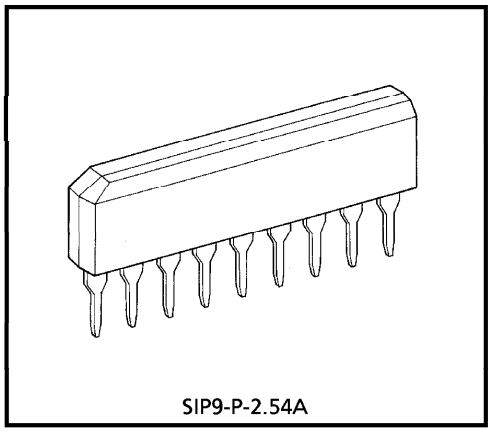
TENTATIVE TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

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.

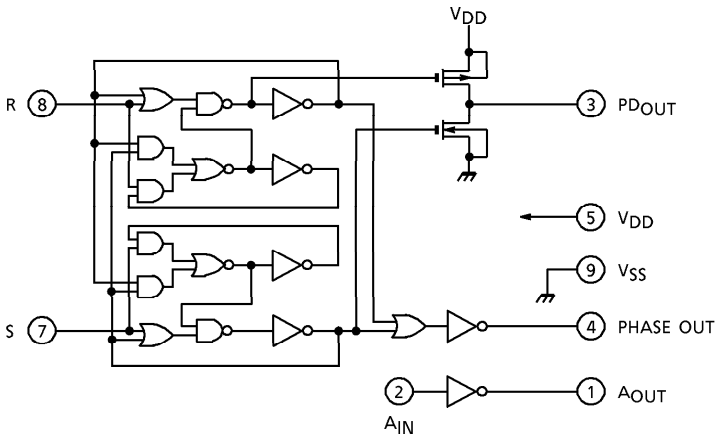


Weight : 0.92g (Typ.)

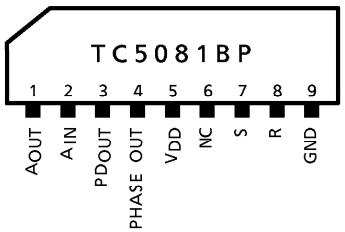
FEATURES

- The phase comparator detects two input pulse phase differences and outputs proportionate positive or negative pulses to PD_{OUT}. When the input pulse phases are the same, PD_{OUT} 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.

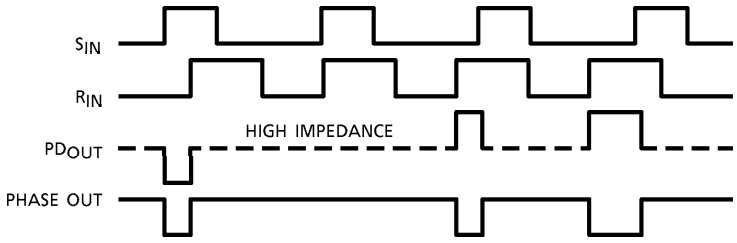
LOGIC DIAGRAM



PIN CONNECTION (SIDE VIEW)



PHASE COMPARATOR TIMING CHART



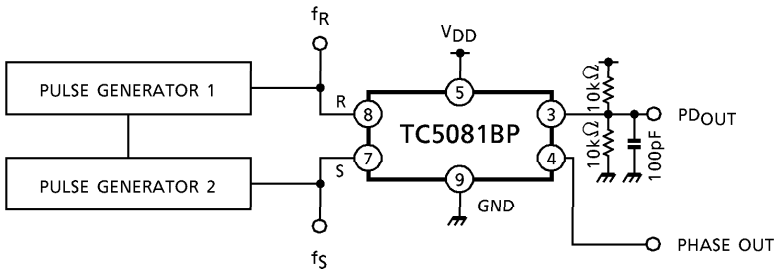
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{DD}	15	V
Input Voltage	V_{IN}	$-0.3 \sim V_{DD}+0.3$	V
Operating Temperature	T_{opr}	$-30 \sim 75$	°C
Storage Temperature	T_{stg}	$-55 \sim 125$	°C

ELECTRICAL CHARACTERISTICS (V_{DD} = 7.5V, Ta = $-30 \sim 75$°C)

