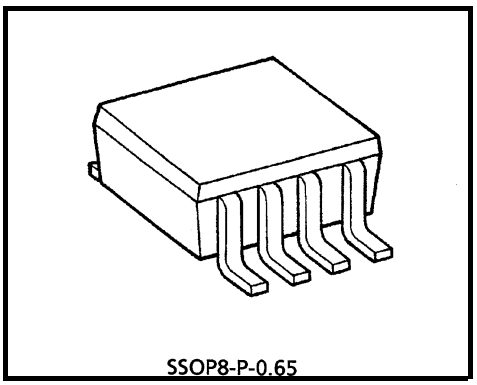
TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

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 ± 1V to ± 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.

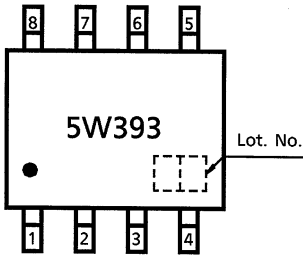


Weight: 0.021g (typ.)

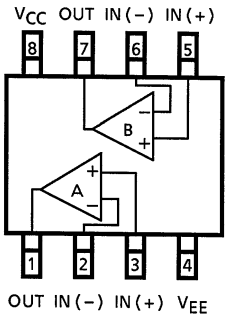
Features

- Compatible to TA75393F.
- Single supply voltage range or dual supplies : $2V_{DC}$ to $36V_{DC}$ or ± $1V_{DC}$ to ± $18V_{DC}$
- Low supply current : 0.8mA (typ.)
- Low input offset voltage : ±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..

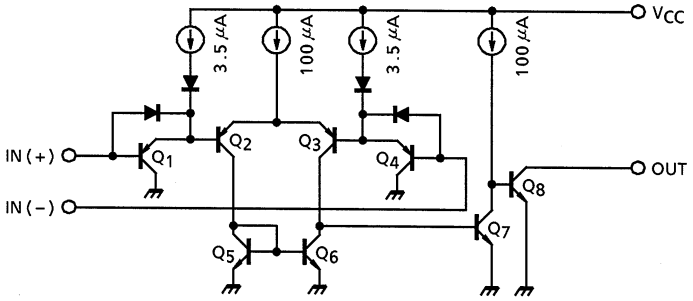
Marking (Top View)



Pin Connection (Top View)



Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	V_{CC}, V_{EE}	±18 or 36	V
Differential input voltage	DV_{IN}	±36	V
Input voltage	V_{IN}	+0.3~V_{CC}	V
Power dissipation	P_D	250	mW
Operating temperature	T_{opr}	−40~85	°C
Storage temperature	T_{stg}	−55~125	°C

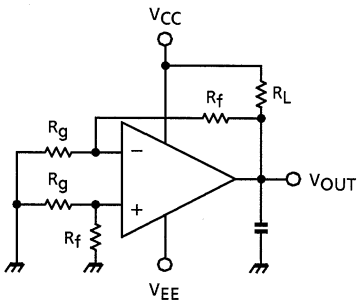
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

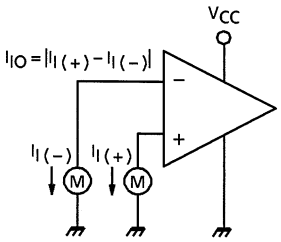
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	V_{IO}	1	—	—	2	5	mV
Input bias current	I_I	2	—	—	25	250	nA
Input offset current	I_{IO}	2	—	—	5	50	nA
Common mode input voltage	CMV_{IN}	—	—	0	—	V_{CC}−1.5	V
Supply current	I_{CC}	3	No load	—	0.8	2	mA
Voltage gain	G_V	—	R_L = 15kΩ	—	200	—	V/mA
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 = 5.1kΩ, C_L = 15_{pF}	—	1.3	—	μs

