

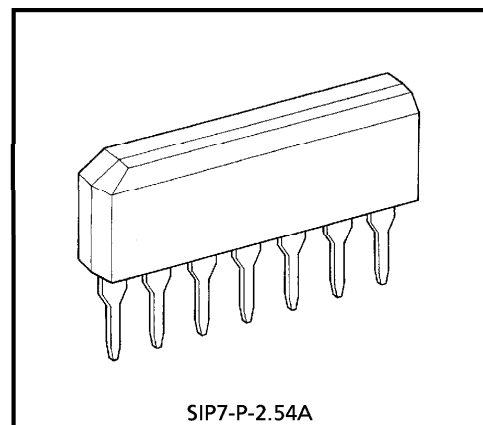
TA7523S

SINGLE COMPARATOR

TA7523S is comparator with wide range single or two supply voltage. Output is open collector and wired-OR possible.

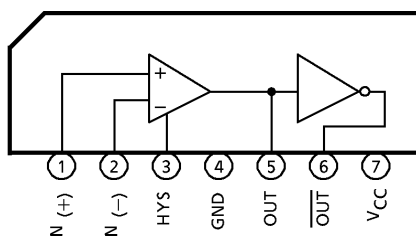
FEATURES

- Wide Common Mode Input Voltage : $0V \sim V_{CC} - 1.5V$
- Output is Compatible with TTL and CMOS.
- With Two Output Terminal (OUT, $\overline{\text{OUT}}$)
- Hysteresis Voltage Width is Variable by External Resistor.
- Wide Supply Voltage Range : $2V \sim 36V$ or $\pm 1V \sim \pm 18V$

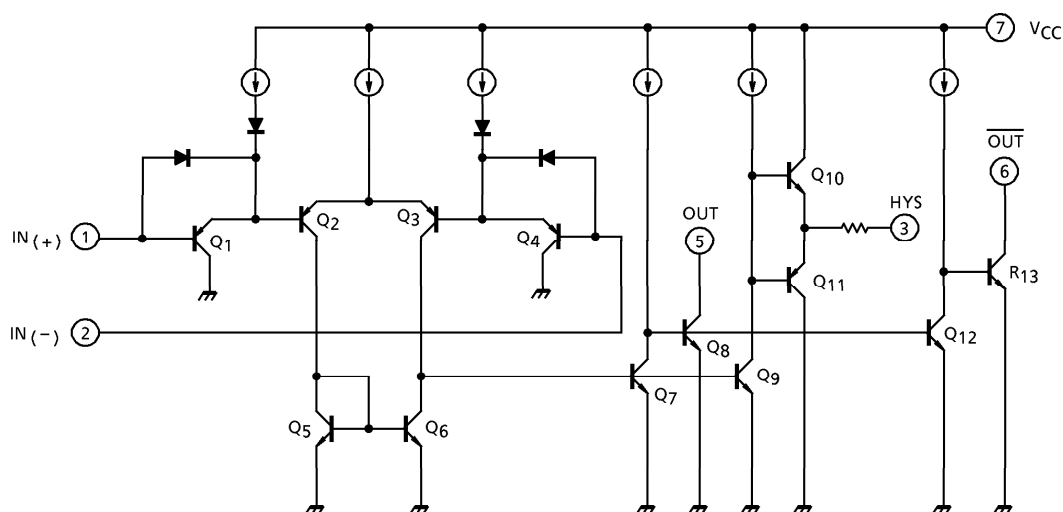


SIP7-P-2.54A
Weight : 0.7g (Typ.)

