

# Compact low voltage thick film thermal printhead (8dots / mm)

## KF2003-GF50A

A world first, ROHM offers the KF2003-GF50A of thermal printheads that allow operation using a single standard lithium ion battery: required voltage has been reduced to just 2.7V. Compact and lightweight they are ideal printheads for handheld printers and PDAs (personal digital assistants).

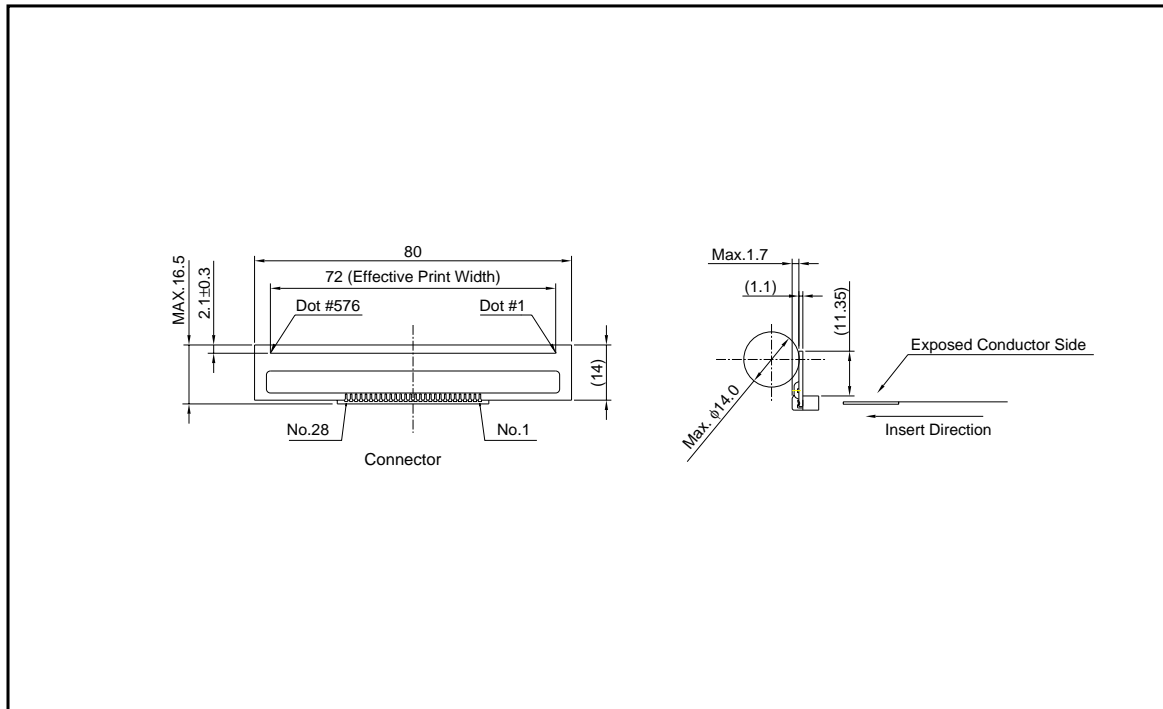
### ●Applications

Mobile printers  
FET-POS printers  
Hand-held printers  
Debit printers

### ●Features

- 1) Using advanced LSI technology, ROHM has developed a dedicated low voltage driver chip. Compared with previous products, power consumption has been reduced by more than 30%. Because the print head circuits draw just 2.7 volts, the printer can be driven using a single lithium ion battery.
- 2) One rank resistance value of  $123\Omega \pm 4\%$  eliminates the inconvenience of rank selection.
- 3) The GP10 series has a resistance value of  $123\Omega$  and can be used in devices designed to operate with a single 3V lithium ion battery.

