

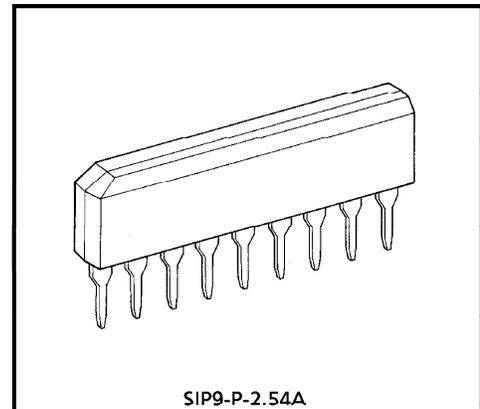
TA7522S

DUAL VOLTAGE COMPARATOR

The TA7522S is an easy-to-use small 9-pin single in-line package IC incorporating two voltage comparator circuits. Since one channel has an inverted-output buffer, a CR oscillator can be easily built up. In addition, the IC has so wide an operating temperature range that it can be used in wide application fields.

FEATURES

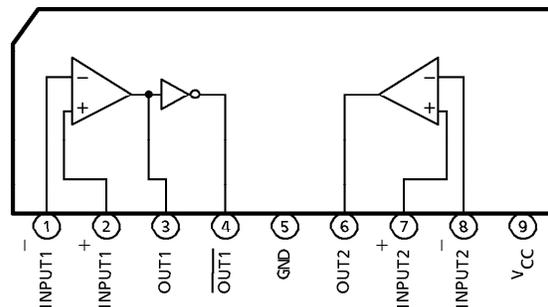
- Two-circuit package
- High gain
- Single 3V power supply for operation
- Inverted-output also available
- A 0V input causes action in the IC with a single power supply.
- Wide common-mode input range
- No latch-up
- Operating temperature range : from -40 to 85°C
- Open-collector output



SIP9-P-2.54A

Weight : 0.92g (Typ.)

BLOCK DIAGRAM AND PIN LAYOUT



961001EBA2

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The products described in this document are subject to foreign exchange and foreign trade control laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

PIN DESCRIPTION

PIN No.	SYMBOL	DESCRIPTION
1	INPUT1 ⁻	Inverted-input pin
2	INPUT1 ⁺	Non-inverted-input pin
3	OUT1	Output pin corresponding to INPUT1
4	OUT1	Output pin for inversion of OUT1
5	GND	Grounded
6	OUT2	Output pin corresponding to INPUT2
7	INPUT2 ⁺	Non-inverted-input pin
8	INPUT2 ⁻	Inverted-input pin
9	VCC	Power supply pin

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	VCC	- 0.3 to + 18	V
Supply Voltage Surge	VCC SURGE	+ 30 (within 1 second)	V
Power Dissipation	PD	500	mW
Differential Input Voltage	DVIN	± 18	V
Input Voltage	VIN	- 0.3 to + 18	V
Output Current	ISINK	30	mA
Operating Temperature	Topr	- 40 to + 85	°C
Storage Temperature	Tstg	- 55 to + 150	°C

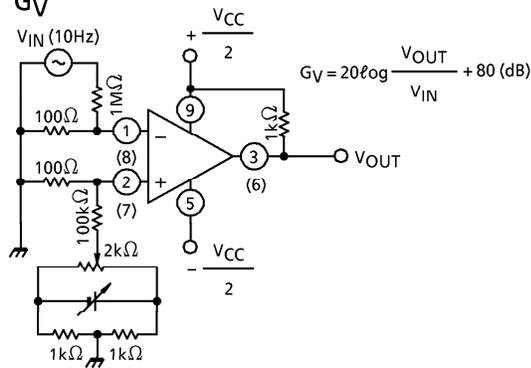
ELECTRICAL CHARACTERISTICS (Ta = - 40 to +85°C)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	(Note) TYP.	MAX.	UNIT
Voltage Gain	G _V	1	V _{CC} = 6V, R _L = 1kΩ f = 10Hz, test circuit 1	60	95	—	dB
Input Offset Voltage	V _{IO}	2	V _{CC} = 6V, R _L = 1kΩ CMV _{IN} = 3V, test circuit 2	—	2	10	mV
Input Bias Current	I _I	3	V _{CC} = 6V, CMV _{IN} = 3V test circuit 3	—	-0.2	-2	μA
Input Offset Current	I _{IO}	3	Same as above	—	0.02	0.3	μA
Common-mode Input Voltage	CMV _{IL}	4	V _{CC} = 6.5V, R _L = 1kΩ V _{IO} = 20mV, test circuit 4	—	-0.5	0	V
	CMV _{IH}		Same as above	5.0	5.3	—	V
Zero Output Voltage	V _{OL}	OUT1 OUT2	V _{CC} = 5.5V, V _{IN} = 0.1V I _{OL} = 10mA, test circuit 5	—	0.18	0.4	V
		$\overline{\text{OUT1}}$	V _{CC} = 5.5V, V _{IN} = 0.1V, I _{OL} = 15mA, V _{OL} (out1) ≥ 2V, test circuit 5	—	0.25	0.4	V
Output Leakage Current	I _{LEAK}	$\frac{\text{OUT1}}{\text{OUT1}}$ OUT2	V _{CC} = 6V, V _{OUT} = 30V test circuit 6	—	—	10	μA
		OUT1	V _{CC} = 6V, V _{OUT} = 0.4V test circuit 6	—	-1.5	-10	μA
Current Consumption	I _{CC}	7	V _{CC} = 6.5V, R _L = ∞ test circuit 7	—	3	7	mA

