

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

**TA75393AP, TA75393AS****DUAL COMPARATOR**

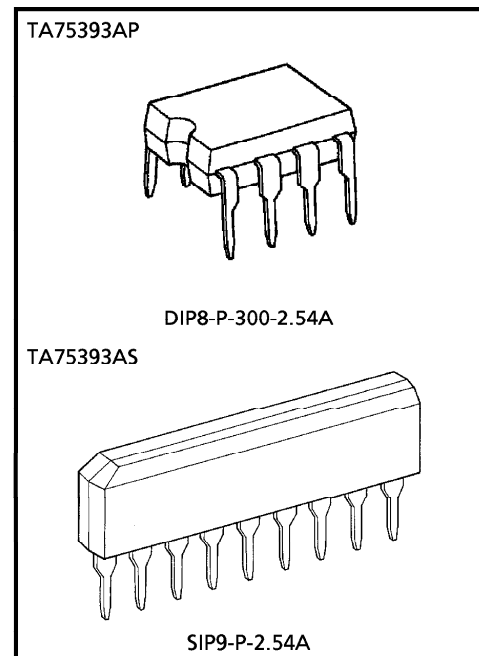
The TA75393AP series consist of two independent voltage comparators with an output sink current specification as low as 60mA Min for all two comparators.

These were designed to operate from a single power supply over a wide range of voltage. Normal operation from dual supplies is also to be guaranteed on voltage range from 2V to 36V.  $V_{CC}$  is necessary at least more 1.5 volts than the input common mode voltage.

The output can be connected to other open collector outputs to achieve Wired-OR relationship and it can drive relays or lamps.

**FEATURES**

- Single Supply Voltage Range or Dual Supplies  
: 2V~36V or  $\pm 1V \sim \pm 18V$
- Low Input Offset Voltage :  $\pm 2mV$  (Typ.)
- Wide Input Common Mode Voltage Range  
: 0V~ $V_{CC} - 1.5V$
- Output Compatible with TTL, DTL, MOS and CMOS Logic System.
- The Output Can be Connected to Achieve Wired-OR Relation.
- Output Sink Current : 100mA (Typ.)



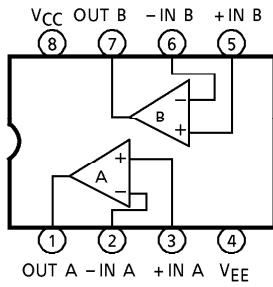
Weight  
 DIP8-P-300-2.54A : 0.5g (Typ.)  
 SIP9-P-2.54A : 0.9g (Typ.)

961001EBA1

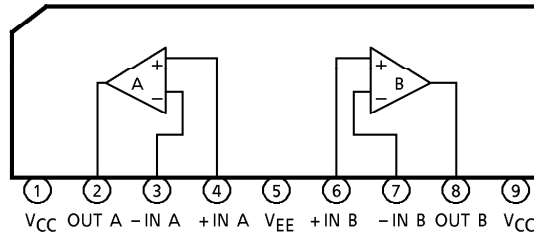
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**PIN CONNECTION (TOP VIEW)**

