

NM2003-UA10A

●Applications

Ticket printers

●Features

- 1) Special glazed components for high speed, high quality printing.
- 2) Our heat history control circuit reduces the load on the printer to control heat history.
- 3) Using a hard conductive film as a protective film on the heating element offers excellent resistance to electrostatic damage.

Technical drawing of the HIROSE HIF3FC-20PA-2.54DS connector, showing dimensions and component details.

Top View Dimensions:

- Overall Width: 91 ± 0.5
- Effective Print Width: 80 (5.5)
- DOT #640
- DOT #1
- Max. 53
- Max. 45
- Min. 7.7
- (3)

Side View Dimensions:

- Max. 6 ± 0.5
- Max. $\phi 20$
- Max. 4.5
- Max. 12

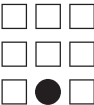
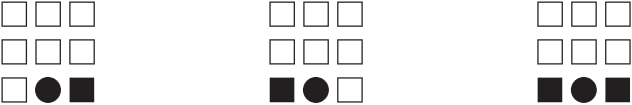
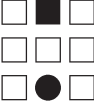
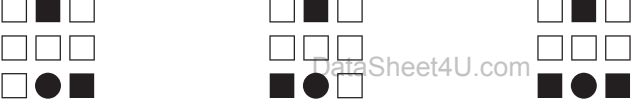
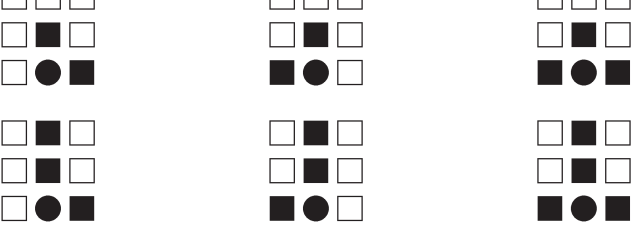
Detail Views:

- HIROSE HIF3FC-20PA-2.54DS** (Main Connector)
- JST B6PS-VH** (Sub Connector)
- Pin Labels: #1, #6, #19, #20, #2
- $\phi 3H10$ EFFECTIVE DEPTH 3
- $\phi 3H10$ LENGTH 4 EFFECTIVE DEPTH 3
- Dimensions: 17.8 ± 0.2 , 7.3 ± 0.3 , 20 ± 0.2 (25.5), 20 ± 0.2 , 40 ± 0.3 , 27 ± 0.5 (20.8), $M3$
- DOT #1
- EFFECTIVE DEPTH 3

● Characteristics

Parameter	Symbol	Typical						Unit
Effective printing width	—	56						mm
Dot pitch	—	0.125						mm
Total dot number	—	448						dots
Average resistance value	Rave	550						Ω
Applied voltage	V _H	22.6						V
Applied power	P _O	0.8						W / dot
Print cycle	SLT	0.49						ms
Applied energy	LEVEL	1	2	3	4	5	6	—
	E _O	0.36	0.33	0.27	0.23	0.23	0.19	mJ / dot
Pulse width	Ton	0.45	0.41	0.34	0.29	0.29	0.24	ms
Maximum number of dots energized simultaneously	—	448						dots
Maximum clock frequency	—	5						MHz
Maximum roller diameter	—	20						mm
Running life / pulse life	—	50 / 10 ⁸						km / pulses
Operating temperature	—	5~45						°C

●Level map

	Print Pattern	On Time	SLT=0.49ms
Level 1		Ton a	0.450 ms
Level 2		Ton b	0.410 ms
Level 3		Ton c	0.34 ms
Level 4		Ton d	0.29 ms
Level 5		Ton e	0.29 ms
Level 6		Ton f	0.240 ms

□: Heated dot.

■: Non-heated dot.

●: Dot to be printed.

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 assignments

HIROSE

No.	Circuit	No.	Circuit
1	GND	11	CLK
2	N.C.	12	DI
3	N.C.	13	START
4	N.C.	14	LOAD
5	V _{DD}	15	RESET
6	V _{DD}	16	DO
7	INC	17	STB2
8	SET	18	STB1
9	E-OUT	19	TM
10	OR-ON	20	TM

JST

No.	Circuit
1	VH
2	VH
3	GND
4	GND

Added functions

SET : Sets all data to "HIGH". (Usable for preheating, etc.)

OR-ON : Set at "HIGH" when considering the adjoining of the previous columns; otherwise set at "LOW".

E-OUT : Outputs "HIGH" when a data transmission error occurs inside the head.

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

RESET : Sets all data at "LOW". Clears data when printing is resumed after a pause. (See Fig. 2)

Note: Signals of SET, INC, START, and RESET detect the falling edge; the START signal transmits data to the driver IC at the falling edge and latches at the rising edge.

