

TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

# TA75W393FU

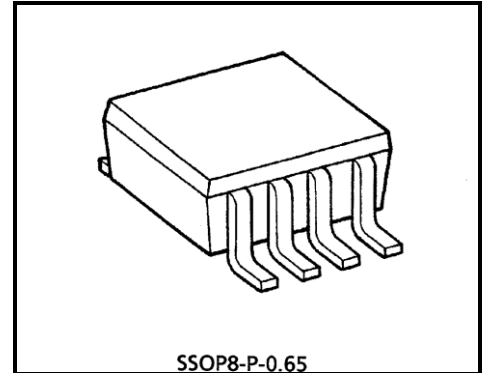
## Dual Voltage Comparator

This device consist of two independent voltage comparators 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  $\pm 18V$ .

VCC 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.

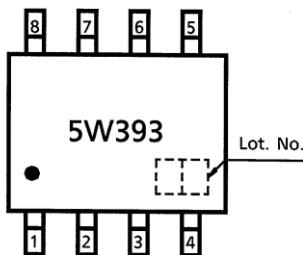


SSOP8-P-0.65  
Weight: 0.021g (typ.)

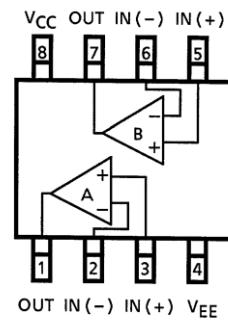
### Features

- Compatible to TA75393F.
- Single supply voltage range or dual supplies : 2VDC to 36VDC or  $\pm 1VDC$  to  $\pm 18VDC$
- Low supply current : 0.8mA (typ.)
- Low input offset voltage :  $\pm 2mV$  (typ.)
- Wide input common mode voltage range : 0VDC to  $VCC - 1.5VDC$
- Output compatible with TTL, DTL, MOS and CMOS logic system.
- The output can be connected to achieve Wired-OR relation..

### Marking (Top View)

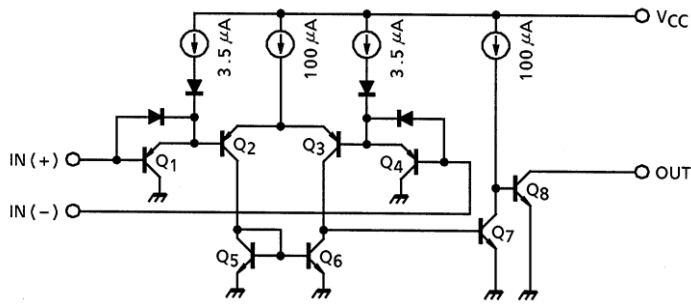


### Pin Connection (Top View)



Start of commercial production  
1991-08

## Equivalent Circuit



## Absolute 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 to $V_{CC}$	V
Power dissipation	$P_D$	250	mW
Operating temperature	$T_{opr}$	-40 to 85	°C
Storage temperature	$T_{stg}$	-55 to 125	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings and the operating ranges.

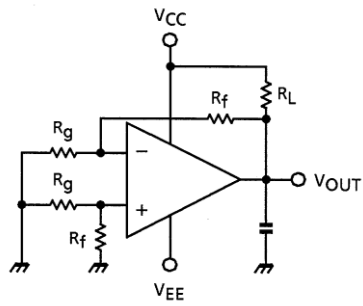
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

