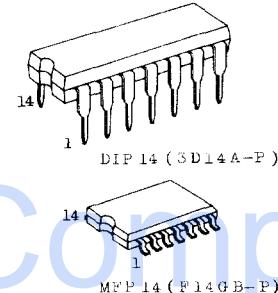


TC4584BP/TC4584BF HEX SCHMITT TRIGGER

The TC4584BP/BF is the 6-circuit inverter having the Schmitt trigger function at the input terminal.

That is, since the circuit threshold level voltages at the leading and trailing edges of input waveform are different (V_p , V_N), the TC4584BP/BF can be used in the broad range application including line receiver, waveform shaping circuit, astable multivibrator, mono-stable multivibrator, etc. in addition to ordinary inverter.

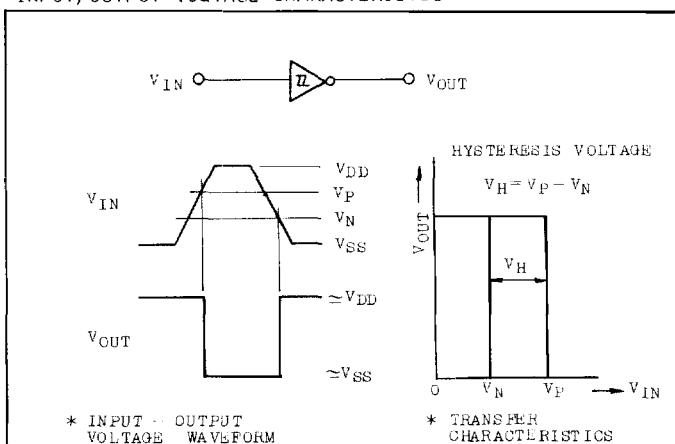
Since the pins are compatible with the TC4069UB, the substitution is also possible.



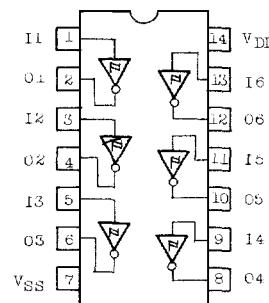
ABSOLUTE MAXIMUM RATINGS

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|-----------|----------------------------------|------|
| DC Supply Voltage | V_{DD} | $V_{SS} - 0.5 \sim V_{SS} + 20$ | V |
| Input Voltage | V_{IN} | $V_{SS} - 0.5 \sim V_{DD} + 0.5$ | V |
| Output Voltage | V_{OUT} | $V_{SS} - 0.5 \sim V_{DD} + 0.5$ | V |
| DC Input Current | I_{IN} | ± 10 | mA |
| Power Dissipation | P_D | 300(DIP)/180(MFP) | mW |
| Operating Temperature Range | T_A | -40 ~ 85 | °C |
| Storage Temperature Range | T_{stg} | -65 ~ 150 | °C |
| Lead Temp./Time | T_{sol} | 260°C • 10 sec | |

INPUT/OUTPUT VOLTAGE CHARACTERISTIC

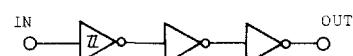


PIN ASSIGNMENT



(TOP VIEW)

LOGIC DIAGRAM



RECOMMENDED OPERATING CONDITIONS (V_{SS}=0V)

| CHARACTERISTIC | SYMBOL | | MIN. | TYP. | MAX. | UNITS |
|-------------------|-----------------|--|------|------|-----------------|-------|
| DC Supply Voltage | V _{DD} | | 3 | - | 18 | V |
| Input Voltage | V _{IN} | | 0 | - | V _{DD} | V |

