner board. The heat increase may damage the capacitors.
- 5.Size of PC board ; A larger board needs more heat than a smaller board. The heat increase may damage the capacitors.
- 6.Location of infrared ray lamps ; IR reflow as well as hot plate reflow applies heat only on the reverse side of the PC board to lessen heat stress to the capacitors.

Rework of soldering

Avoid reflow soldering more than once. Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10°C and an exposure time of 3±0.5 seconds.

Mechanical stress

Do not use the capacitors for lifting the PC board and give stress to the capacitor. Avoid bending the PC board. These may damage the capacitors.

Glue

Glue is recommended to fix the C type(Terminal Code : C) without dummy terminal on PC board. The followings are requirements of glue.

- 1.A low curing temperature for short period of time
- 2.Strong adhesion and heat resistance after curing
- 3.Long shell life
- 4.No corrosion

Cleaning assembly board

Immediately after solvent cleaning, remove residual solvent for at least 10 minutes with an air knife. The solvent is so insufficiently dry for a long period of time that the capacitors may be corroded.

Coating on assembly board

- 1.Before curing coating material, remove the cleaning solvents from the assembly board.
- 2.Before conformal coating, a chloride free pre-coat material is recommended to use for lessening stress to the capacitors.

Molding with resin

Internal chemical reaction gradually produces gas in the capacitor; then, internal pressure is increasing. If the end seal of the capacitor is completely molded with a resin, the gas stays inside the capacitor. It will face dangerous situation. The chlorine contained resin will penetrate into the end seal, reach the inside element, and cause damage of the capacitor.

Dummy terminal (Terminal Code : D)

The dummy terminal is purpose for preventing the capacitor body from sliding or lifting up the PC board during reflow soldering.

The following mechanical stresses to the capacitor after the soldering causes peeling off the dummy terminal from the PC board or from the body of the capacitor.

- 1.Mechanical shock when bending or cutting a multi-board.
- 2.Transportation shock
- 3.Mechanical shock when grabbing, poking or hitting the body of the capacitor.

Others

Precautions and Guidelines for Aluminum Electrolytic Capacitors shall be referred.

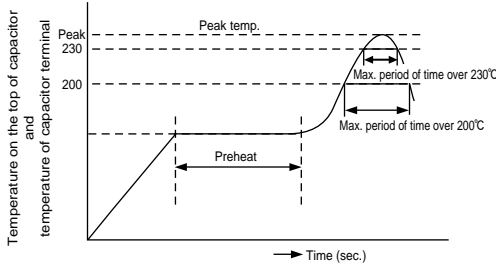
RECOMMENDED REFLOW SOLDERING CONDITIONS

Alchip[®]-MVS/MV/MVA/MVE/MVK/MVY/MVJ/MVH/MVL/MKA/MVZ/MZA/MV-BP/MVK-BP

The following conditions are recommended for air or infrared reflow soldering of the surface mount capacitors onto a glass epoxy circuit board of 90X50X0.8mm (with resist) by cream solder. The temperatures shown are the surface temperature values on the top of the can and temperature of capacitor terminal.

●Reflow Profile

Method : Air or Infrared Reflow

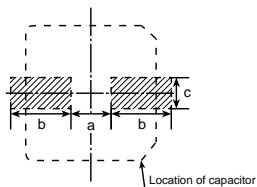


*1 : MKA/MZA series : 150 to 180°C, 90sec. max.

Contents			Standard (Lead-free)				Before			
Supplement code (Global code : 18th)			B55 to JA0=G, KE0 to MN0=S.				N			
Series	Size code	Voltage	Preheat	Max. period of time over 200°C	Max. period of time over 230°C	Peak temp.	Preheat	Max. period of time over 200°C	Peak temp.	
MV, MVK, MVJ, MVA, MVE, MVY, MVZ, MVS, MZA	B55 to F80	63V and less	150 to 180°C	60sec	30sec	250°Cmax.	150°Cmax.	20sec	240°Cmax.	
	H63 to JA0	63V and less	90sec	50sec	20sec	240°Cmax.			20sec	230°Cmax.
		80V and more	150°Cmax.	20sec	—	230°Cmax.			20sec	230°Cmax.
	KE0 to MN0	ALL	120sec	20sec	—	230°Cmax.			20sec	230°Cmax.
MVL, MVH, MKA	D60 to F80	50V and less	150 to 180°C	70sec	40sec	250°Cmax.	120sec	20sec	240°Cmax.	
	H63 to JA0	50V and less	90sec	50sec	20sec	240°Cmax.			20sec	230°Cmax.
		63V and more	150°Cmax.	20sec	—	230°Cmax.			20sec	230°Cmax.
	KE0 to MN0	ALL	120sec	20sec	—	230°Cmax.			20sec	230°Cmax.

●Recommended Solder Land on PC Board

Series : MVS/MVA/MV/MVE/MVK/MVY/MVJ/MVH/MVL/MKA/MVZ/MZA



: Solder land on PC board

Case code	a	b	c
B55	0.8	2.2	1.6
D46, D55, D60, D61	1.0	2.6	1.6
E46, E55, E60, E61	1.4	3.0	1.6
F46, F55, F60, F61, F80	1.9	3.5	1.6
H63	2.3	4.5	1.6
HA0	3.1	4.2	2.2
JA0	4.5	4.4	2.2
KE0, KG5	4.0	5.7	2.5
LH0, LN0	4.7	7.8	6.5
MH0, MN0	4.7	8.8	6.5

◆PRECAUTIONS FOR USERS

Soldering method

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Others

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