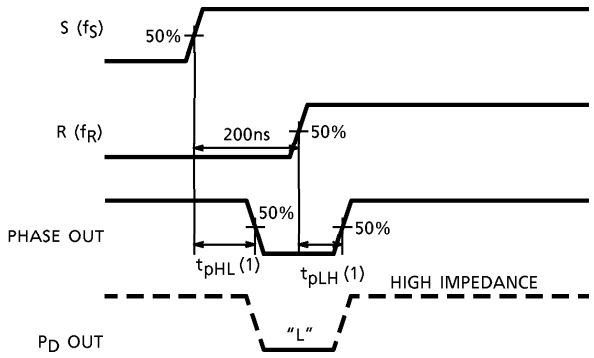
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage		V_{DD}	—	—		4.5	—	12	V
Output Voltage	"H" Level	V_{OH}	—	V_{IH} = 6.6V, V_{IL} = 1.6V	$I_{OH} = -50\mu A$	7.3	—	—	V
	"L" Level	V_{OL}			$I_{OL} = 50\mu A$	—	—	0.2	V
Quiescent Current		I_{DD}	—	V_{IH} = 7.5V, V_{IL} = 0V		—	—	200	μA
3 State Leak Current	"H" Level	I_{TLH}	—	—		—	—	500	nA
	"L" Level	I_{TLL}				—	—	−500	nA
Filter Amp. Voltage Gain		G_V	3	$R_{①-②}$ = 1MΩ, f_{IN} = 1kHz, R_g = 600Ω		—	30	—	dB

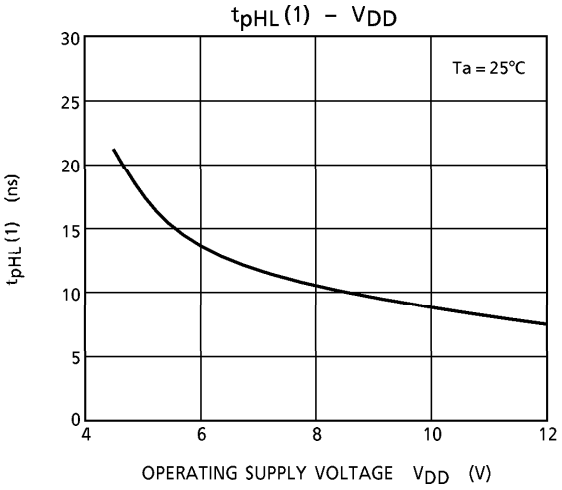
TEST CIRCUIT 1

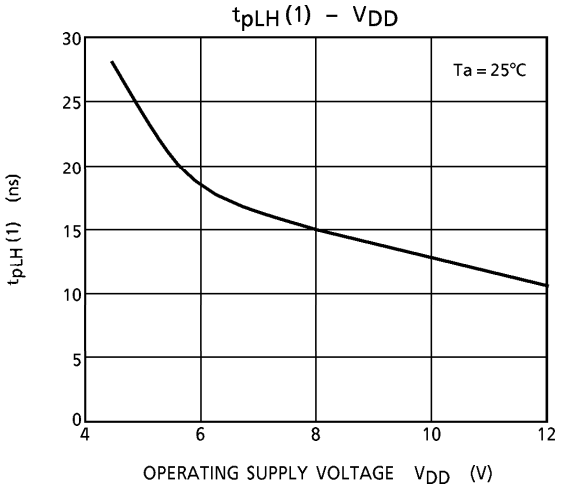


The pulse generator-1 is synchronized with the pulse generator-2.
Then, the phase of f_R and f_S is variable.