STATIC ELECTRICAL CHARACTERISTICS (V_{SS}=0V)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | V _{DD} (V) | -40°C | | 25°C | | 85°C | | UNITS |
|------------------------------------|-----------------|--|------------------------|-------|------|-------|-------------------|------|-------|-------|
| | | | | MIN. | MAX. | MIN. | TYP. | MAX. | MIN. | |
| High-Level Output Voltage | V _{OH} | I _{OUT} < 1 μA | 5 | 4.95 | - | 4.95 | 5.00 | - | 4.95 | - |
| | | V _{IN} =V _{SS} , V _{DD} | 10 | 9.95 | - | 9.95 | 10.00 | - | 9.95 | - |
| | | | 15 | 14.95 | - | 14.95 | 15.00 | - | 14.95 | - |
| Low-Level Output Voltage | V _{OL} | I _{OUT} < 1 μA | 5 | - | 0.05 | - | 0.00 | 0.05 | - | 0.05 |
| | | V _{IN} =V _{SS} , V _{DD} | 10 | - | 0.05 | - | 0.00 | 0.05 | - | 0.05 |
| | | | 15 | - | 0.05 | - | 0.00 | 0.05 | - | 0.05 |
| Output High Current | I _{OH} | V _{OH} =4.6V | 5 | -0.61 | - | -0.51 | -1.0 | - | -0.42 | - |
| | | V _{OH} =2.5V | 5 | -2.5 | - | -2.1 | -4.0 | - | -1.7 | - |
| | | V _{OH} =9.5V | 10 | -1.5 | - | -1.3 | -2.2 | - | -1.1 | - |
| | | V _{OH} =13.5V | 15 | -4.0 | - | -3.4 | -9.0 | - | -2.8 | - |
| | | V _{IN} =V _{SS} , V _{DD} | | | | | | | | mA |
| Output Low Current | I _{OL} | V _{OL} =0.4V | 5 | 0.61 | - | 0.51 | 1.5 | - | 0.42 | - |
| | | V _{OL} =0.5V | 10 | 1.5 | - | 1.3 | 3.8 | - | 1.1 | - |
| | | V _{OL} =1.5V | 15 | 4.0 | - | 3.4 | 15.0 | - | 2.8 | - |
| | | V _{IN} =V _{SS} , V _{DD} | | | | | | | | |
| Positive Trigger Threshold Voltage | V _P | V _{OUT} =0.5V | 5 | 2.05 | 3.75 | 2.15 | 3.0 | 3.75 | 2.15 | 3.85 |
| | | V _{OUT} =1.0V | 10 | 4.8 | 7.6 | 4.9 | 6.4 | 7.6 | 4.9 | 7.7 |
| | | V _{OUT} =1.5V | 15 | 7.8 | 11.6 | 7.9 | 9.9 | 11.6 | 7.9 | 11.7 |
| Negative Trigger Threshold Voltage | V _N | V _{OUT} =4.5V | 5 | 1.25 | 2.95 | 1.25 | 2.3 | 2.85 | 1.15 | 2.85 |
| | | V _{OUT} =9.0V | 10 | 2.4 | 5.2 | 2.4 | 3.8 | 5.1 | 2.3 | 5.1 |
| | | V _{OUT} =13.5V | 15 | 3.4 | 7.2 | 3.4 | 5.2 | 7.1 | 3.3 | 7.1 |
| Hysteresis Voltage | V _H | | 5 | 0.10 | 1.25 | 0.25 | 0.65 | 1.25 | 0.25 | 1.40 |
| | | | 10 | 1.8 | 3.5 | 1.9 | 2.6 | 3.5 | 1.9 | 3.6 |
| | | | 15 | 3.7 | 5.6 | 3.8 | 4.7 | 5.6 | 3.8 | 5.7 |
| Input Current "H" Level | I _{IH} | V _{IH} =18V | 18 | - | 0.1 | - | 10 ⁻⁵ | 0.1 | - | 1.0 |
| | I _{IL} | V _{IL} =0V | 18 | - | -0.1 | - | -10 ⁻⁵ | -0.1 | - | -1.0 |
| Quiescent Device Current | I _{DD} | V _{IN} =V _{SS} , V _{DD} | 5 | - | 1 | - | 0.001 | 1 | - | 7.5 |
| | | * | 10 | - | 2 | - | 0.002 | 2 | - | 15 |
| | | * | 15 | - | 4 | - | 0.004 | 4 | - | 30 |

* All valid input combinations.

DYNAMIC ELECTRICAL CHARACTERISTICS (Ta=25°C, V_{SS}=0V, C_L=50pF)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | V _{DD} (V) | MIN. | TYP. | MAX. | UNITS |
|---|------------------|----------------|---------------------|------|------|------|-------|
| Output Transition Time (Low to High) | t _{TLH} | | 5 | - | 80 | 200 | ns |
| | | | 10 | - | 50 | 100 | |
| | | | 15 | - | 40 | 80 | |
| Output Transition Time (High to Low) | t _{THL} | | 5 | - | 80 | 200 | ns |
| | | | 10 | - | 50 | 100 | |
| | | | 15 | - | 40 | 80 | |
| Propagation Delay Time | t _{pLH} | | 5 | - | 170 | 340 | |
| | t _{pHL} | | 10 | - | 80 | 160 | |
| | | | 15 | - | 60 | 120 | |
| Input Capacitance | C _{IN} | | | - | 5 | 7.5 | pF |

CIRCUIT AND WAVEFORM FOR MEASUREMENT OF DYNAMIC CHARACTERISTICS

