

Super High Speed Thermal Printhead (300 dots/inch)

NB3004-WA10A

The NB3004-WA10A is a flat thin film thermal printhead with our state-of-the-art heat history control technology, suited for high speed label printers.

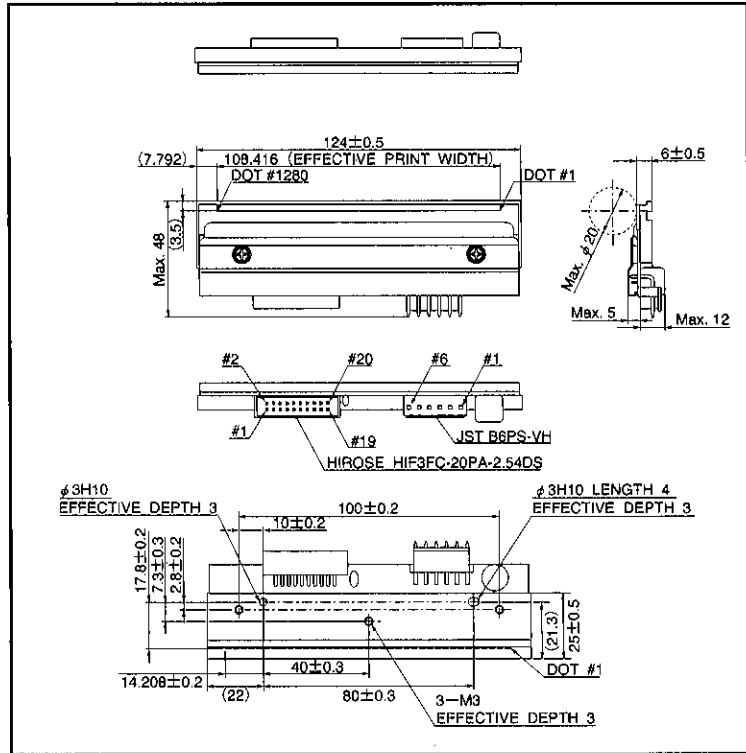
●Applications

High definition bar code label printers
High definition ticket printers
General purpose compact printers

●Features

- 1) High resolution of 300 dots/inch.
- 2) Special glazed components for high speed, high quality printing.
- 3) Sophisticated heat history control circuit that includes our latest heat history control technology.
- 4) Using a hard conductive film as a protective film on the heating element offers excellent resistance to electrostatic damage.
- 5) Compatible with the NB3004-VA10A (without heat history control) in mechanical specifications, to facilitate the making of a series of printers.

●External dimensions (Unit: mm)



●Characteristics

Parameter	Symbol	Typical						Unit
Effective printing width		108.4						mm
Dot pitch		0.0847						mm
Total dot number		1280						dots
Average resistance value	Rave	850						Ω
Applied voltage	V _H	24						V
Applied power	P _o	0.588						W/dot
Print cycle	SLT	0.33						ms
Applied energy	LEVEL	1	2	3	4	5	6	
	E _o	T.B.D.						mJ/dot
Pulse width	T _{ON}	T.B.D.						ms
Maximum number of dots energized simultaneously		1280						dots
Maximum clock frequency		8						MHz
Maximum roller diameter		20						mm
Running life/pulse life		50/billion						km/pulses
Operating temperature		60						°C

For Bar Code Label Printers

Thin Film

● Level Map

	Print Pattern	On Time	SLT=0.330ms
Level 1		Ton a	T.B.D
Level 2		Ton b	T.B.D
Level 3		Ton c	T.B.D
Level 4		Ton d	T.B.D
Level 5		Ton e	T.B.D
Level 6		Ton f	T.B.D

- : Heated dot.
- : Non-heated dot.
- : Dot to be printed.
- ※: Either heated or non-heated dot.

This table shows a simple example. In actuality, the history of the previous level and the level before of the adjacent dots are included.