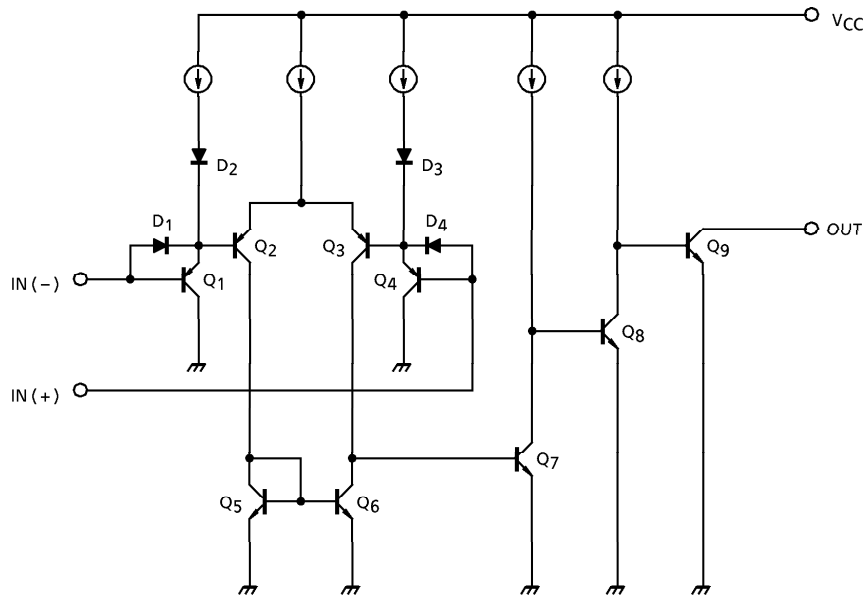
TA75393AP



TA75393AS



**EQUIVALENT CIRCUIT**



## MAXIMUM RATINGS (Ta = 25°C)

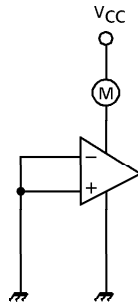
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub>	± 18 OR 36	V
Differential Input Voltage	DV <sub>IN</sub>	± 36	V
Common Mode Input Voltage	CMV <sub>IN</sub>	- 0.3~V <sub>CC</sub>	V
Power Dissipation	P <sub>D</sub>	500	mW
Operating Temperature	T <sub>opr</sub>	- 40~85	°C
Storage Temperature	T <sub>stg</sub>	- 55~125	°C

ELECTRICAL CHARACTERISTICS (V<sub>CC</sub> = 5V, Ta = 25°C)

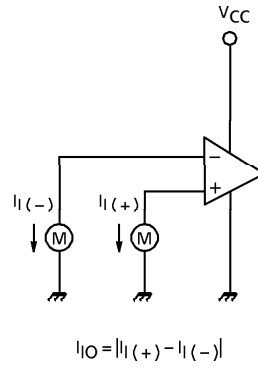
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V <sub>IO</sub>	4	—	—	2	7	mV
Input Bias Current	I <sub>I</sub>	2	—	—	25	250	nA
Input Offset Current	I <sub>IO</sub>	2	—	—	5	50	nA
Common Mode Input Voltage	CMV <sub>IN</sub>	4	—	0	—	V <sub>CC</sub> - 1.5	V
Voltage Gain	G <sub>V</sub>	—	R <sub>L</sub> = 15kΩ	—	200	—	V/mV
Supply Current	I <sub>CC</sub>	1	No load	—	5.5	8.0	mA
Sink Current	I <sub>SINK</sub>	5	IN (+) = 0V, IN (-) = 1V V <sub>OL</sub> = 1.5V	65	100	—	mA
Output Voltage ("L" Level)	V <sub>OL</sub>	5	IN (+) = 0V, IN (-) = 1V I <sub>SINK</sub> = 60mA	—	0.2	0.4	V
Output Leak Current	I <sub>LEAK</sub>	3	IN (+) = 1V, IN (-) = 0V V <sub>O</sub> = 5V	—	0.1	—	nA
Response Time	t <sub>rsp</sub>	6	R <sub>L</sub> = 5.1kΩ, C <sub>L</sub> = 15pF	—	1.3	—	μs