## Electrical Characteristics ( $V_{CC} = 5V, V_{EE} = GND, Ta = 25^\circ C$ )

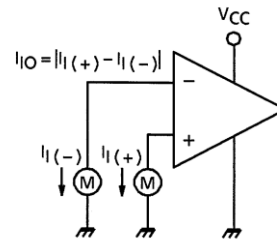
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	$V_{IO}$	1	—	—	2	5	mV
Input bias current	$I_I$	2	—	—	25	250	nA
Input offset current	$I_{IO}$	2	—	—	5	50	nA
Common mode input voltage	$CMV_{IN}$	—	—	0	—	$V_{CC}-1.5$	V
Supply current	$I_{CC}$	3	No load	—	0.8	2	mA
Voltage gain	$G_V$	—	$R_L = 15k\Omega$	—	200	—	V/mV
Sink current	$I_{sink}$	4	IN (+) = $0V_{DC}$ , IN (-) = $1V_{DC}$ $V_{OL} = 1.5V$	6	16	—	nA
Output Voltage ("L" Level)	$V_{OL}$	5	IN (+) = $0V_{DC}$ , IN (-) = $1V_{DC}$ $I_{sink} = 3mA$	—	0.2	0.4	V
Output Leak Current	$I_{LEAK}$	—	IN (+) = $1V_{DC}$ , IN (-) = $0V_{DC}$ $V_O = 5V_{DC}$	—	0.1	—	nA
Response Time	$t_{rsp}$	6	$R_L = 5.1k\Omega, C_L = 15pF$	—	1.3	—	$\mu s$