● Pin configuration

HIROSE			
No.	Circuit	No.	Circuit
1	Vdd	2	BEO
3	GND	4	DI2
5	GND	6	CLK(CP)
7	LOAD	8	START
9	INC	10	DI1
11	SEL2	12	SEL1
13	RESET	14	STB2
15	STB1	16	TM
17	TM	18	SENS1
19	SENS2	20	SENS3

JST	
No.	Circuit
1	VH(COM)
2	VH(COM)
3	VH(COM)
4	GND
5	GND
6	GND

Added functions

INC : This supports the increment function from level 1 to level 6. One level is incremented for one pulse.
(See Fig. 2)

RESET : This resets the system and clears all data.

SELn : This performs preheating for the next energized dots with the combination of SEL1 and SEL2.

SEL1	SEL2	Function
L	L	No preheating
H or OPEN	L	Preheating from level 4
L	H or OPEN	Preheating from level 5
H or OPEN	H or OPEN	Preheating from level 6

Note: Signals of /LOAD, INC, and START detect the falling edge; the START signal transmits data generated in the driver IC at the falling edge and latches at the rising edge. (See Fig. 2)

● Timing chart

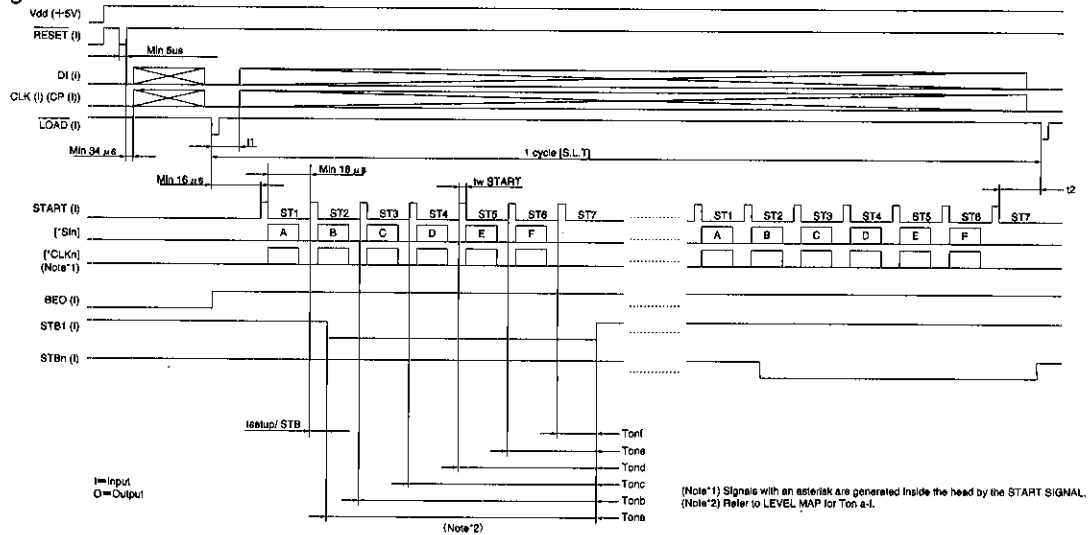


Fig.1

●Timing chart

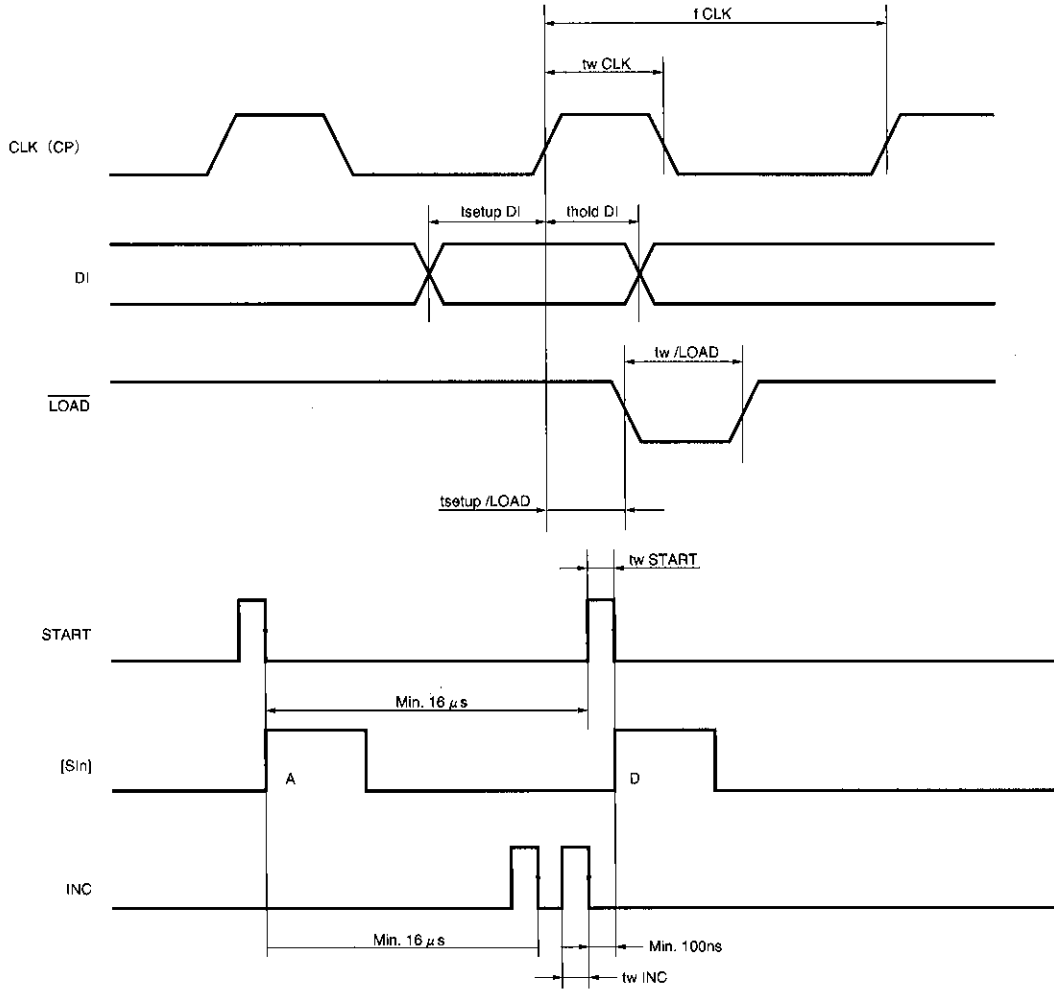
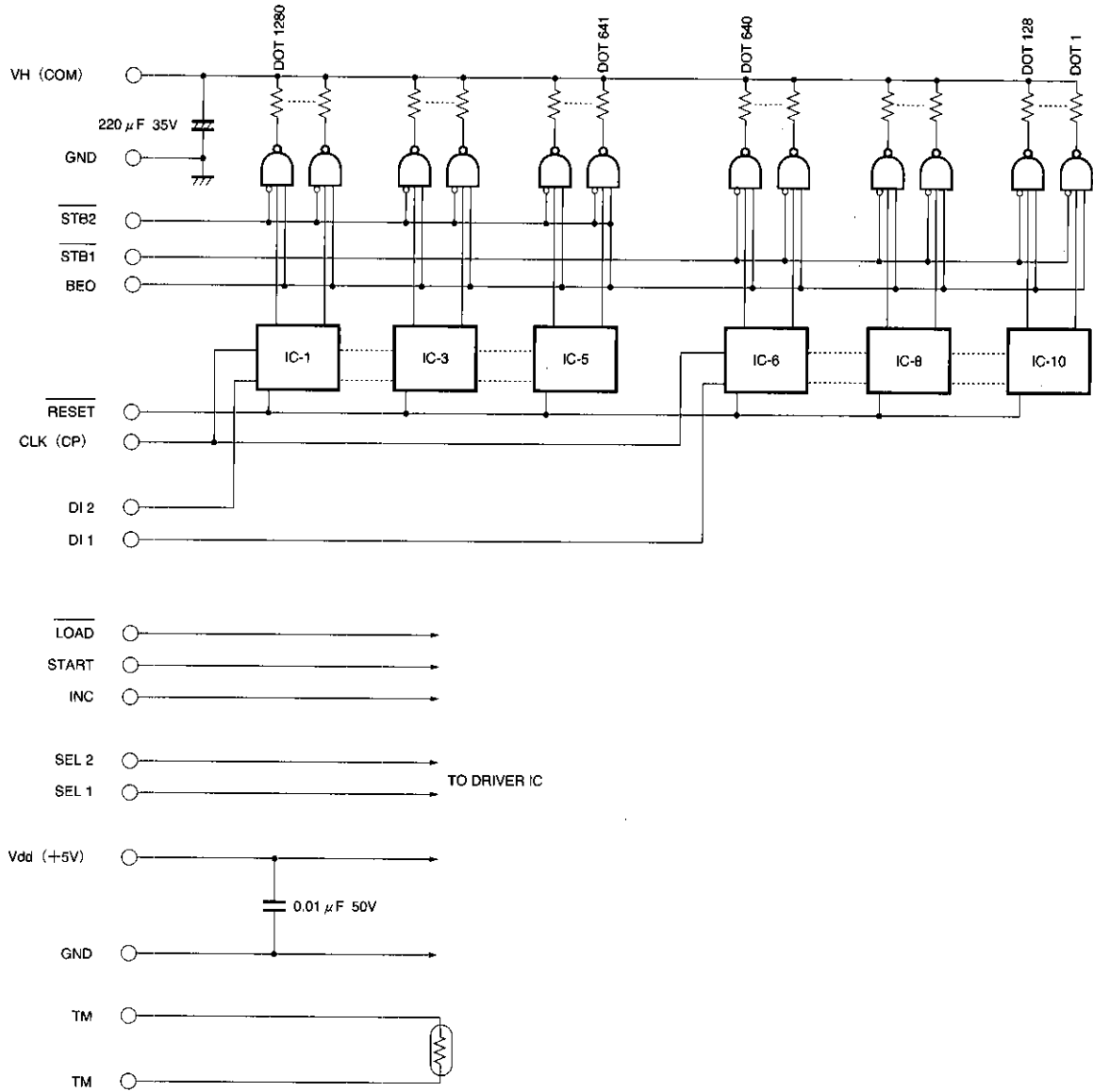


