

Heat history control

A thermal printhead prints by increasing and decreasing the temperature of the heating elements. The increasing and decreasing of the temperature is influenced by the initial temperature of the heating elements (heat accumulation) and by the heat transferred from the surrounding heating elements. Normally complex control is unnecessary if you want only to increase the temperature of a heating element in a steady state to the temperature required. However, in reality we must consider the influence of heat accumulation and heat transfer before energizing the heating element. The faster the printing speed is, the bigger the influence of heat accumulation becomes. So the energy that is applied must be controlled. Controlling the energy applied is generally called heat history control. Heat history control adjusts the time to energize the heating element (heating time) considering the conditions of the printing. ROHM offers thermal printheads with a built-in heat history control function.

●Our heat history control technology

We have to give more details of heat history control before explaining our heat history control technology.

First, let us consider one heating element that is ready to print. This heating element is influenced by heat accumulation and heat transfer. This state is shown in Fig. 1. For the heating element that we are now considering about (■), heat history of the previous printing (●) influences heat accumulation and the surrounding heating elements (○) influence heat transfer. Although, their influence depends on the speed of printing. In the case of a line thermal printhead, generally we must consider the previous two lines of printing for heat accumulation, and the adjacent heating elements for heat transfer. So if we monitor matrix heating history for the heating element that is noted in Fig. 1, we can optimize the energy applied on the heating element. Our built-in heat history control thermal printhead is provided with a function to monitor the heating history and automatically control the energy applied to the heating element in 6 levels considering the previous heating, thus simplifying the control for you.

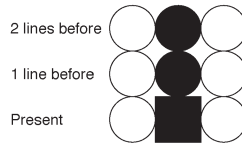


Fig. 1

●Our new technology offers faster and better printing
To meet the needs in the market for faster and better printing, ROHM has developed more advanced heat history control technology.

In order to pursue faster and better printing, simply controlling the previous heat history information is insufficient. We must consider the influence of the future printing to decide the energy applied to the heating element that is about to print (□). ROHM has developed a thermal printhead with the control of the future printing information ("future control").

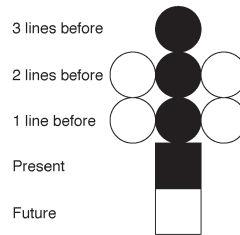


Fig. 2

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