

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

# TA75S393F

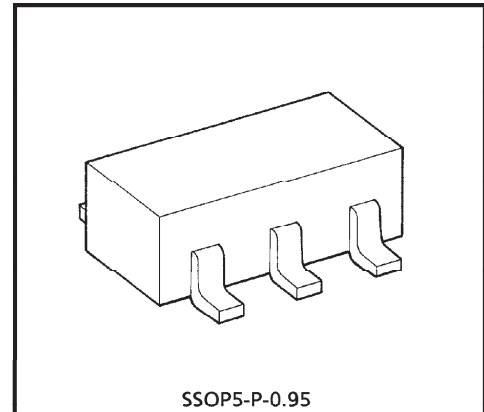
## SINGLE VOLTAGE COMPARATOR

This device of voltage comparator that 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  $\pm 1V$  to  $\pm 18V$ .

$V_{CC}$  is necessary at least more 1.5V volts than the input common mode voltage.

The output can be connected to other open collector outputs to achieve Wired-OR relation ship.



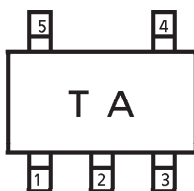
SSOP5-P-0.95

Weight : 0.014g (Typ.)

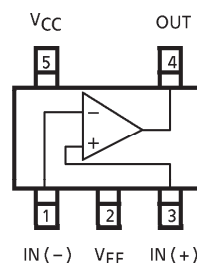
### FEATURES

- Compatible to TA75393.
- Small Package
- Single supply voltage range or dual supplies :  $2V_{DC}$  to  $36V_{DC}$  or  $\pm 1V_{DC}$  to  $\pm 18V_{DC}$
- Low supply current : 0.4mA (Typ.)
- Low input offset voltage :  $\pm 2mV$  (Typ.)
- Wide input common mode voltage range :  $0V_{DC}$  to  $V_{CC} - 1.5V_{DC}$
- Output compatible with TTL, DTL, MOS and CMOS logic system.
- The output can be connected to achieve Wired-OR relation.

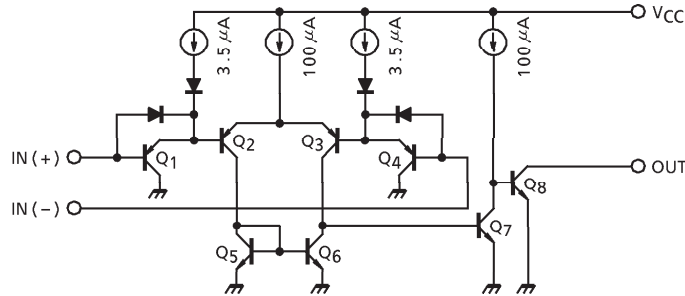
### MARKING (TOP VIEW)



### PIN CONNECTION (TOP VIEW)



EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta = 25°C)

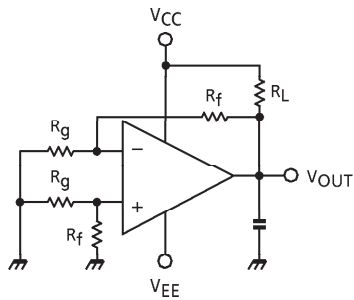
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC}, V_{EE}$	$\pm 18$ or 36	V
Differential Input Voltage	$DV_{IN}$	$\pm 36$	V
Input Voltage	$V_{IN}$	$-0.3 \sim V_{CC}$	V
Power Dissipation	$P_D$	200	mW
Operating Temperature	$T_{opr}$	$-40 \sim 85$	°C
Storage Temperature	$T_{stg}$	$-55 \sim 125$	°C

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

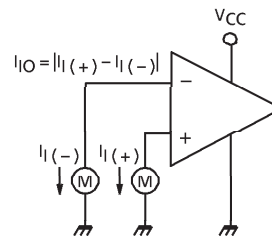
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	$V_{IO}$	1	—	—	2	5	mV
Input Offset Current	$I_{IO}$	2	—	—	5	50	nA
Input Bias Current	$I_I$	2	—	—	25	250	nA
Common Mode Input Voltage	$CMV_{IN}$	—	—	0	—	$V_{CC} - 1.5$	V
Supply Current	$I_{CC}$	3	No load	—	0.4	0.8	mA
Voltage Gain	$G_V$	—	$R_L = 15k\Omega$	—	200	—	V/mV
Sink Current	$I_{sink}$	4	$IN(+) = 0V, IN(-) = 1V$ $V_{OL} = 1.5V$	6	16	—	mA
Output Voltage ("L" Level)	$V_{OL}$	5	$IN(+) = 0V, IN(-) = 1V$ $I_{sink} = 3mA$	—	0.2	0.4	V
Output Leak Current	$I_{LEAK}$	—	$IN(+) = 1V, IN(-) = 0V$ $V_O = 5V$	—	0.1	—	nA
Response Time	$t_{rsp}$	6	$R_L = 5.1k\Omega, C_L = 15pF$	—	1.3	—	$\mu s$