Fig.2

●Equivalent circuit



DI No.	DOT No.	STB No.	DOT No.
DI 2	1280~641	STB 2	1280~641
DI 1	640~1	STB 1	640~ 1

Fig. 3 Circuit diagram

For Bar Code Label Printers

Thin Film

● Data sheet

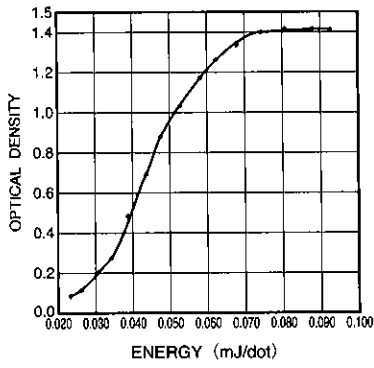


Fig. 4 Representative density curve

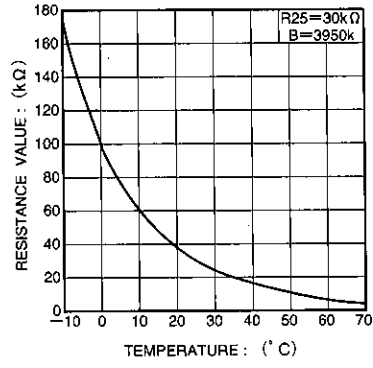


Fig. 5 Thermistor curve

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