

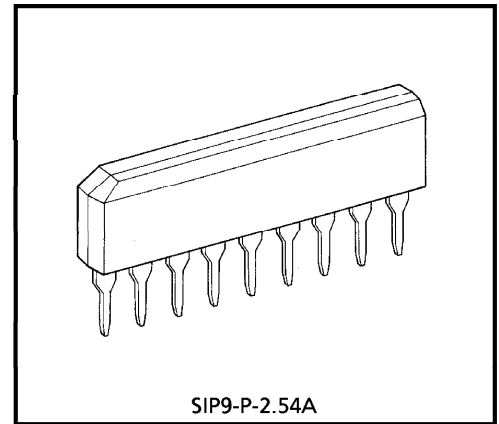
# TC5081BP

## PHASE COMPARATOR

The TC5081BP is phase comparator for PLL frequency synthesizer type, and consists of a digital phase comparator and an amplifier for active low pass filter.

### FEATURES

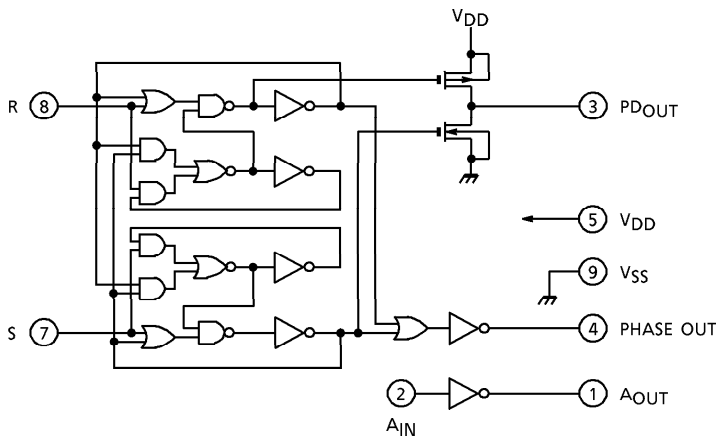
- The phase comparator detects two input pulse phase differences and outputs proportionate positive or negative pulses to PD<sub>OUT</sub>. When the input pulse phases are the same, PD<sub>OUT</sub> has high impedance.
- Because the IC is CMOS, the input impedance of the filter for the amp is extremely high and has excellent characteristics.
- TC5081BP comes in a SIP 9 PIN.



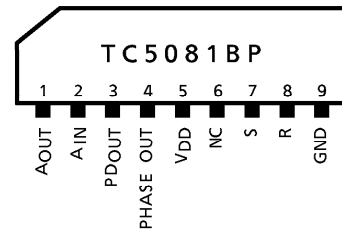
SIP9-P-2.54A

Weight : 0.92g (Typ.)

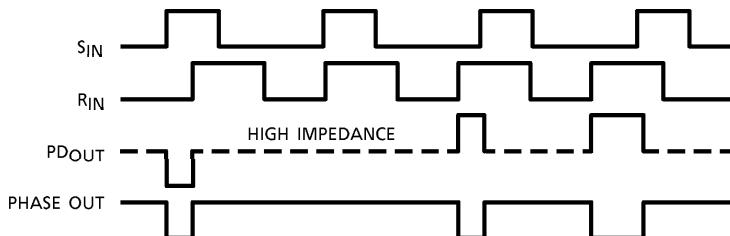
### LOGIC DIAGRAM



### PIN CONNECTION (SIDE VIEW)



### PHASE COMPARATOR TIMING CHART



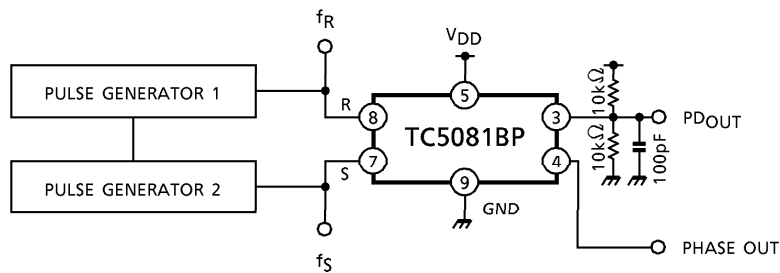
**MAXIMUM RATINGS (Ta = 25°C)**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>DD</sub>	15	V
Input Voltage	V <sub>IN</sub>	-0.3~V <sub>DD</sub> +0.3	V
Operating Temperature	T <sub>opr</sub>	-30~75	°C
Storage Temperature	T <sub>stg</sub>	-55~125	°C