For two-part split printing, enter INC after 34 μ s seconds of START7. (See Fig. 2)

●Timing chart

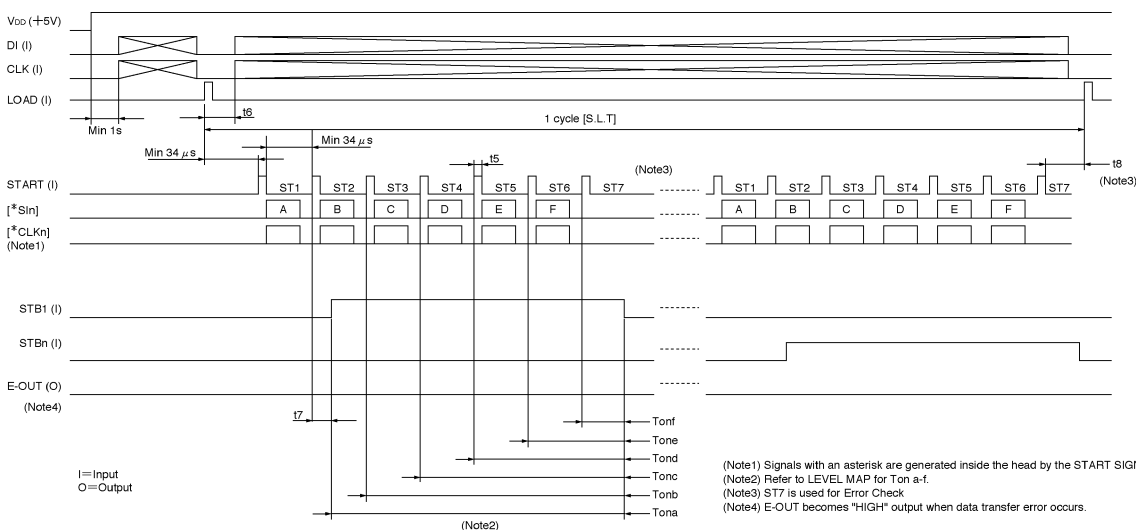


Fig.1

● Timing chart

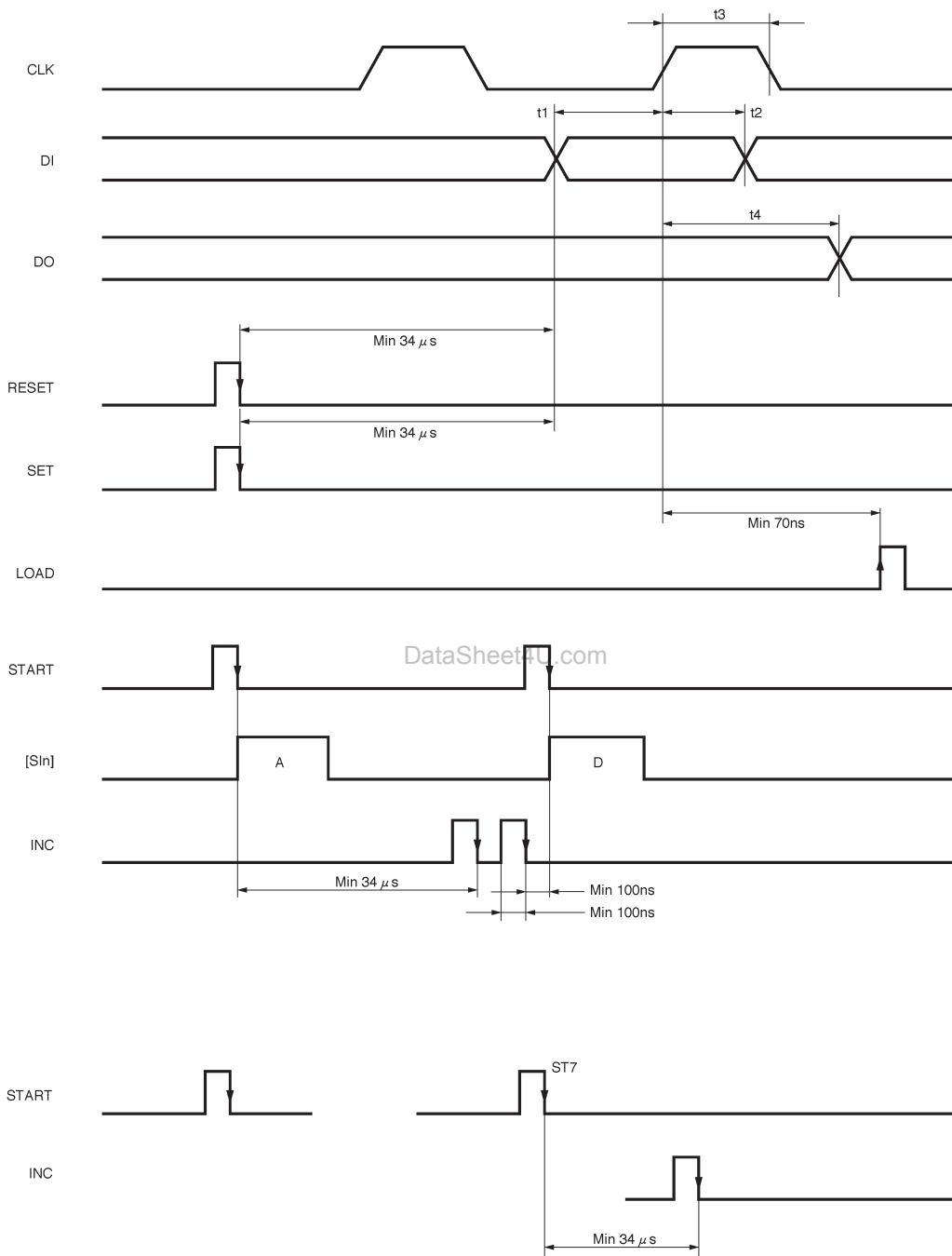


Fig. 2

- Equivalent circuit

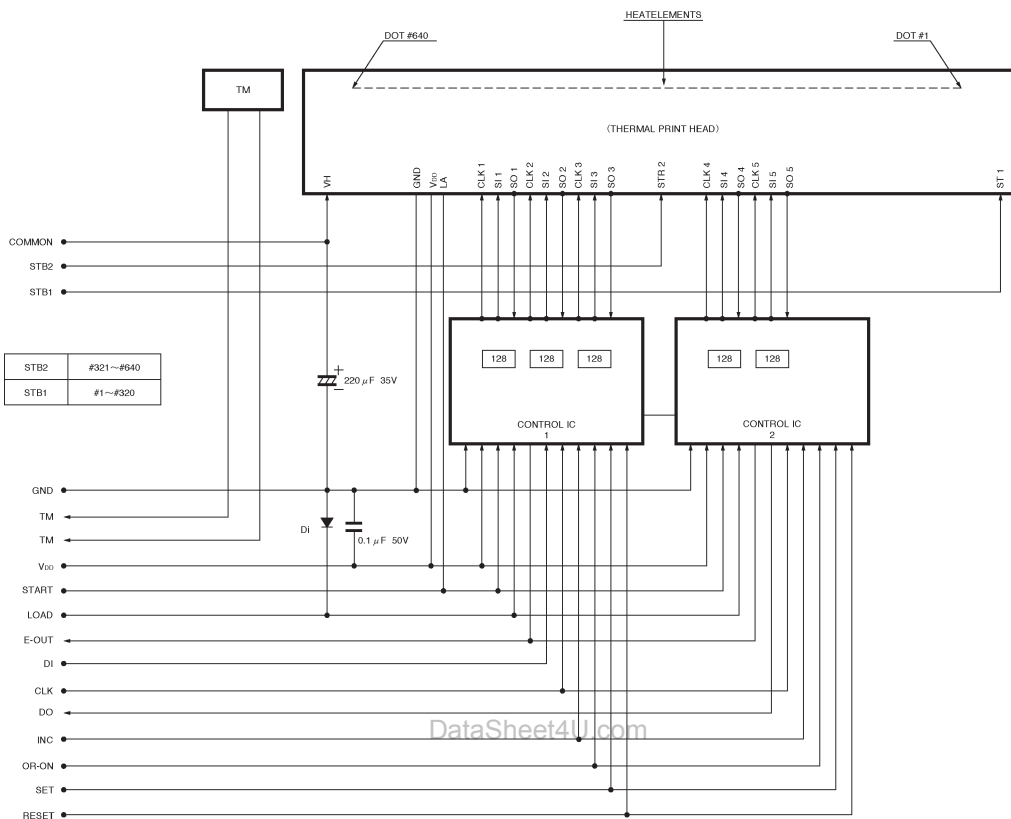


Fig. 3

●Supported speeds chart

Inch / second [IPS]											OVER