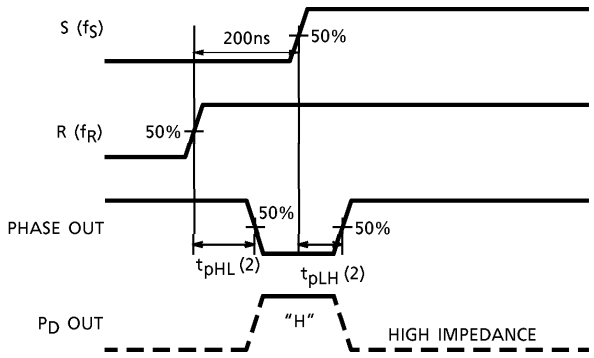
WAVE FORM 1 (The leading phase, $f_S > f_R$)

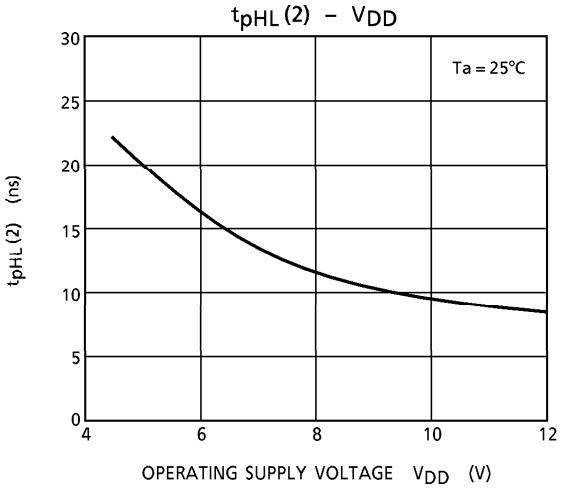


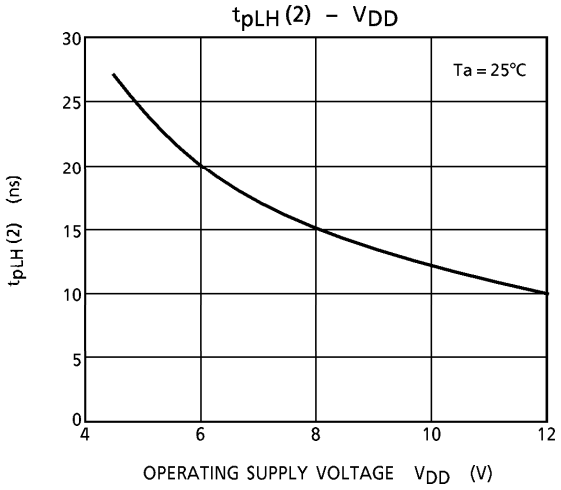




WAVE FORM 2 (The lagging phase, $f_S < f_R$)

