

## GaAs monolithic IC for Fiber Optic System

The HS6904 is a high speed and high sensitivity decision circuit IC for fiber optic system, Synchronizing with external clock, it regenerates clear digital waveform. Its single power supply voltage is  $-5.2$  V.

### Features

- Input discrimination sensitivity of 50 mV at 2.4 GHz clock input.
- ECL compatible output.
- Single power supply of  $-5.2$  v.
- 32pin package containing internal decoupling capacitors and input termination registers of 50  $\Omega$ .

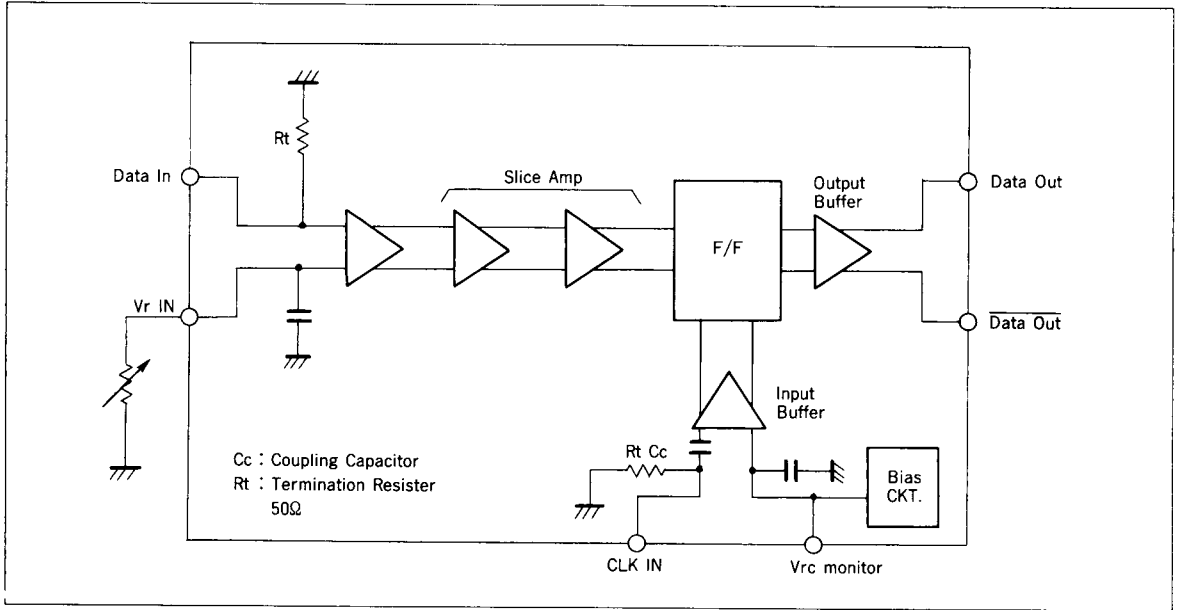
### Absolute Maximum Ratings

Item	Symbol	Rating	Unit	Remarks
Supply Voltage	V <sub>ss</sub>	+0.5 to -7.5	V	
Input Voltage	V <sub>inH</sub>	0	V	
Input Voltage	V <sub>inL</sub>	V <sub>ss</sub>	V	
Supply Current	I <sub>ss</sub>	500	mA	
Power Dissipation	P <sub>r</sub>	1.5	W	
Storage Temperature	T <sub>stg</sub>	-65 to +150	°C	
Operating Temperature	T <sub>opr</sub>	-10 to +80	°C	

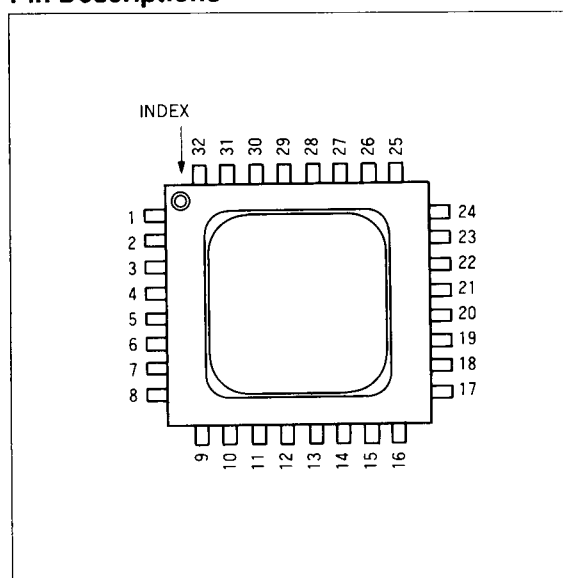
### Recommended Operating Conditions

Item	Symbol	Min	Typ	Max	Unit	Remarks
Supply Voltage	V <sub>ss</sub>	-5.50	-5.20	-4.90	V	
Input Voltage	V <sub>in</sub>	800	—	—	mV	