PIN CONNECTION



EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta = 25°C)

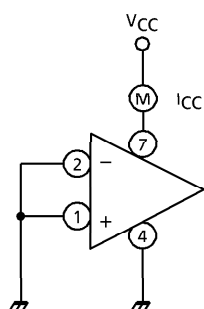
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	± 18 or 36	V
Differential Input Voltage	DV_{IN}	± 36	V
Common Mode Input Voltage	CMV_{IN}	$-0.3 \sim V_{CC}$	V
Power Dissipation	P_D	500	mW
Operating Temperature	T_{opr}	$-40 \sim 85$	°C
Storage Temperature	T_{stg}	$-55 \sim 125$	°C

ELECTRICAL CHARACTERISTICS ($V_{CC} = 5V$, $T_a = 25^\circ C$)

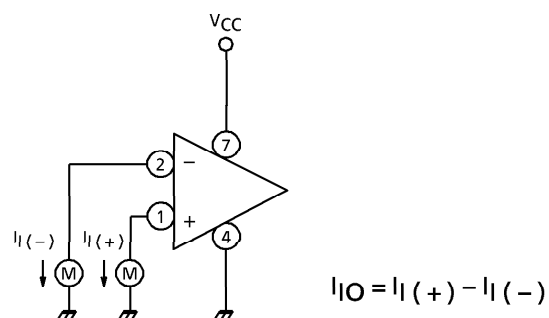
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	4	—	—	3	7	mV
Input Bias Current	I_I	2	—	—	25	250	nA
Input Offset Current	I_{IO}	2	—	—	5	50	nA
Common Mode Input Voltage	CMV_{IN}	4	—	0	—	$V_{CC} - 1.5$	V
Voltage Gain	G_V	—	$R_L = 15k\Omega$	—	200	—	V/mV
Supply Current	I_{CC}	1	No Load	—	0.5	3	mA
Sink Current	I_{SINK}	5	$IN(+) = 0V$, $IN(-) = 1V$, $V_{OL} = 1.5V$	6	16	—	mA
Output Voltage	V_{OL}	5	$IN(+) = 0V$, $IN(-) = 1V$, $I_{SINK} = 3mA$	—	0.2	0.4	V
Output Leak Current	I_{LEAK}	3	$IN(+) = 1V$, $IN(-) = 0V$, $V_O = 5V$	—	0.1	—	nA
Response Time	t_{rsp}	6	$R_L = 5.1k\Omega$, $C_L = 15pF$	—	1.3	—	μs

