Specification	Products	Type
	THICK-FILM THERMAL HEAD	K F 2 0 0 3 – B 1 S

This specification is applied to ROHM standard type of thermal head KF2003-B1S.

1.Outlines

(1) External Dimension	Fig.-1
(2) Heat Element Structure	2 heaters/dot
(3) Number of Heat Elements	640 dots
(4) Heat Element Pitch	0.125 mm (8.00 dots/mm)
(5) Print Width	80.00mm
(6) Average Resistance Value (Rav)	650 Ω ± 15%
(7) Circuit Diagram	Fig.-2
(8) Pinout Diagram	Table-1
(9) Electrical Characteristics of Circuit	Table-2, Fig.-3
(10) Thermistor	Table-3

2.Maximum Conditions at 25° C

Parameter			Unit	Conditions
Scanning Line Time (S.L.T.)	5.0	10.0	ms/line	Tsub= 25℃ Pomax= 0.82 W/dot
Supply Energy	0.35	0.39	mJ/dot	
Supply Voltage	26.4		V	Vp< 28V Vp: Peak of Vset
Substrate Temp.	60		℃	Thermistor Temp.
Number of Burning Dots at Same Time	512		dot	(NOTE 1)

Design Approval

90KF2003-B1S-101

27/Nov./'90

N.Inamoto

K.Motoyama

Specification	Products	Type
	THICK-FILM THERMAL HEAD	K F 2 0 0 3 − B 1 S

3.Standard Printing Conditions at 25℃

(1) Mechanical Conditions (Refer to Note 2)

Parameter		Unit or Conditions
Platen Force	2.5 ± 0.5	kg/print width
Platen Hardness	40 ± 5	Shore A
Platen Diameter	15 ~ 25	mm
Paper Feed Pitch	0.130 (7.70 line/mm)	mm/line

(2) Thermal Paper KANZAKI KF50-HDA or Equiv.

(3) Electrical Conditions (Refer to Note 3)

Parameter	Symbol			Unit	Conditions
Supply Power	Po	0.68		W/dot	Rav= 650Ω Max. 512 dots can be fired at same time.
Supply Voltage	Vset	24.0		V	
Scanning Line Time	S.L.T.	5.0	10.0	ms/line	
Supply Energy (On Time)	Eo (Ton)	0.35 (0.51)	0.39 (0.58)	mj/dot ms	5℃
		0.30 (0.44)	0.34 (0.50)	mj/dot ms	25℃
		0.27 (0.40)	0.31 (0.45)	mj/dot ms	40℃
Supply Current	Io	16.5		A	

4.Ambient Conditions

Parameter	Symbol				Unit
Storage Temp.	Tsto	-25	~	70	℃
Operation Temp.	Tope	5	~	45	℃
Humidity *3	-	10	~	90	%

*3 Condensation should be avoided.

5.Printing Quality on Standard Printing Conditions

The print quality limit specified below is available in the case that print is performed under the conditions shown in section 3 and at ambient temperature 25℃ .

(1) Minimum Optical Density: *4 1.0

(2) Maximum Range of Max-Min: *4 0.3

*4 Density is measured at the full black pattern by Macbeth densitometer RD-914. Full black pattern means all dots printing pattern (100% black area) printed under correct paper speed and correct platen contact.

6.Printhead Life

The printhead life specified below is defined in the case that the test is conducted under the conditions shown in section 3 and ambient temperature is 25℃ , printing area duty is 12.5%, head temperature is below 60℃ .

Life means the time that the average resistance shifted 15% from the initial resistance value labeled on the printhead.

(1) Heat Pulse Life: Min. 5×10^{7} pulses

(2) Abration Life : Min. 50 km

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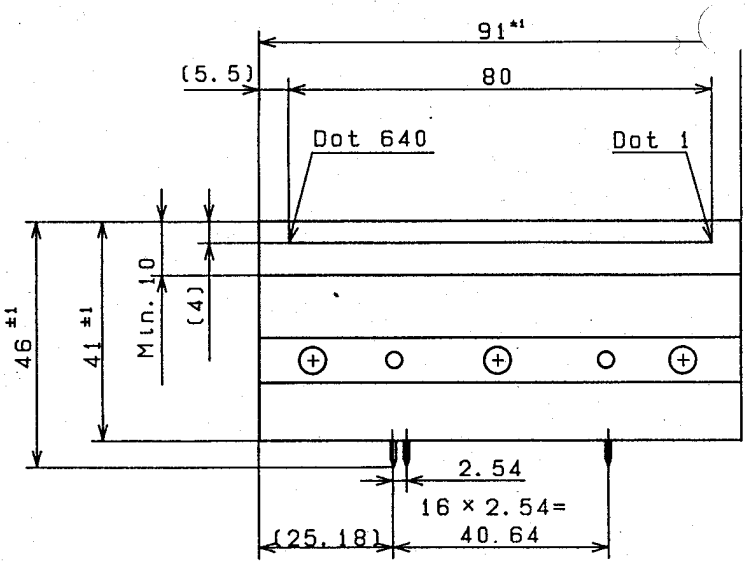