Functional Blocks



## Pin Descriptions



Pin No	Function	Pin No	Function
1	GND	17	Vss
2	Vss	18	Vss
3	Vss	19	(Bias Monitor)
4	(Bias Monitor)	20	( " )
5	GND	21	Vr IN
6	(Vrc Monitor)	22	(Bias Monitor)
7	Vss	23	Vss
8	Vss	24	Vss
9	GND	25	GND
10	GND	26	GND
11	CLOCK IN	27	GND
12	GND	28	GND
13	(Bias Monitor)	29	DATA OUT
14	GND	30	GND
15	DATA IN	31	DATA OUT
16	GND	32	GND

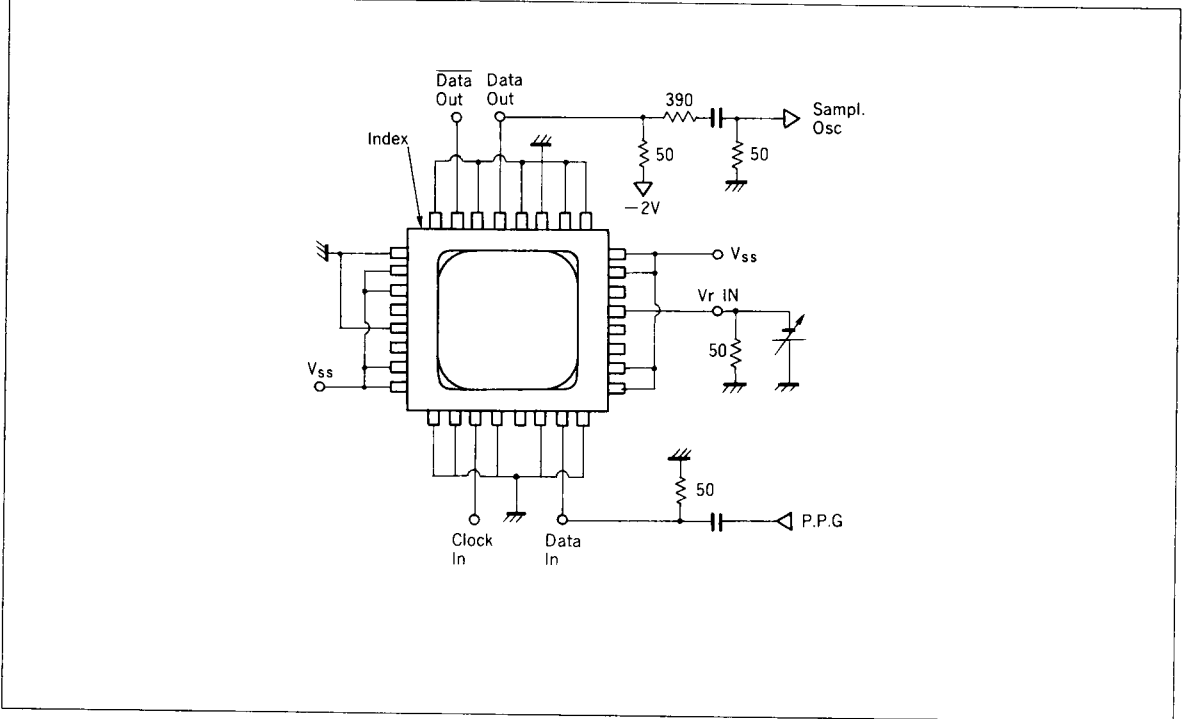
DC Characteristics (Vss: -5.2 V  $\pm$  5% TA: -10°C-80°C)

Item	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	VoH	V <sub>IH</sub> = +0.2 V	-1.1		-0.8	V
		V <sub>IL</sub> = -0.4 V				
	VoL	V <sub>r</sub> = -0.1 $\pm$ 0.1 V	-1.9		-1.5	V
		V <sub>TT</sub> = -2.0 V R <sub>t</sub> = 50 $\Omega$				
Power Supply Current	I <sub>ss</sub>			100		mA

## AC Characteristics

Item	Symbol	Test Conditions	Min	Typ	Max	Unit
Decision Sensitivity	V <sub>in min</sub>	f <sub>c</sub> = 2.4 GHz P <sub>a</sub> = 10 <sup>-9</sup>		50		mVp-p
Output Transition Time	t <sub>r</sub>	R <sub>t</sub> = 50 $\Omega$ V <sub>r</sub> = -2.0 V		150		ps
	t <sub>f</sub>	20% to 80% C <sub>L</sub> = 2 pF		150		ps
Clock Input Voltage	V <sub>o</sub>	Internally Capacitive Coupled		0.8		Vp-p

**Test Circuit**



**Precautions**

The GaAs IC could be damaged or destroyed if charged with high static electricity. Please have all equipments discharged before connecting the device.

This production contains GaAs. Only a few GaAs are still very harm for human. Don't decompose or process into powder or vapor.