TEST CIRCUIT

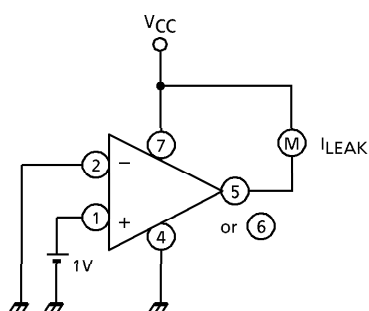
(1) I_{CC}



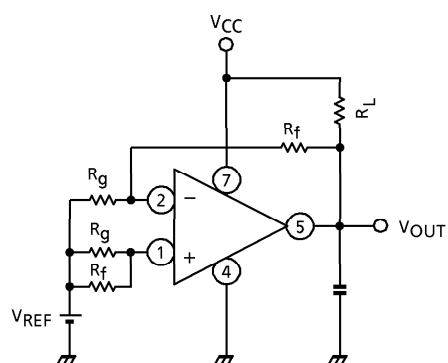
(2) I_I, I_{IO}



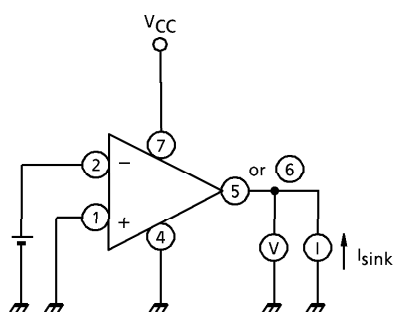
(3) I_{LEAK}



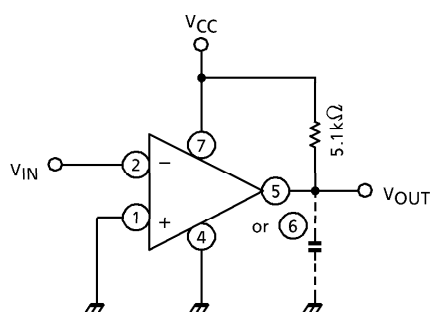
(4) V_{IO}, CMV_{IN}



(5) I_{sink}, V_{OL}

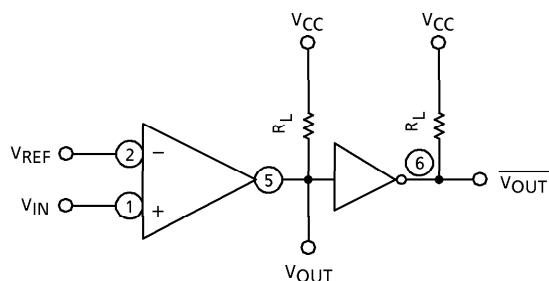


(6) t_{rsp}

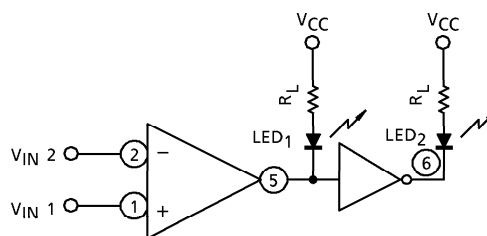


APPLICATION CIRCUIT

1. GENERAL COMPARATOR

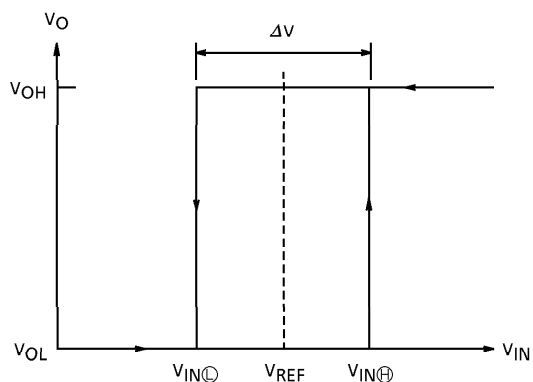
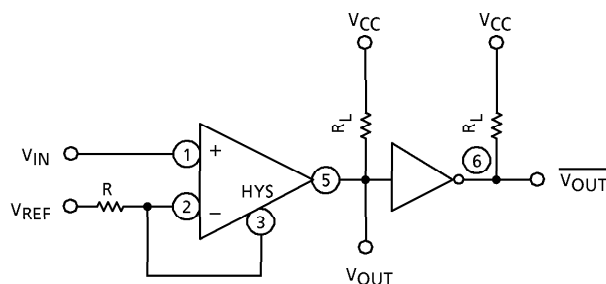