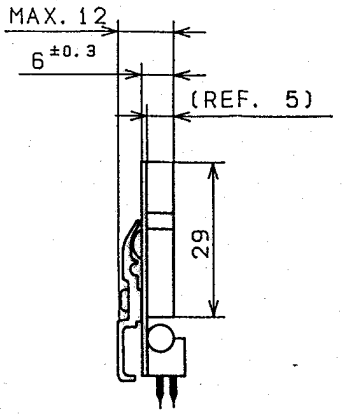

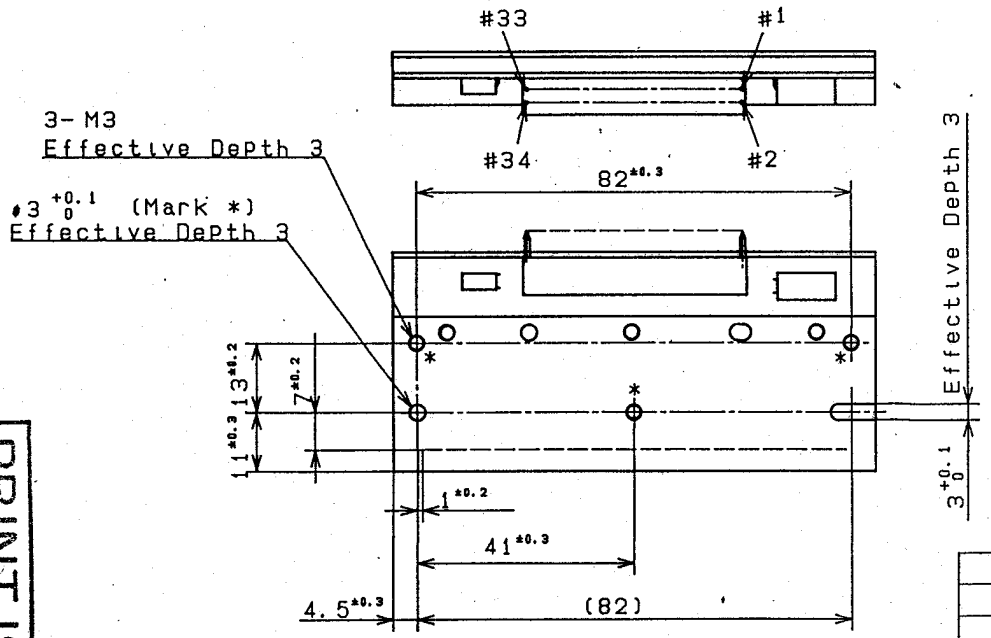

The warp of thermal head : -50μm ~ 100μm

CONNECTOR : JAE PS-34PE-D4LT1-PN1

or Equiv.