### ●External dimensions (Units : mm)



Printheads

●Equivalent circuit

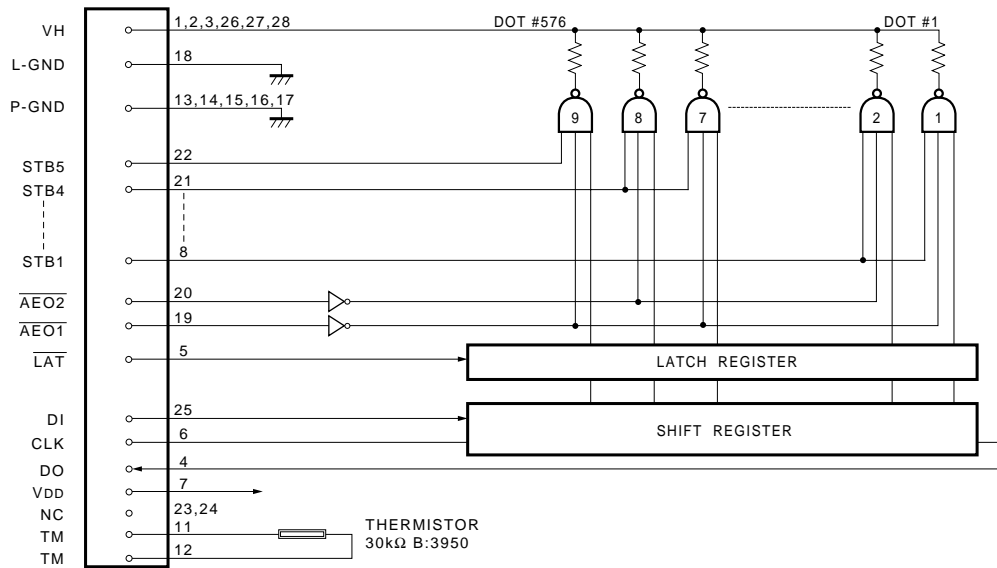


Fig.1

●Pin assignments

| No. | Circuit         | No. | Circuit |
|-----|-----------------|-----|---------|
| 1   | VH              | 15  | P-GND   |
| 2   | VH              | 16  | P-GND   |
| 3   | VH              | 17  | P-GND   |
| 4   | DO              | 18  | L-GND   |
| 5   | LAT             | 19  | AEO1    |
| 6   | CLK             | 20  | AEO2    |
| 7   | V <sub>DD</sub> | 21  | STB4    |
| 8   | STB1            | 22  | STB5    |
| 9   | STB2            | 23  | NC      |
| 10  | STB3            | 24  | NC      |
| 11  | TM              | 25  | DI      |
| 12  | TM              | 26  | VH      |
| 13  | P-GND           | 27  | VH      |
| 14  | P-GND           | 28  | VH      |

