

## Operation notes

A thermal printhead can be used for a very long time if it is used properly. Take care of the following in operating a thermal printhead.

- (1) A thermal printhead may be burnt in a very short time when the temperature goes up abnormally because of overload (including printing without printing medium under normal load). Use a printhead below the maximum rating so that overload may not happen for a very short time.
- (2) Do not apply abnormally high surge voltage to an energized pulse even for a very short time. Generally a thermal printhead does switching of a large current, so pay sufficient attention in designing the circuits and power supply.
- (3) Damages on the surface of a thermal printhead degrade printing quality. This may also cause oxidation of the heating elements, resulting in a failure. Never damage the surface of the heating elements. Be sure to prevent hard or sharp objects from touching the surface.
- (4) Use ethyl alcohol to clean the surface of a thermal printhead. Do not use acid or alkaline.
- (5) Use the following procedure to turn on the power of a thermal printhead with a driver IC.
  - 1) Apply power supply voltage for the driver IC ( $V_{DD}$ ).
  - 2) Activate control function and clear data in the shift register of the thermal printhead.
  - 3) After checking normal operation of the control system, apply the COM voltage.
  - 4) It is safe to do the setting so that the timings of the switching of a large current and data transfer (sending data to a thermal printhead) does not coincide.
- (6) Reverse the procedure in (5) to turn off the power of a thermal printhead with a driver IC.
- (7) Always take the appropriate measures, allowing for the possibility of the control system becoming out of control. Give a high priority to the OFF state for a strobe signal in designing.
- (8) Passing or switching a large current may malfunction a driver IC. Take note of the following.
  - 1) Use a power supply line with sufficient capacity.
  - 2) Do not allow a potential difference to develop between the COM power supply and  $V_{DD}$  (power supply for a driver IC).
  - 3) Supply a protective circuit so that overcurrent is not applied to the power supply line.
- (9) Take antistatic measures to protect heating elements and driver ICs from static damage. Do not touch electrodes such as pins of connectors with your hands. Take special care when using heat sensitive paper or transfer ribbon that tend to generate static electricity.
- (10) Put the COM voltage of a thermal printhead in the OFF state when printing is finished.
- (11) Use a non-conductive platen roller.
- (12) Prevent condensation on a thermal printhead. If condensation should occur, keep the COM voltage in the OFF state until condensation disappears.
- (13) Take care that heat sensitive paper and heat transfer ribbon to be used do not contain ingredients or adherents that may shorten the life of a printhead. Pieces of paper stuck shorten life.
- (14) The exclusive connector for the printhead is connected directly to the PC board. Do not use excessive force when connecting or disconnecting the connector. (The connector can be connected and disconnected up to 20 times.)
- (15) All measure have been taken to prevent any warping as much as possible in the printhead due to fluctuations in the ambient temperature. Be careful not to allow warping to increase due to installation procedures and components.
- (16) To ensure proper printing, the IC and pins are provided with a protective coating. Make sure the design of the device does not allow the recording media, paper guides, or other such part, come in contact with this protective coating during operation.

### For near edge thermal printheads :

- (17) Do not perform printing without any printing medium (heat sensitive paper, etc.).
- (18) When you insert or feed printing medium in the opposite direction from the printing direction shown in the specifications, be sure to lift up a quasi end face thermal printhead from a platen. This must be observed especially when you use discontinuous printing medium (cards or formed labels).

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