**Test Circuit**

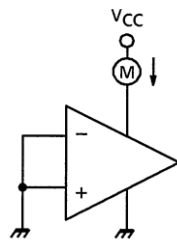
**(1)  $V_{IO}$**



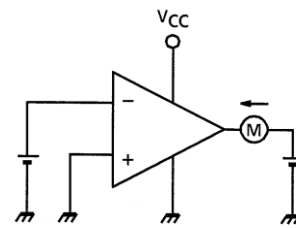
**(2)  $I_I, I_{IO}$**



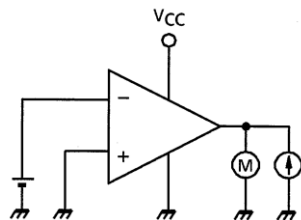
**(3)  $I_{CC}$**



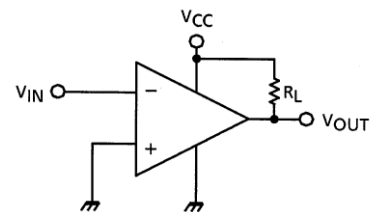
**(4)  $I_{sink}$**

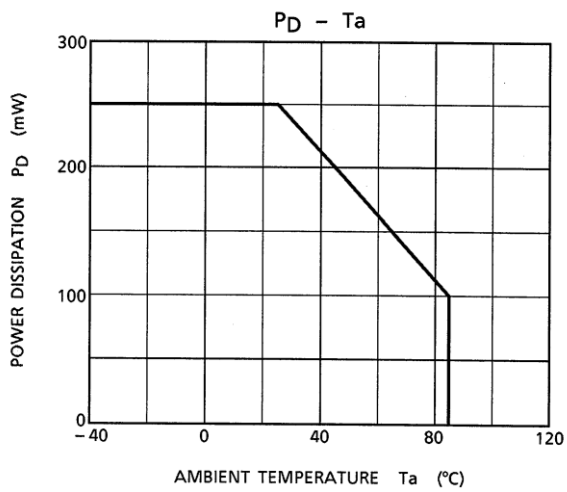
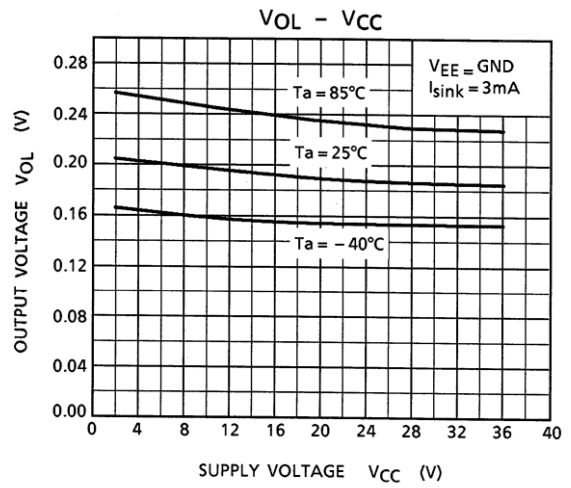
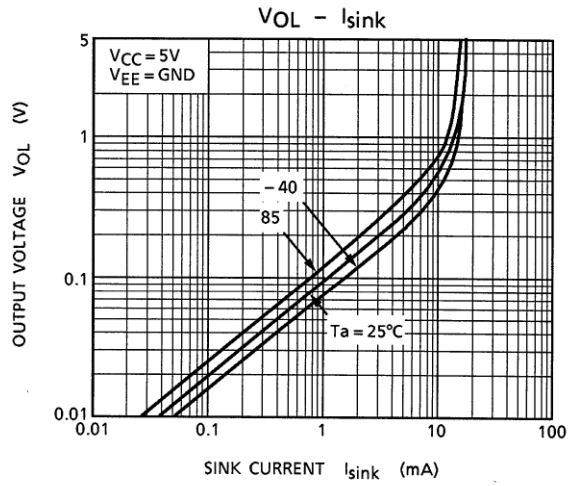
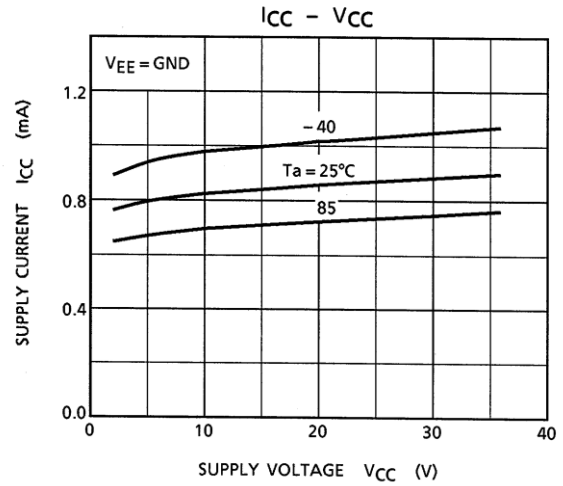
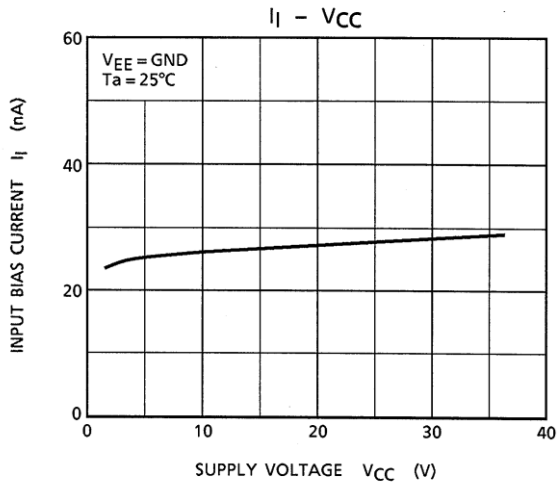


**(5)  $V_{OL}$**



**(6)  $t_{rsp}$**

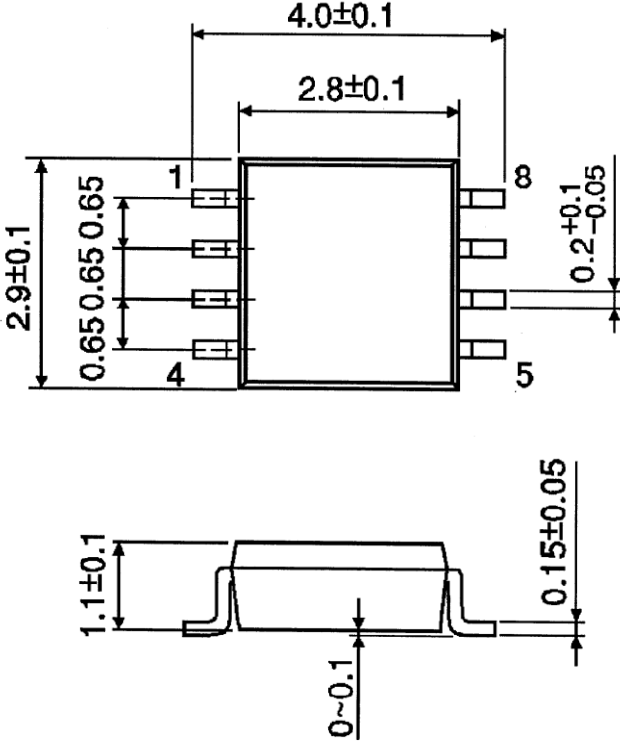




**Package Dimensions**

SSOP8-P-0.65

Unit: mm



Weight: 0.021g (typ.)

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