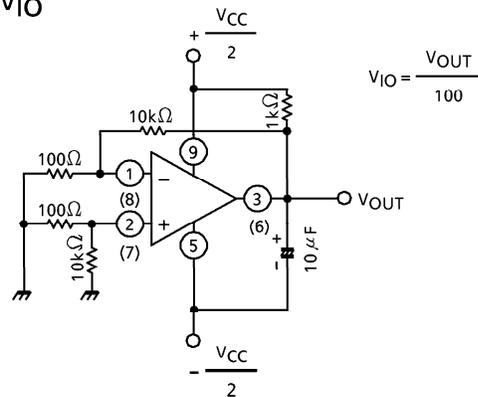
Note : An ambient temperature of 25°C is assumed for the typical values.

TEST CIRCUIT

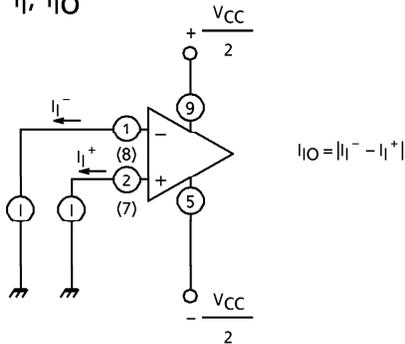
1. G_V



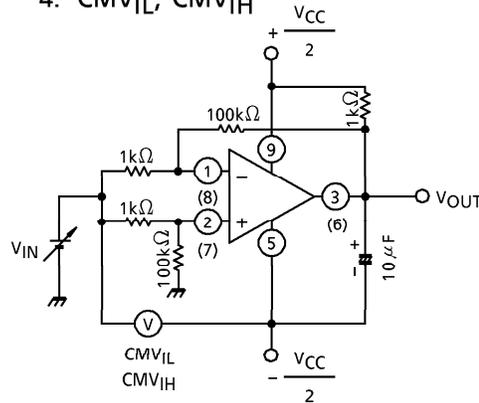
2. V_{IO}



3. I_I, I_{IO}



4. CMV_{IL}, CMV_{IH}

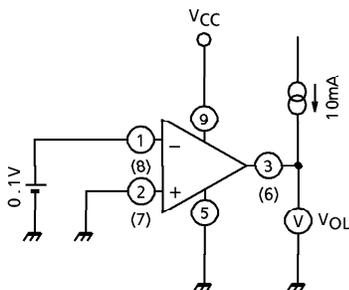


CMV_{IL} : Input voltage relative to pin 5 as it is obtained when V_{IN} is decreased until output V_{OUT} becomes $\pm 2V$.

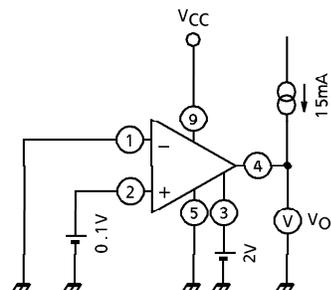
CMV_{IH} : Input voltage relative to pin 5 as it is obtained when V_{IN} is increased until output V_{OUT} becomes $\pm 2V$.