L-GND : LOGIC GROUND  
P-GND : POWER GROUND

## Printheads

### ●Timing chart

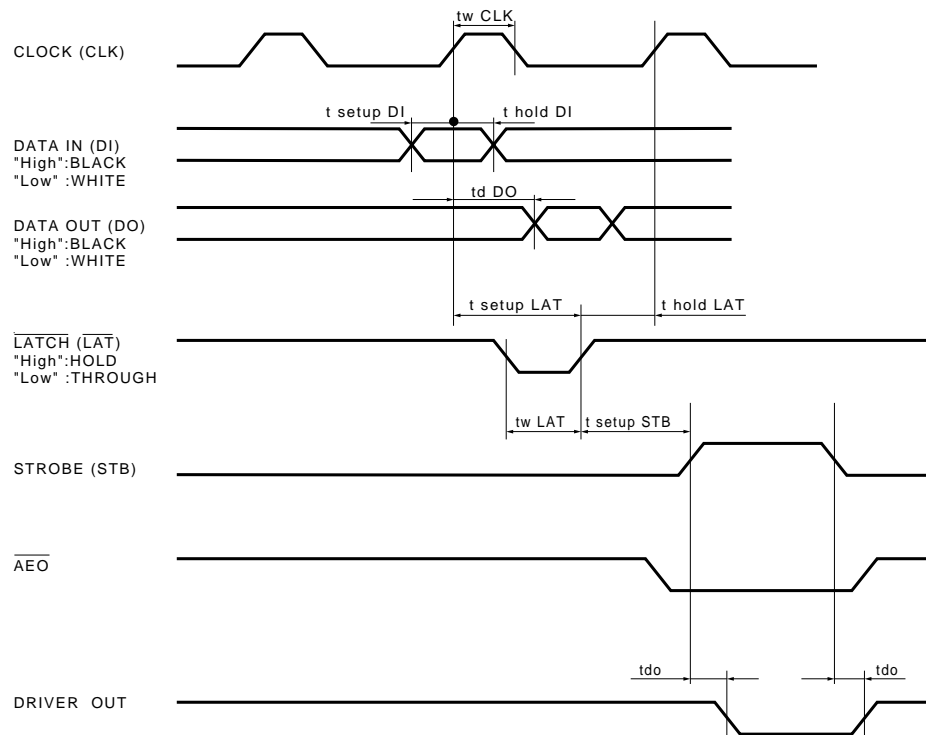


Fig.2

### ●Characteristics

| Parameter                                       | Symbol          | Typical              | Unit      |
|---|-----------------|----------------------|-----------|
| Effective printing width                        | —               | 72                   | mm        |
| Dot pitch                                       | —               | 0.125                | mm        |
| Total dot number                                | —               | 576                  | dots      |
| Average resistance value                        | Rave            | 123                  | $\Omega$  |
| Applied voltage                                 | V <sub>H</sub>  | 3.6                  | V         |
| Applied power                                   | P <sub>O</sub>  | 0.07                 | W/dot     |
| Print cycle                                     | SLT             | 2.50                 | ms        |
| Pulse width                                     | T <sub>ON</sub> | 2.02                 | ms        |
| Maximum number of dots energized simultaneously | —               | 64                   | dots      |
| Maximum clock frequency                         | —               | 8                    | MHz       |
| Maximum roller diameter                         | —               | $\phi 14.0$          | mm        |
| Running life / pulse life                       | —               | 50/1×10 <sup>8</sup> | km/pulses |
| Operating temperature                           | —               | 0–50                 | °C        |

Printheads

●Electrical characteristic curves

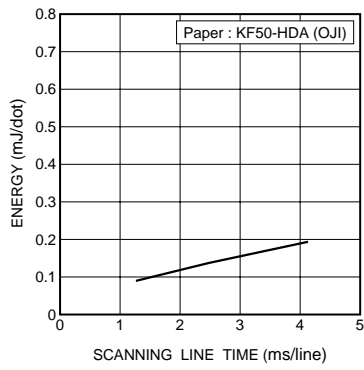


Fig.3 Adaptive speed chart

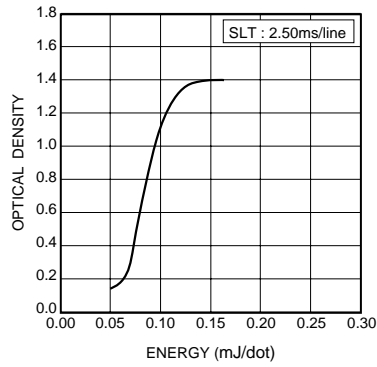


Fig.4 Representative density curve

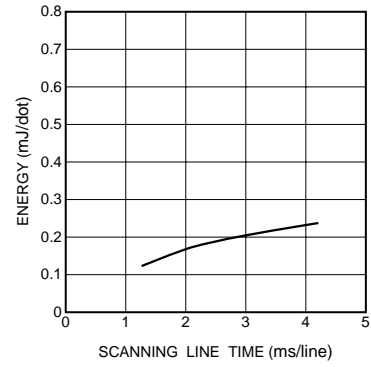


Fig.5 Maximum energy curve

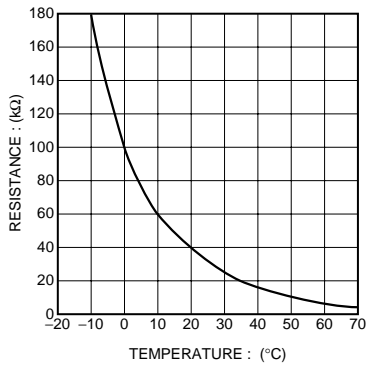


Fig.6 Thermistor curve

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