**TEST CIRCUIT**

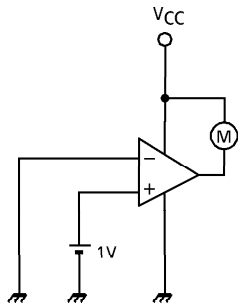
(1)  $I_{CC}$



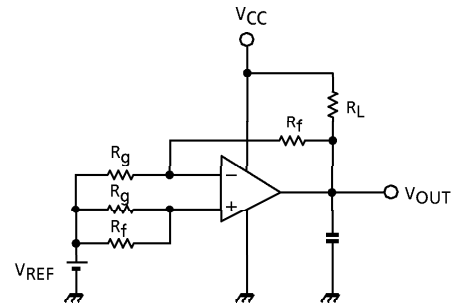
(2)  $I_{IO}$



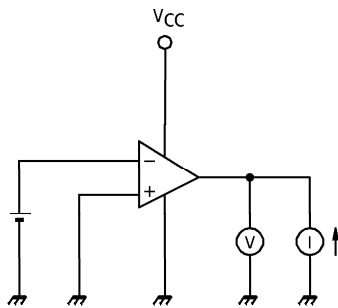
(3)  $I_{LEAK}$



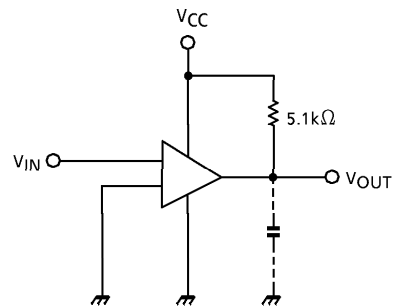
(4)  $V_{IO}, CMV_{IN}$



