

Application Notes for Circuit Protection Devices

Circuit Design

1. Circuit Protection Devices should be designated only after confirming operating conditions and the component's performance characteristics.
2. CPDs should always be operated under the rated current and voltage specifications.
For exact recommendations on various products, please contact your Matsuo Sales Department.
3. For best results, please set the fusing current at 2.5 times the rated current.
When using CPDs with in-rush current applications, please consult the Matsuo Sales Department.
4. CPDs should be selected by determining the operating conditions that will occur after final assembly, or estimating potential abnormalities through cycle testing.

Assembly and Mounting

5. During the entire assembly process, the components body temperature should not reach 260 °C, and should not come close to 260 °C for more than 10 seconds.
6. When using a soldering iron, the iron's tip should never exceed 300 °C in temperature, and the tip should not have contact with the components' terminations for more than 3 seconds.
7. If a component is ever removed from a board, it should be discarded. Components should never be remounted on boards or substrates.

Solvents

8. For cleaning CPDs, immersion in isopropyl alcohol for 5 sec. at 20-30 °C is recommended.
If organic solvents will be applied to the CPD's, please contact Matsuo's Sales Department.

Ultrasonic Cleaning

9. Matsuo does not recommend Ultrasonic cleaning. This may cause damage to the capacitors, and may even cause broken terminals. If the Ultrasonic cleaning process will be used, please note the following:
 - The solvent should not be boiled.
 - The cleaning time should be kept to a minimum.
 - The recommended wattage is less than 0.5 watts per cm².
 - Drying should be done under the capacitors' maximum operating temperature.

Caution During Usage

10. Protective eyeglasses should always be worn when conducting fusing tests. Matsuo does design CPDs with "explosion suppression" characteristics, but it is possible for fuses to explode during testing, causing particles to fly outward from the board or testing fixture. Caution is urged at all times.

Environmental Conditions

11. CPDs should not be stored or operated in the presence of acids, alkalis, or active gasses.
12. CPDs should not be operated in the presence of flammable materials or explosives.

Emergency

13. In case of fire, smoking, or the appearance of offensive odor given off during operation, cut off the power to the circuit, and remove the device after a cooling period.

Storage

14. CPDs should be stored at room temperature under low humidity. CPDs should not be stored in direct sunlight, and should not be stored in an environment containing dust.
15. If the product is to be stored for lengthy periods, the parts should go through testing before usage.
Under long term storage conditions, please contact the Matsuo Sales Department.

Disposal

16. When CPDs are disposed of as waste or "scrap", they should be treated as "industrial waste".

Samples

17. CPDs received as samples should not be used in production applications.