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品番	品名	材質	個数	備考

改訂番号	改訂記事	備考

摘要	Fig.-1
機種名	KF2003-B1S
尺度	1:1
未記	
図番	D TH1901128K0-6

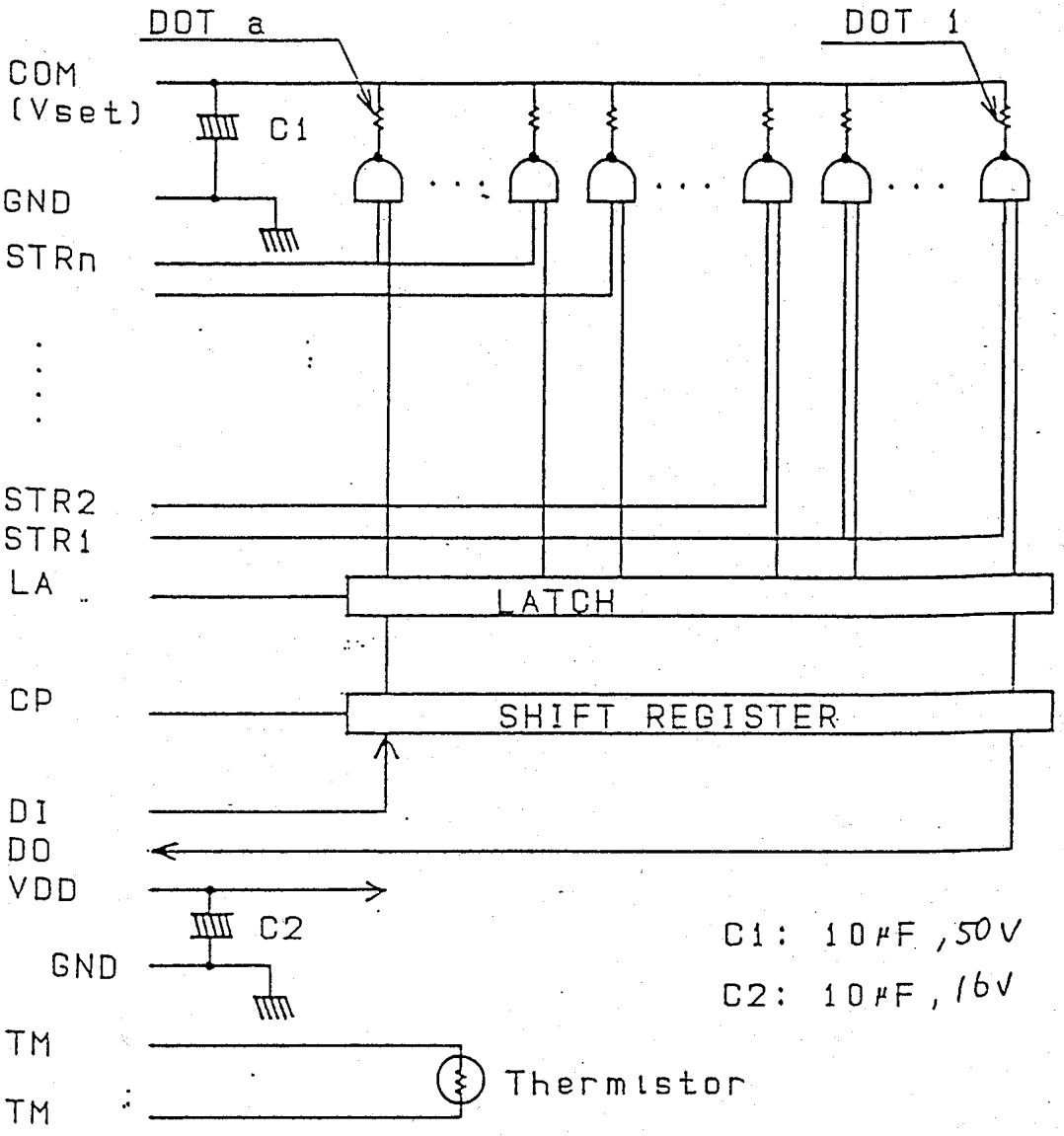
TABLE − 1

PINOUT DIAGRAM

NO.	CIRCUIT	NO.	CIRCUIT
1	GND	2	COM
3	GND	4	COM
5	GND	6	COM
7	GND	8	COM
9	GND	10	COM
11	DO	12	CP
13	VDD	14	GND
15	TM	16	TM
17	STR 1	18	STR 2
19	STR 3	20	STR 4
21	STR 5	22	NC
23	DI	24	LA
25	GND	26	COM
27	GND	28	COM
29	GND	30	COM
31	GND	32	COM
33	GND	34	COM

PIN NO. : Reference to Fig.-1

FIG. −2 CIRCUIT DIAGRAM



STR: n=5 , DOT: a=640 dots

STR No.	DOT No.			dots/STR
1	1	~	128	128
2	129	~	256	128
3	257	~	384	128
4	385	~	512	128
5	513	~	640	128

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TABLE-2 ELECTRICAL CHARACTERISTICS (C-MOS VERSION)

Ta=25± 10℃

PARAMETER	SYM.	MIN.	TYP.	MAX.	UNIT	CONDITION
AVERAGE RESISTANCE	Rav	553	650	748	Ω	
OUTPUT SUPPLY VOLTAGE	Vset	12.0	-	26.4	V	in PRINTING at STANDARD
SUPPLY VOLTAGE	VDD	4.75	5.00	5.25	V	
SUPPLY CURRENT	IDD	-	25	-	mA	ALL DATA "H"
"H" INPUT VOLTAGE	Vih	0.8VDD	-	VDD	V	STR,DI LA,CP
"L" INPUT VOLTAGE	Vil	0.0	-	0.2VDD	V	"
"H" INPUT CURRENT	Iih	-	-	0.1	μA	DI
		-	-	448.0	μA	STR
"L" INPUT CURRENT	Iil	-	-	-0.1	μA	DI
		-	-	-0.8	μA	STR
"H" INPUT CURRENT	Iih	-	-	1.0	μA	LA,CP
"L" INPUT CURRENT	Iil	-	-	-1.0	μA	CP
		-	-0.28	-0.56	mA	LA
DATA OUT "H" OUTPUT VOLTAGE	Vdoh	4.0	-	-	V	VDD=4.5
DATA OUT "L" OUTPUT VOLTAGE	Vdol	-	-	0.8	V	VDD=4.5
DRIVER LEAK CURRENT	IL	-	-	10.0	mA	ALL DATA "L"
DRIVER SAT. VOLTAGE	Voon	-	0.7	-	V	Io(A)= 0.032
MAX. TRANSFER FREQUENCY	fd	-	-	4.0	MHz	
MIN. SET UP TIME	t1	50.0	-	-	ns	SEE FIG-3
DATA HOLD TIME	t2	10.0	-	-	ns	SEE FIG-3
CLOCK WIDTH	t3	70.0	-	-	ns	SEE FIG-3
DATA OUT DELAY TIME	t4	-	-	120.0	ns	SEE FIG-3
LA SET UP TIME	t5	200.0	-	-	ns	SEE FIG-3
LA WIDTH	t6	100.0	-	-	ns	SEE FIG-3
STR SET UP TIME	t7	300.0	-	-	ns	SEE FIG-3
DELAY TIME	t8	-	-	3.0	μs	SEE FIG-3