2. COMPARE WITH INPUT VOLTAGE



LED₂ IS LIGHTED AT $V_{IN\ 1} > V_{IN\ 2}$
LED₁ IS LIGHTED AT $V_{IN\ 1} < V_{IN\ 2}$

3. COMPARATOR WITH HYSTERESIS

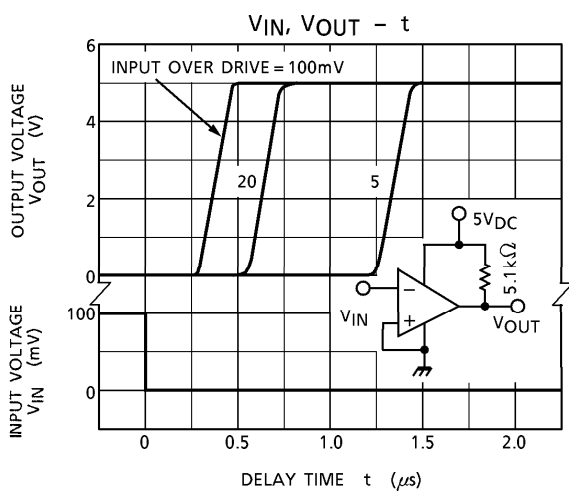
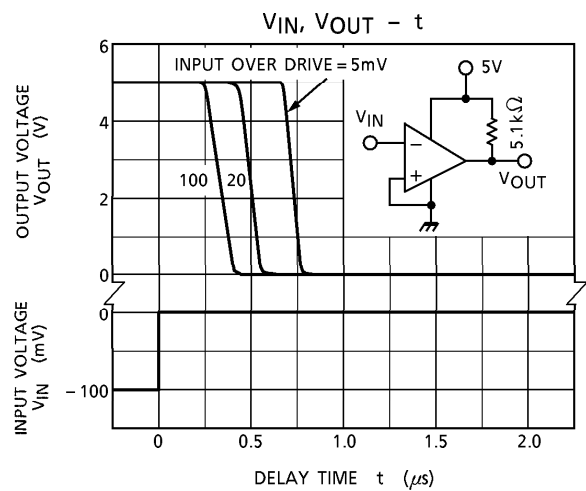
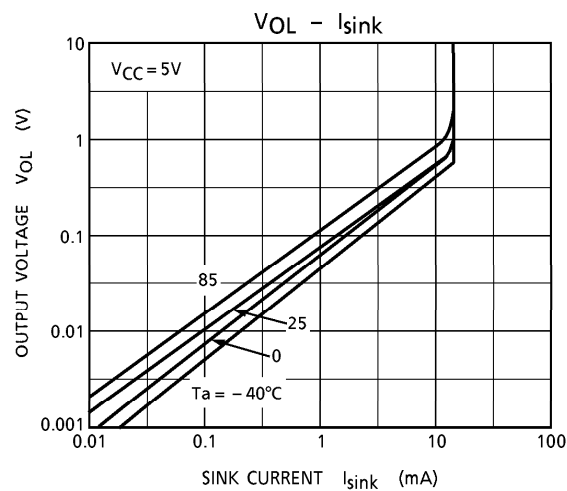
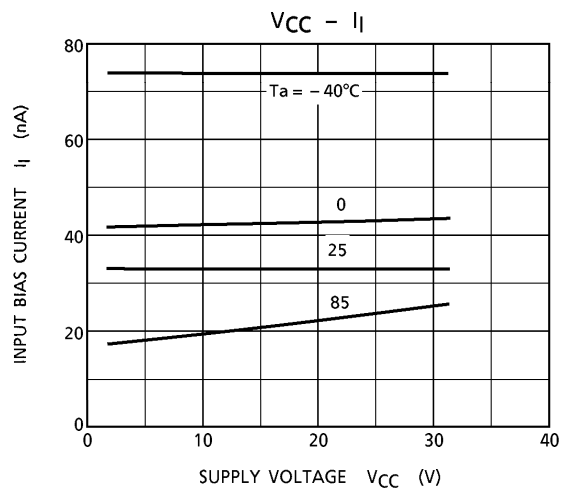
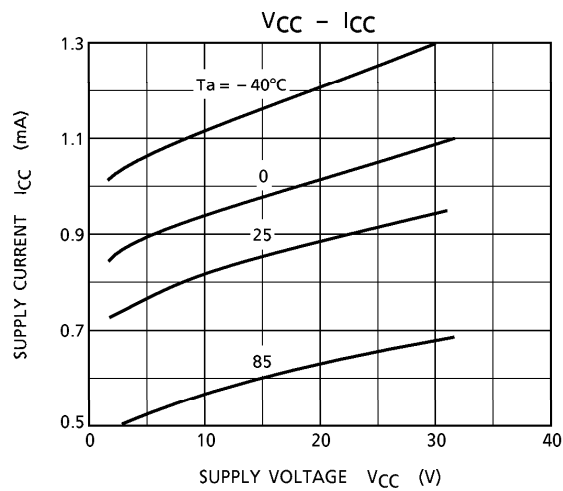


V_{OH} : OUTPUT VOLTAGE ("H" LEVEL)
V_{OL} : OUTPUT VOLTAGE ("L" LEVEL)
V_{IN(+)} : TURNOVER INPUT VOLTAGE ("H" LEVEL)
V_{IN(-)} : TURNOVER INPUT VOLTAGE ("L" LEVEL)
V_{REF} : REFERENCE VOLTAGE
ΔV : HYSTERESIS WIDTH