**ELECTRICAL CHARACTERISTICS (V<sub>DD</sub> = 7.5V, Ta = -30~75°C)**

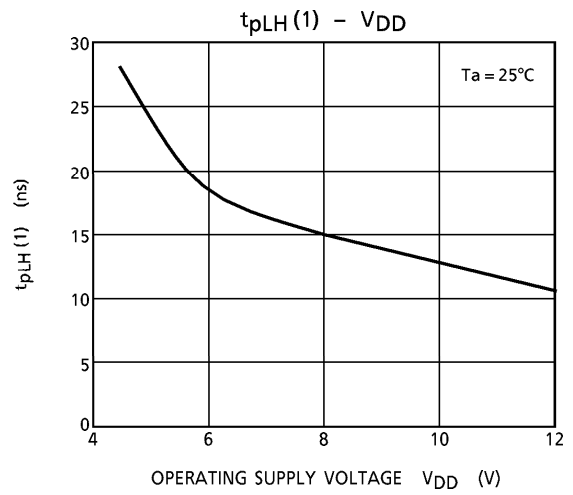
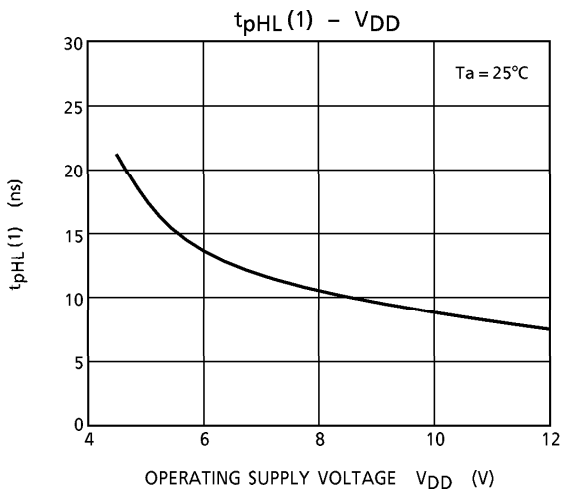
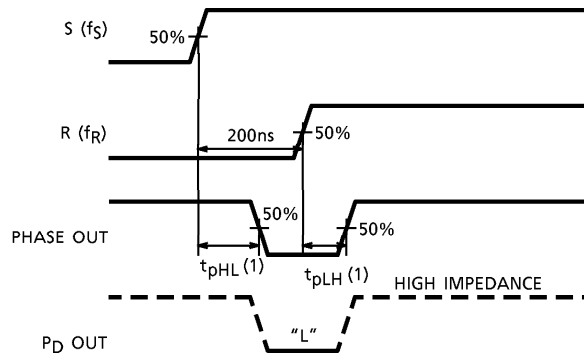
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage	V <sub>DD</sub>	—	—	4.5	—	12	V
Output Voltage	"H" Level	V <sub>OH</sub>	V <sub>IH</sub> = 6.6V, V <sub>IL</sub> = 1.6V	7.3	—	—	V
	"L" Level	V <sub>OL</sub>					
Quiescent Current	I <sub>DD</sub>	—	V <sub>IH</sub> = 7.5V, V <sub>IL</sub> = 0V	—	—	200	μA
3 State Leak Current	"H" Level	I <sub>TLH</sub>	—	—	—	500	nA
	"L" Level	I <sub>TLL</sub>					
Filter Amp. Voltage Gain	G <sub>V</sub>	3	R <sub>①-②</sub> = 1MΩ, f <sub>IN</sub> = 1kHz R <sub>g</sub> = 600Ω	—	30	—	dB

