APPLICATION GUIDELINES FOR DECOUPLING DEVICE FOR HIGHT FREQUENCY

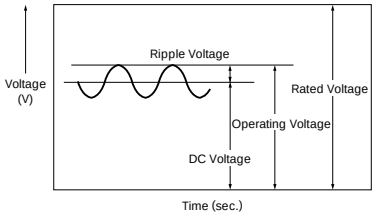
The schematics, graphs and numerical values that appear in our catalog are a representative sampling of typical usage. These will differ due to series, ratings and lot variation. Therefore, please contact your local Nichicon sales office to confirm the specific characteristics.

1. Circuit Design

(1) Rated Voltage and Operating Voltage

As shown in Fig.1, rated voltage signifies the maximum peak voltage applied to the decoupling device at the maximum rated temperature. The rated voltage consists of the sum of both DC voltage and ripple peak voltage. It is recommended that capacitors be used at a voltage less than the rated voltage.

Fig. 1



(2) Operating Temperature

All parts must be used within the specified category temperature range, since, the temperature has a great effect on reliability. Therefore, when using decoupling device, please try to keep the temperature as low as possible. Please take into consideration that the decoupling device itself generates heat which affects the atmospheric temperature.

(3) Ripple Capability

The ripple capability of decoupling device is defined by both Equivalent Series Resistance (ESR) and power dissipation due to ripple current. If the decoupling device sees a higher than specified amount of ripple current, heat generation within the capacitor will increase eventually causing a failure.

Also, reverse voltage due to variation of ripple peak voltage should not be applied to the decoupling device.

If you need detailed information about permissible ripple and permissible ripple current, please contact your local Nichicon sales office.

(4) Reverse Voltage

Decoupling device are polarized, and therefore, no reverse voltage is acceptable. (Electrical characteristics shall be deteriorated when reverse voltage is applied.) When checking a part using a tester, please make sure the polarity of the tester before the probes touch both decoupling device terminals.

2. Mounting

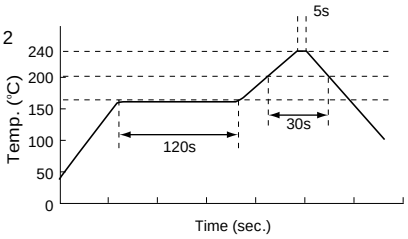
(1) Soldering temperature and soldering time for decoupling device should be within limits as shown below when measured at terminal surface.

In case you repeat soldering process more than 1 time, please contact your local Nichicon sales office to get advice.

Board size, distribution of reflow's temperature and decoupling device's position on the circuit board will influence to reflow conditions. Please check real reflow condition before applying condition shown in Fig. 2. In case you repeat soldering process more than 1 time, please contact your local Nichicon sales office to get advice.

・Reflow (Infrared Ray, Hot Plate, Hot Air, etc.)

Fig. 2



NOTE : Preheat is required to reduce heat shock regardless of the method of soldering.

(2) Cleaning

Please wash P.C. board as soon as possible after soldering process to eliminate flux, and acid and alkaline material.

In case of ultrasonic cleaning, attention should be paid to the following:

① Cleaning condition : Frequency=25 to 40kHz,
Power=10 to 20W/r, Time = within 3 minutes.

② Do not allow a circuit board to touch the agitator.

③ Do not stack circuit boards in the cleaning bath.

3. Notes on Storage

- Parts should be stored sealed in a bag until they are actually used.
- Once the sealed bag is cut open, all the parts should be used at one time.
- It is desirable to store capacitors at normal temperatures 35℃ Max. and normal humidity.
- Keep out of direct sunlight.
- Don't apply force to decoupling device body and especially terminal.
- Don't apply shock and vibration by dropping etc.
- It is preferable to store for no more than 1 year under the above condition.

(when you use part that has been stored more than 1 year, please contact your local sales office to have assistance)

4. Disposal of capacitors

When disposing, scrap it as industrial wastes.