TEST CIRCUIT

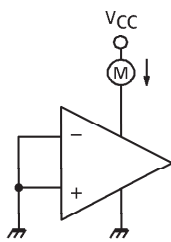
(1)  $V_{IO}$



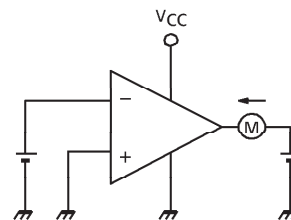
(2)  $I_I, I_{IO}$



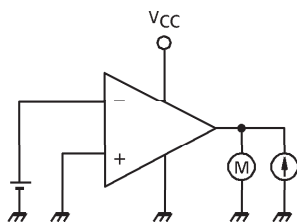
(3)  $I_{CC}$



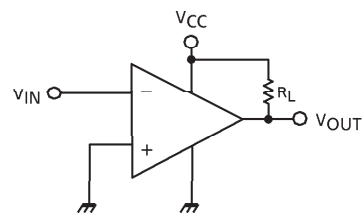
(4)  $I_{sink}$

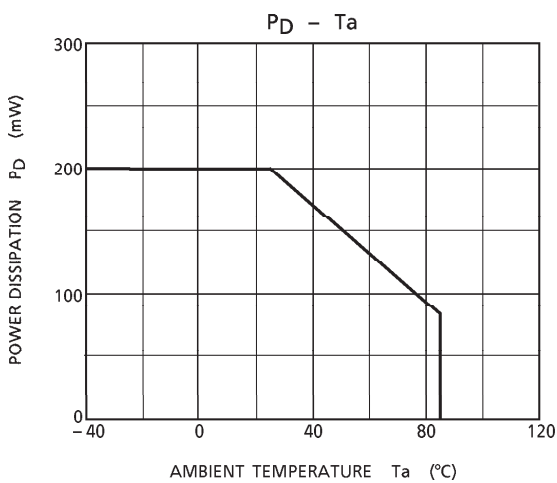
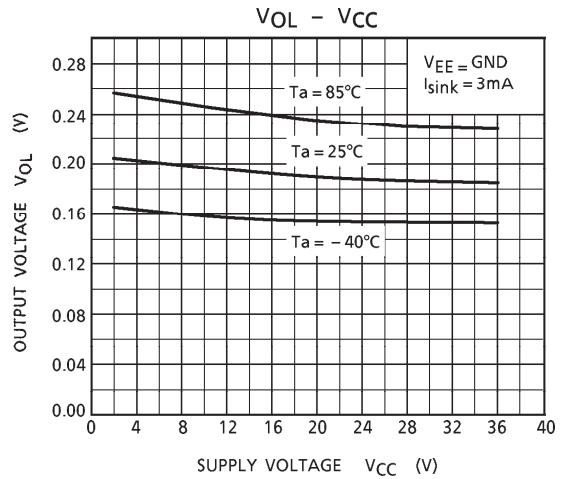
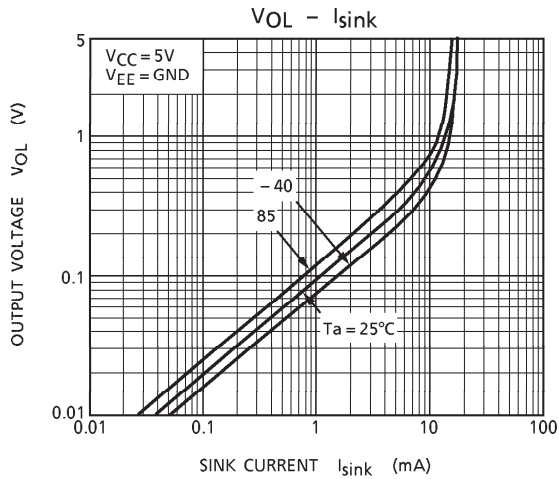
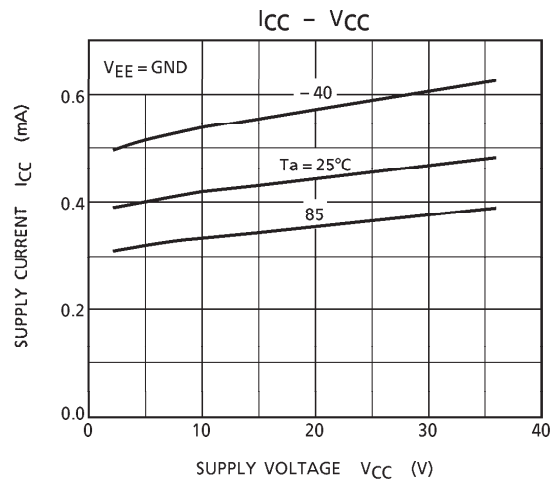
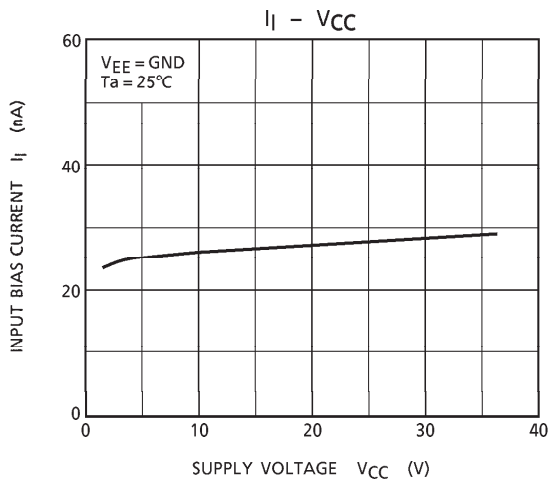