5. V_{OL}

5.1 OUT1, OUT2

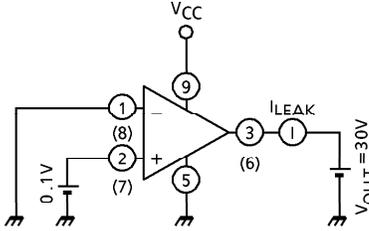


5.2 $\overline{OUT1}$

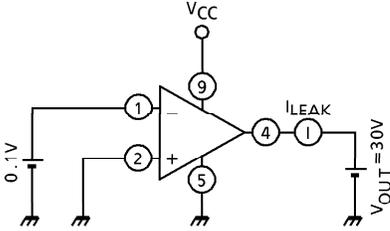


6. I_{LEAK}

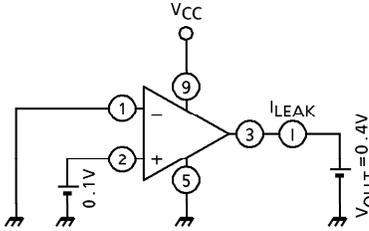
6.1 OUT1, OUT2



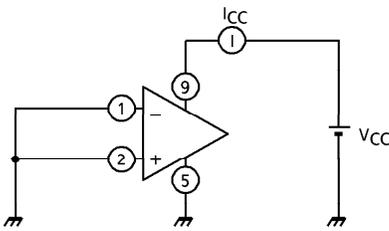
6.2 $\overline{\text{OUT1}}$



6.3 OUT1

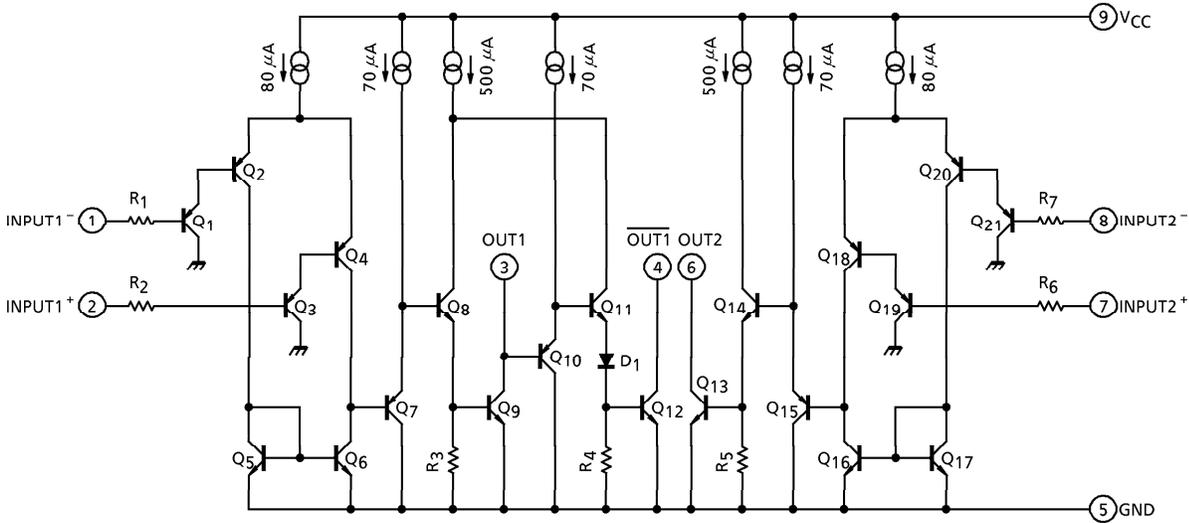


7. I_{CC}



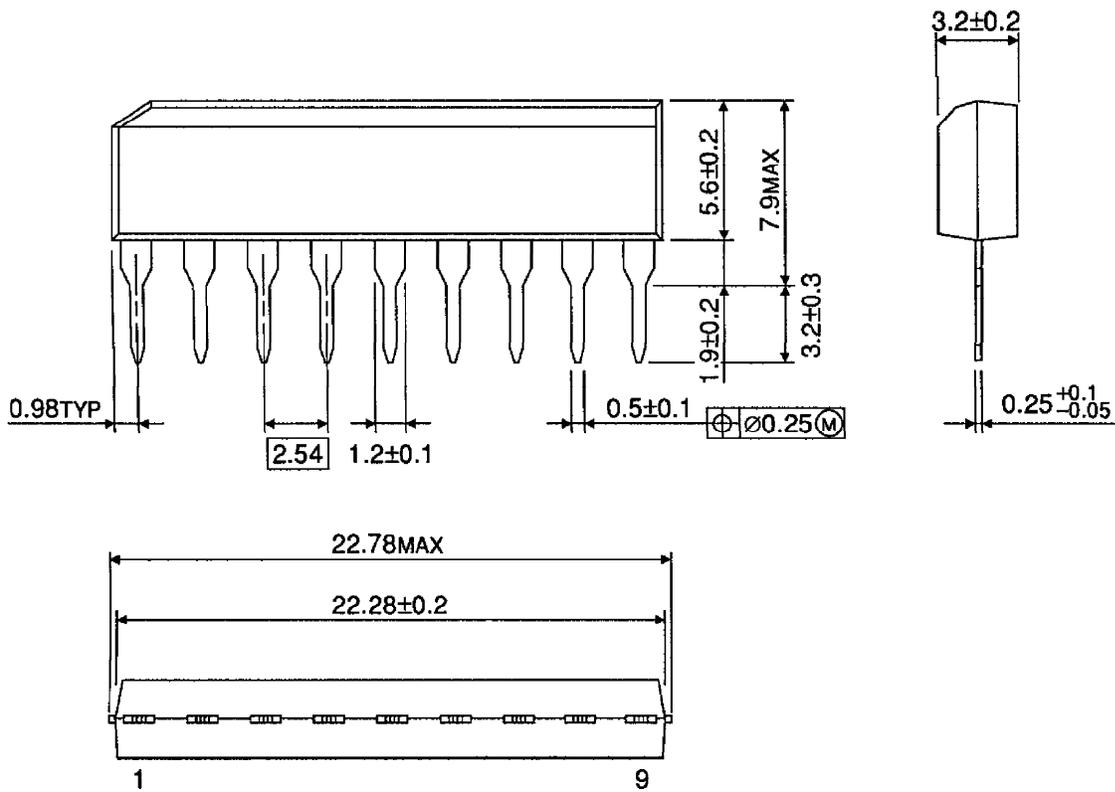
All inputs are grounded.

EQUIVALENT CIRCUIT



OUTLINE DRAWING
SIP9-P-2.54A

Unit : mm



Weight : 0.92g (Typ.)