**TEST CIRCUIT 1**

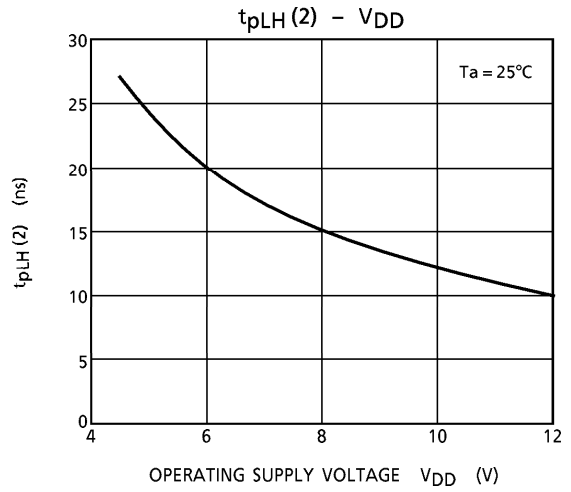
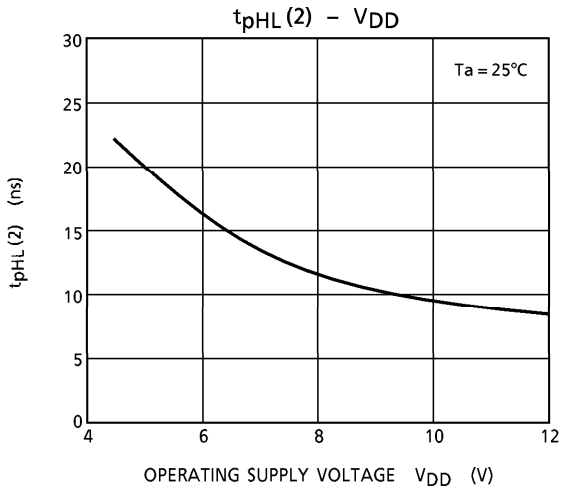
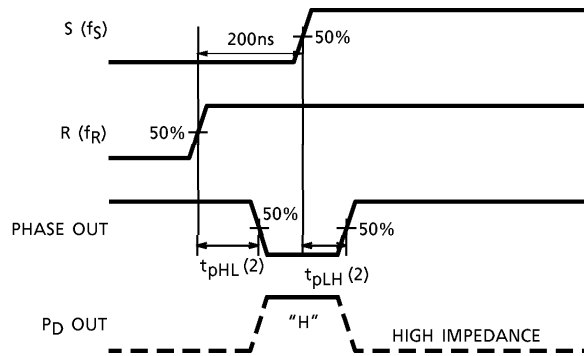


The pulse generator-1 is synchronized with the pulse generator-2. Then, the phase of f<sub>R</sub> and f<sub>S</sub> is variable.

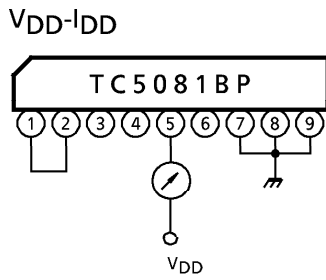
WAVE FORM 1 (The leading phase,  $f_s > f_R$ )



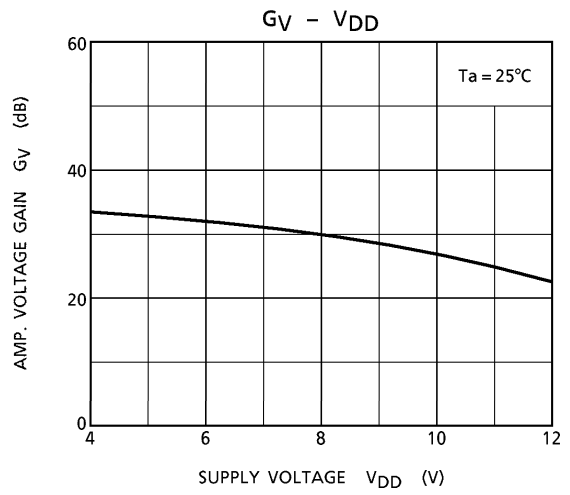
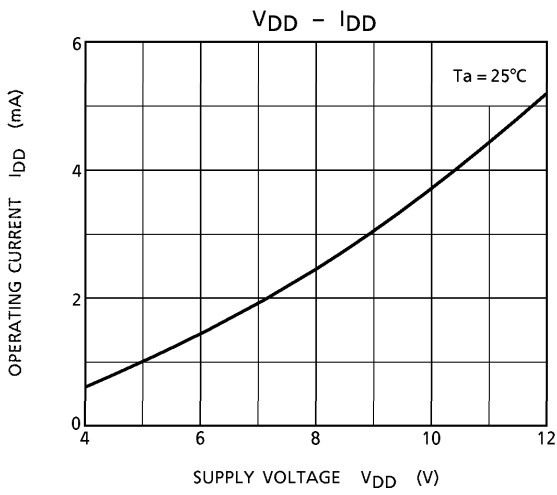
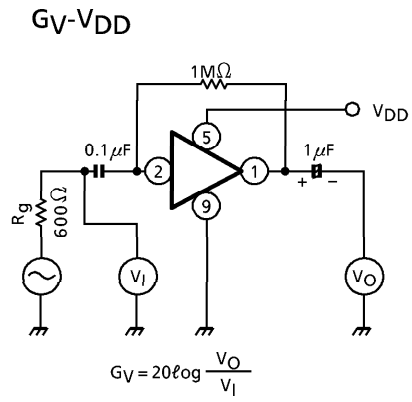
WAVE FORM 2 (The lagging phase,  $f_S < f_R$ )