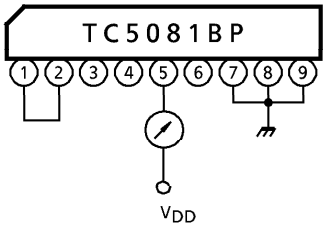






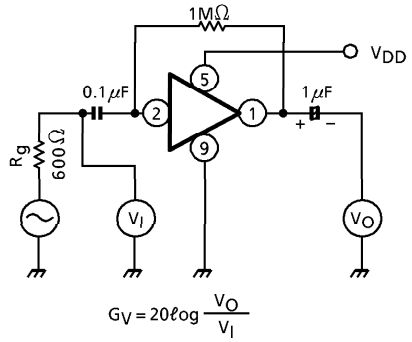
TEST CIRCUIT 2

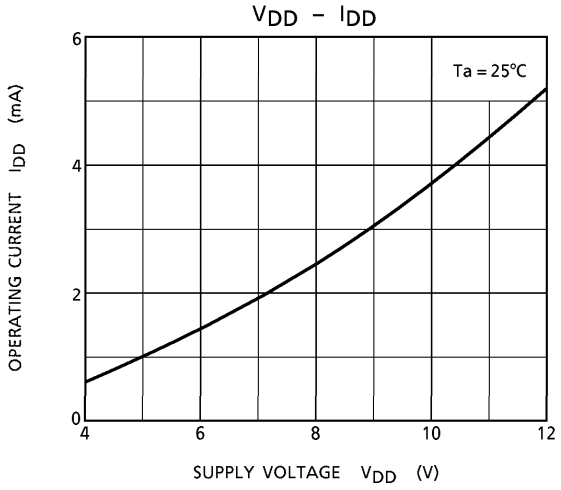
V_{DD}-I_{DD}

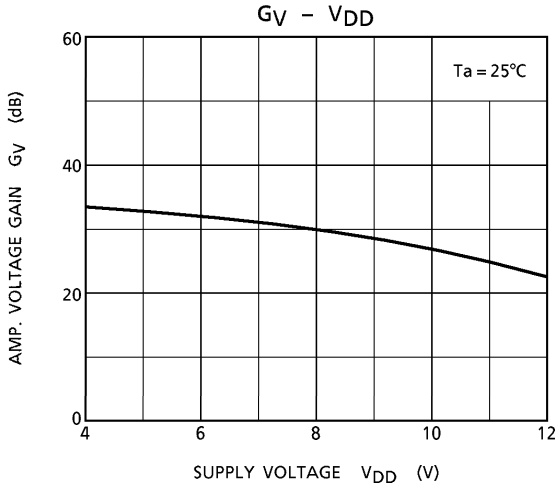


TEST CIRCUIT 3

G_V-V_{DD}

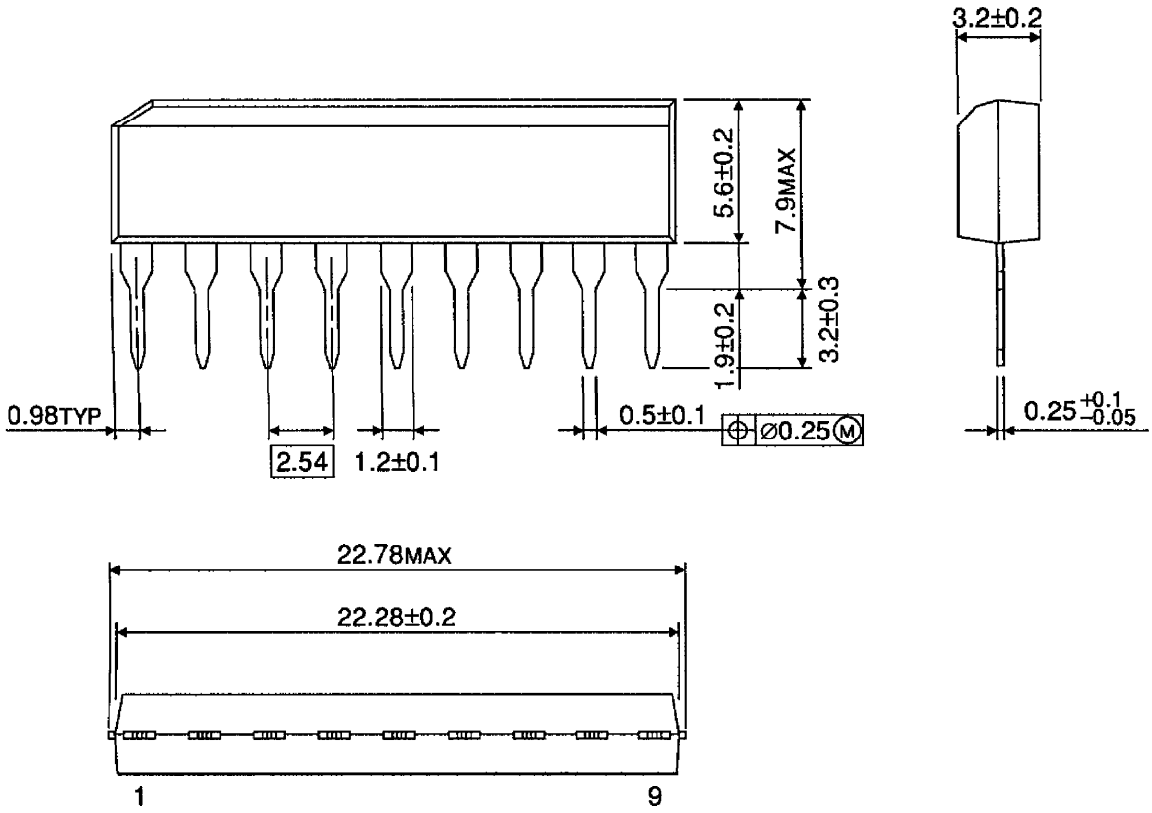






PACKAGE DIMENSIONS

SIP9-P-2.54A Unit : mm



Weight : 0.92g (Typ.)

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