0	1	2	3	4	5	6	7	8	9	10	

Internal heat
history control

●Electrical characteristic curves

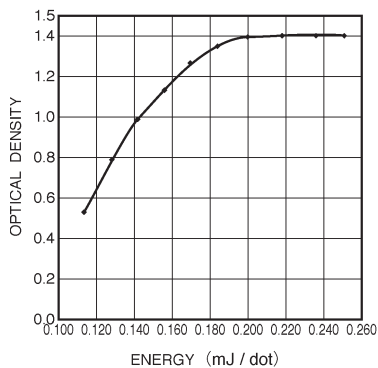


Fig. 4 Representative density curve

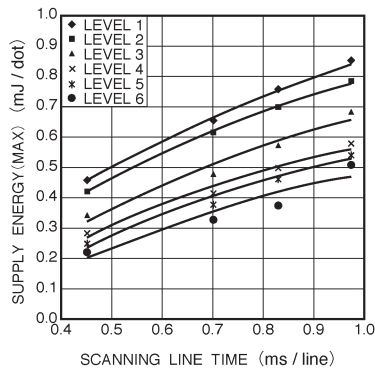


Fig. 5 Maximum energy curve

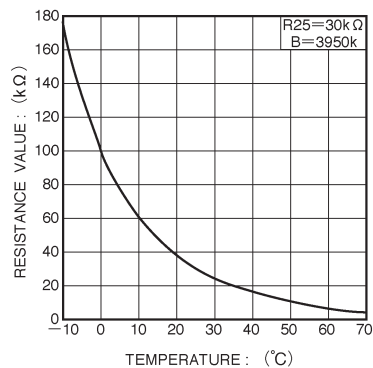


Fig. 6 Thermistor curve

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