TEST CIRCUIT 2

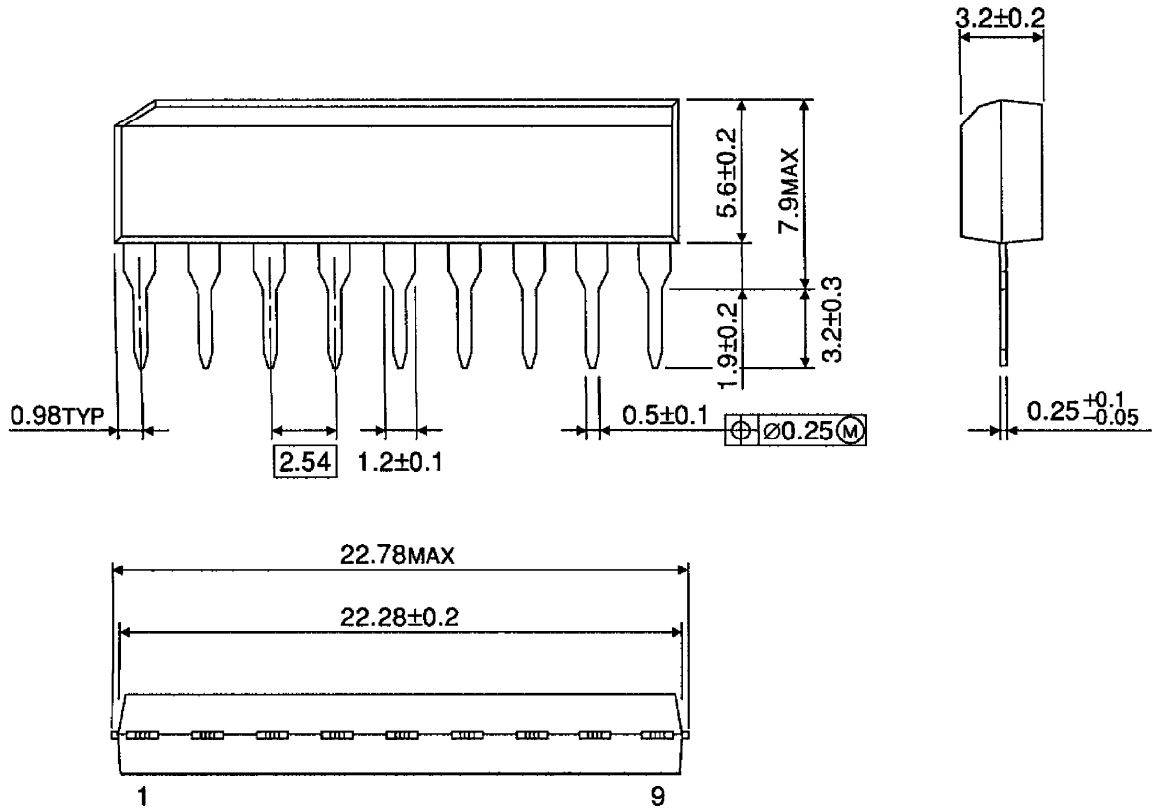


TEST CIRCUIT 3



PACKAGE DIMENSIONS  
SIP9-P-2.54A

Unit : mm



Weight : 0.92g (Typ.)

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