RECOMMENDED SOLDERING CONDITIONS FOR NPCAP™

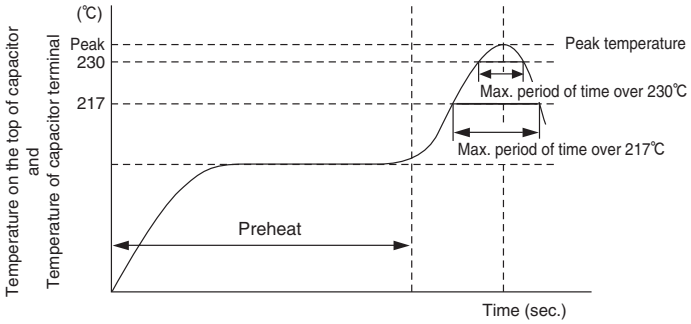
◆SURFACE MOUNT TYPE

The following conditions are recommended for air or infrared reflow soldering PMA/PXJ/PXG/PXK/PXS/PXF/PXE/PXA/PXD/PXH series onto a glass epoxy circuit board of 90×50×0.8mm (with resist) by cream solder. The temperatures shown are the surface temperature values on the top of the can and tem per a ture of capacitor terminal.

Reflow should be performed twice or less.

Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.

● Recommended soldering heat conditions



Series	Voltage range (V_{dc})	Preheat	Time maintained above 217℃	Time maintained above 230℃	Peak temp.	Reflow number
PMA	16 to 25V	150 to 180℃ 120 sec. max.	50 sec. max.	40 sec. max.	260℃max.	1-cycle only
			40 sec. max.	30 sec. max.		2-cycles allowed
PXN/PXT PXJ/PXG PXK/PXS PXF/PXE PXA/PXD PXH	2.5 to 16V		50 sec. max.	40 sec. max.	260℃max.	1-cycle only
					250℃max.	2-cycles allowed
	20 to 25V		50 sec. max.	40 sec. max.	250℃max.	1-cycle only
			40 sec. max.	30 sec. max.		2-cycles allowed

Note : Resin-Molded chip type have capability to withstand dip or flow soldering (Peak temperature:260℃) . Please consult us for details.

● Recommended Solder Land on PC Board

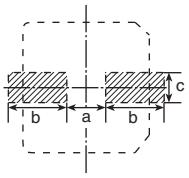


Fig.1 Chip type

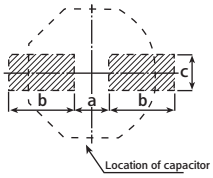


Fig.2 Resin-Molded chip type

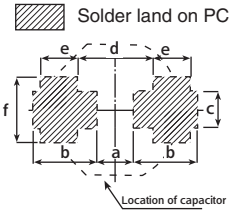


Fig.3 Resin-Molded chip type
<Share with Ta/Al multilayer capacitors (7343 size) >

[mm]

Size code	a	b	c	d	e	f	Fig.
E40, E46, E60, E61	1.4	3.0	1.6	-	-	-	1
F30	1.9	3.5	2.0	-	-	-	2
	1.9	3.5	2.0	4.0	2.0	3.0	3
F45, F46, F60, F61 F80, FA0	1.9	3.5	1.6	-	-	-	1
H70, H80, HA0, HC0	3.1	4.2	2.2	-	-	-	1
J80, JA0, JC0	4.5	4.4	2.2	-	-	-	1

◆RADIAL LEAD TYPE

● Recommended soldering heat conditions

Preheat ：150℃ 120 seconds max.

Flow soldering ：260+5℃ max. 10+1 seconds max.

◆PRECAUTIONS FOR USERS

Soldering method

SMD (Chip type) have no capability to with stand such dip or flow soldering as totally immersing components into a solder bath.

Reflow soldering

Reflow the capacitors within Recommended Reflow Soldering Conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult with 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 lower 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 to the capacitors.
4.Thickness of PC board : A thicker board needs more heat than a thinner board. The heat may damage the capacitors.
5.Size of PC board : A larger board needs more heat than a smaller board. The heat may damage the capacitors.
6.Solder thickness
If very thin cream solder paste is to be used for SMD types, please consult with us.
7.Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.
8.Case leakage current will increase (～mA) after the reflow process, the leakage current which rose gradually decreases when voltage is applied.
9.Please consult us about vapor phase soldering (VPS).

Rework of soldering

Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.
Note that the soldering rework process cannot be applied to resin-molded chip type capacitors.

Mechanical stress

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

Cleaning assembly board

Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.
PMA series is not solvent resistant type.

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 decrease the stress on the capacitors.

Molding with resin

Internal chemical reaction gradually produces gas in the capacitor; increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine in resin will penetrate the end seal, reach the element, and damage of the capacitor.

Glue

The followings are requirements for glue.

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

Others

Refer to PRECAUTIONS AND GUIDELINES(Conductive Polymer).