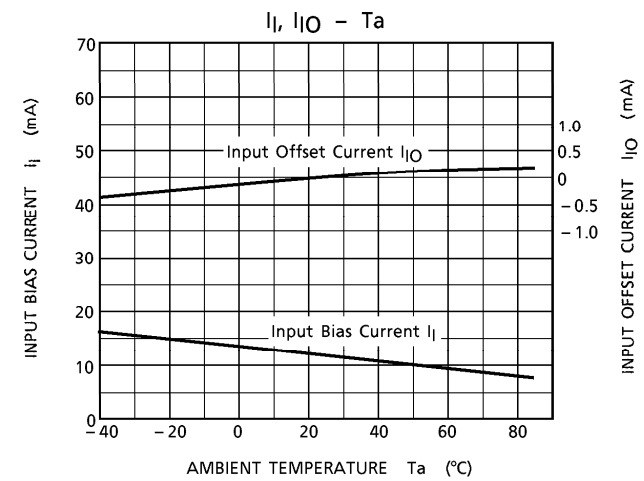
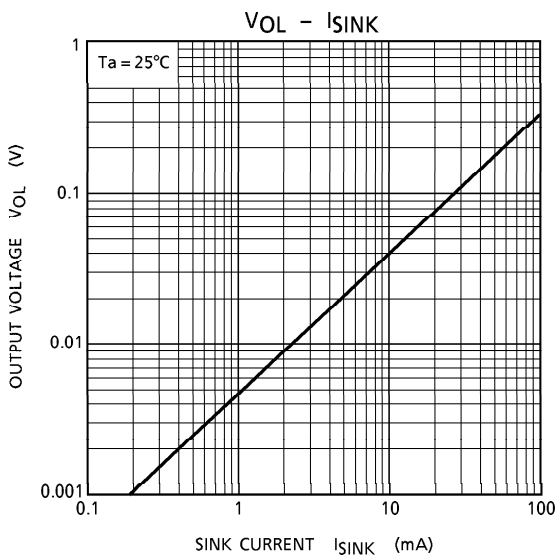
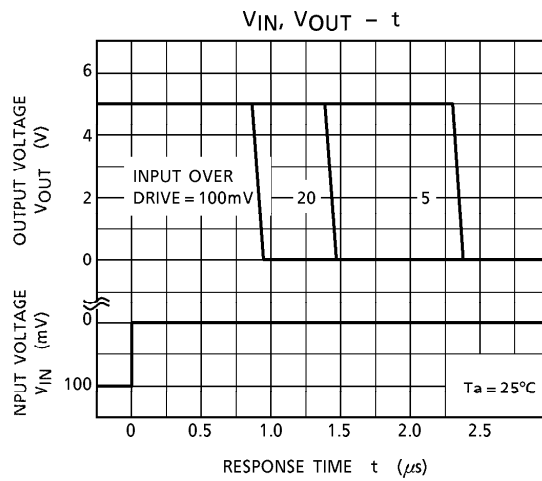
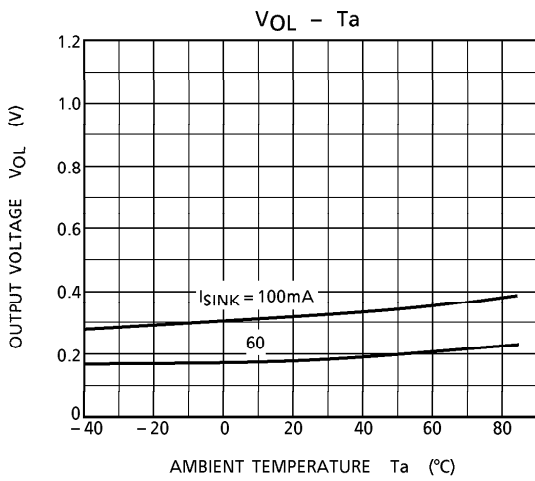
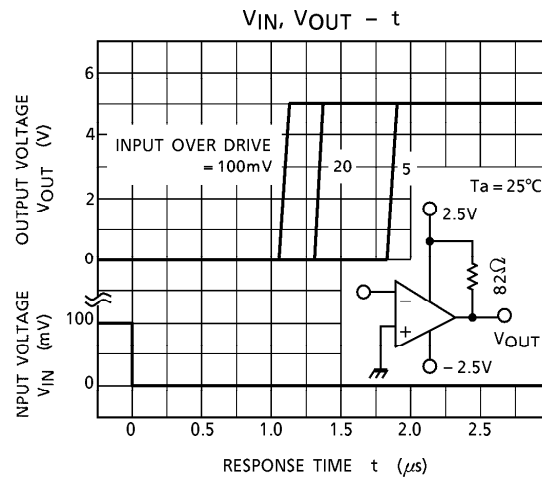
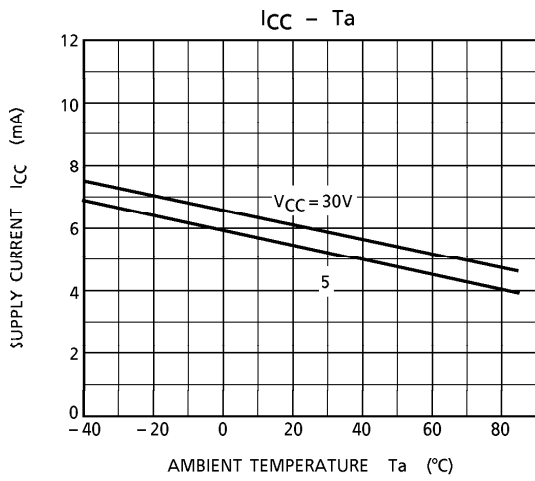
(5)  $I_{SINK}, V_{OL}$