Calculate the Hysteresis width using the following equation

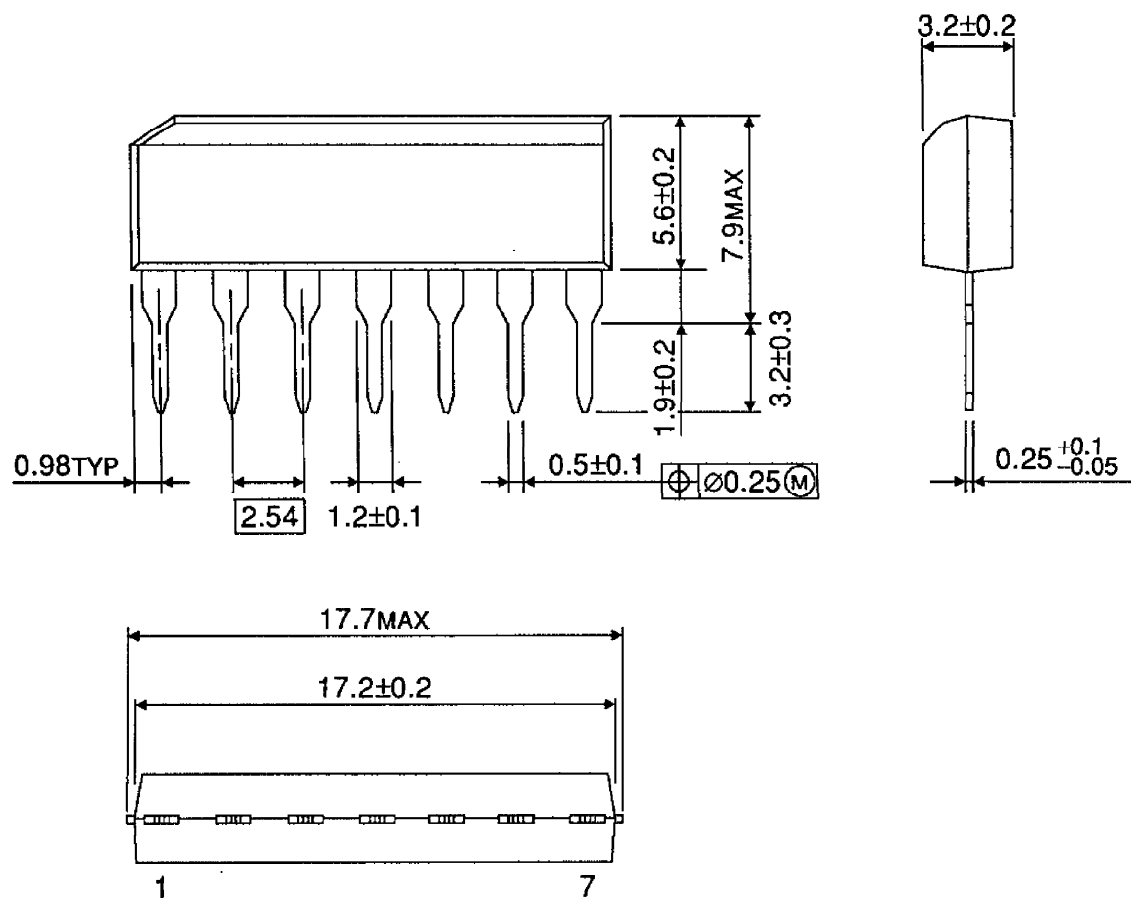
$$\Delta V \doteq (V_{CC} - 2) \frac{R}{R + 10} \quad V_{CC} (V) \quad R (k\Omega)$$

CHARACTERISTICS



PACKAGE DIMENSIONS
SIP7-P-2.54A

Unit : mm



Weight : 0.7g (Typ.)

RESTRICTIONS ON PRODUCT USE

000707EBA

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