(5)  $V_{OL}$



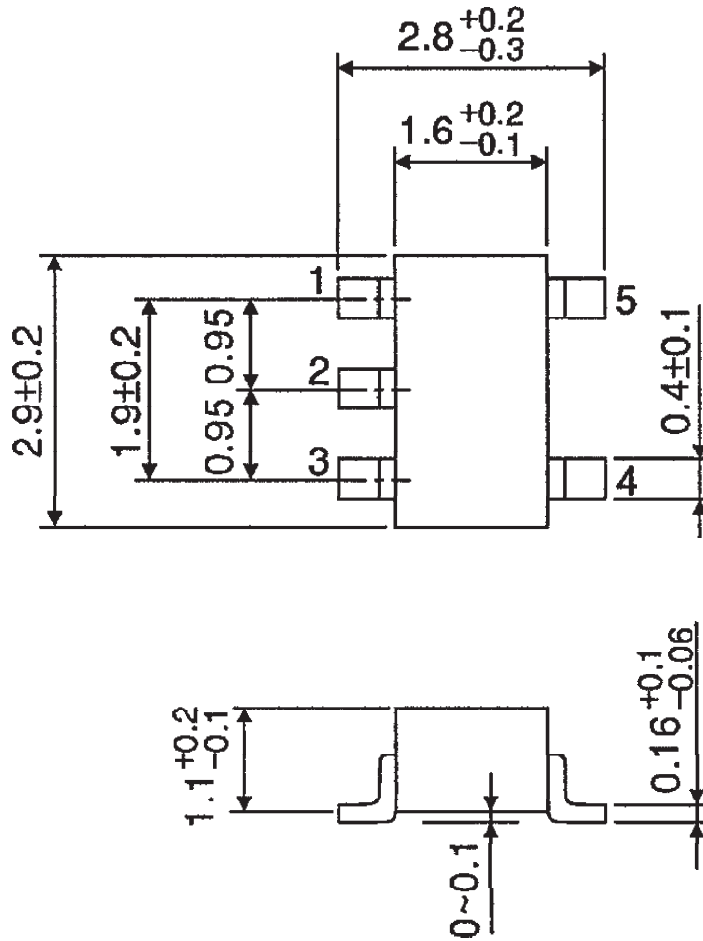
(6)  $t_{rsp}$





OUTLINE DRAWING  
SSOP5-P-0.95

Unit : mm



Weight : 0.014g (Typ.)

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