(6)  $t_{rsp}$

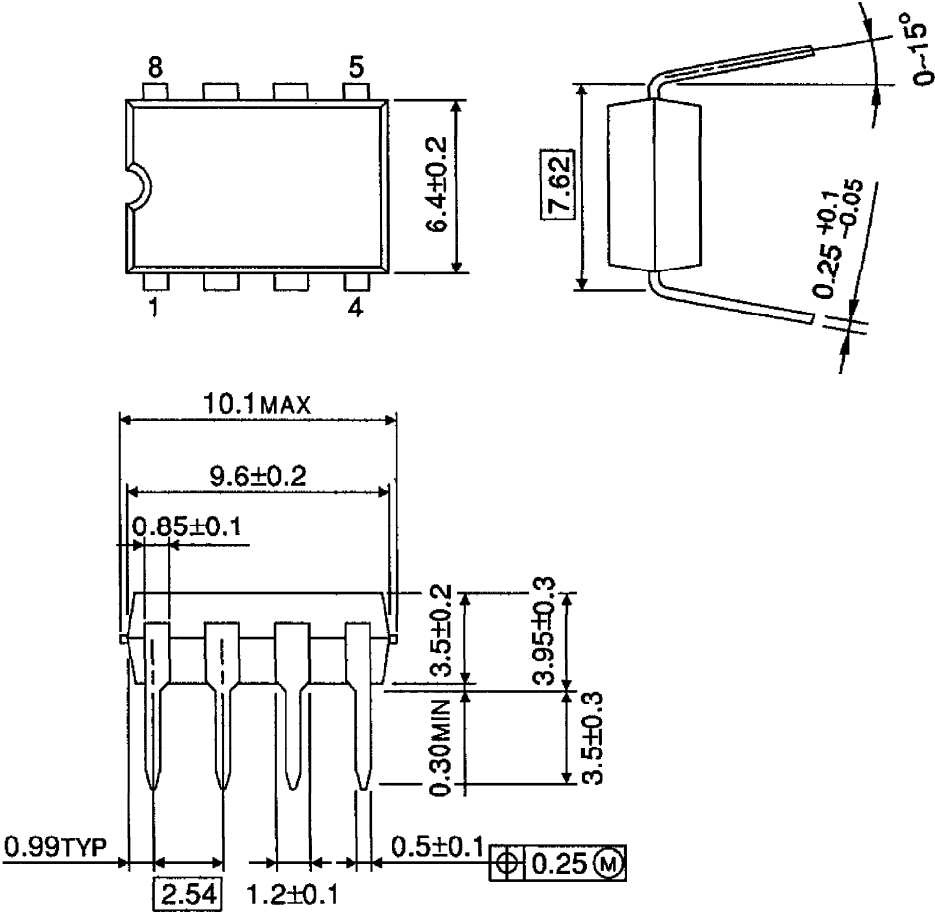


CHARACTERISTICS



OUTLINE DRAWING  
DIP8-P-300-2.54A

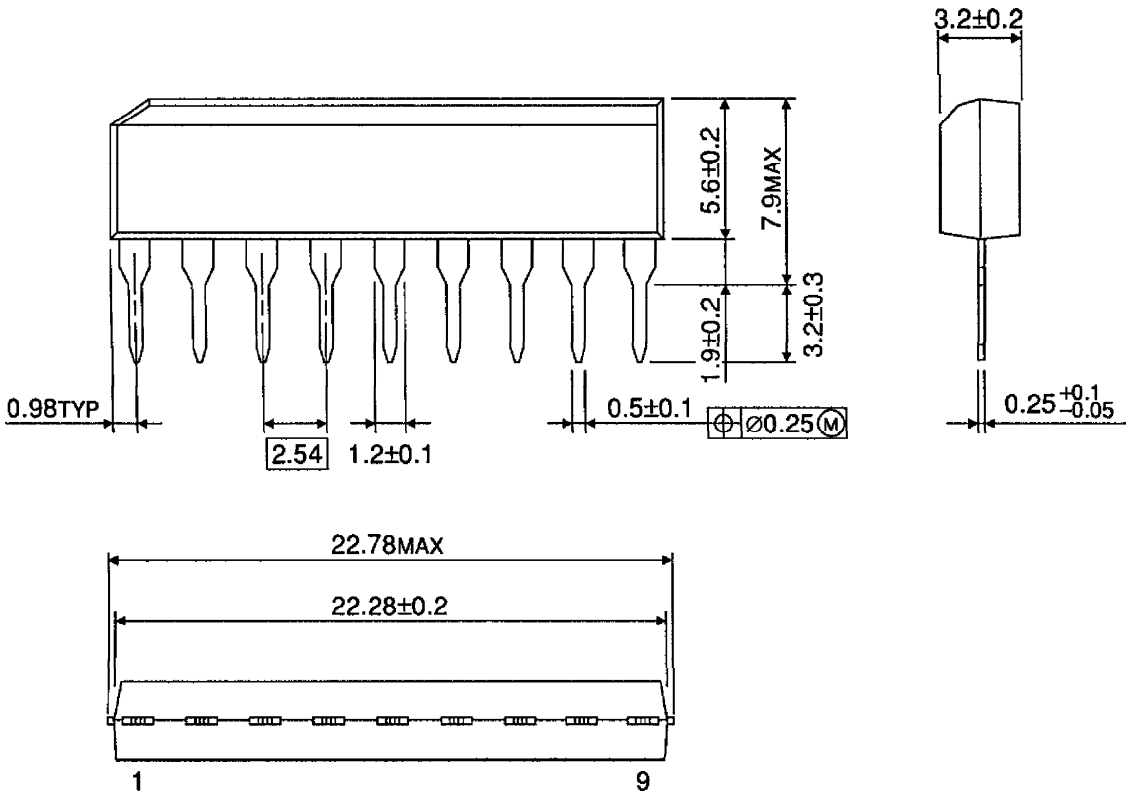
Unit : mm



Weight : 0.5g (Typ.)

OUTLINE DRAWING  
SIP9-P-2.54A

Unit : mm



Weight : 0.9g (Typ.)