Test Circuit

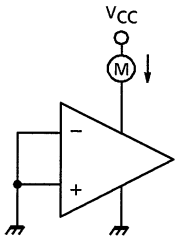
(1) V_{IO}



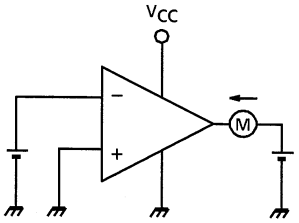
(2) I_I, I_{IO}



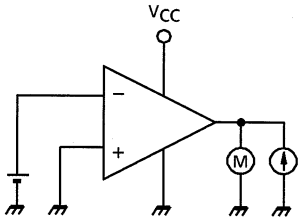
(3) I_{CC}



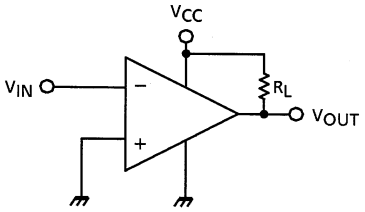
(4) I_{sink}



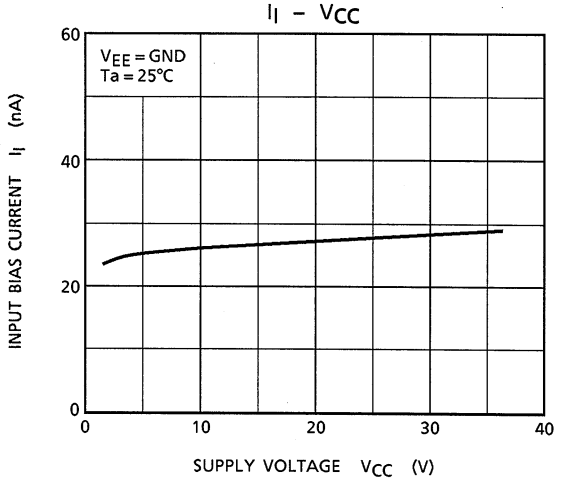
(5) V_{OL}



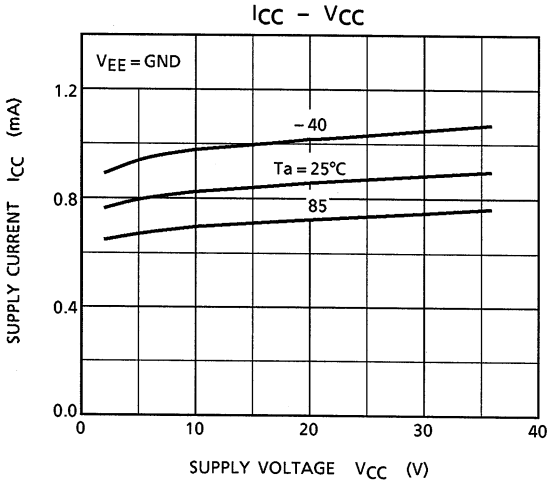
(6) t_{rsp}



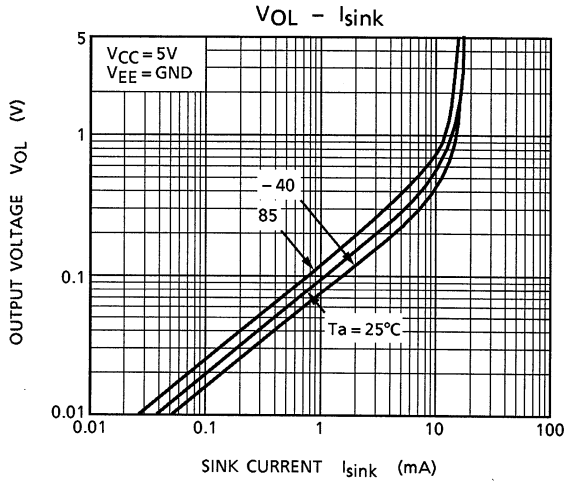
I_I – V_{CC}



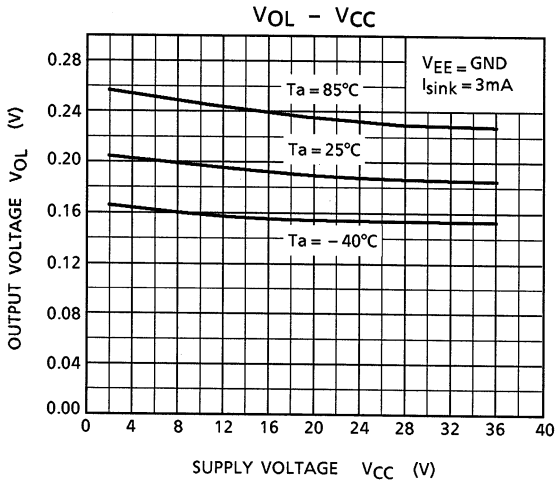
I_{CC} – V_{CC}



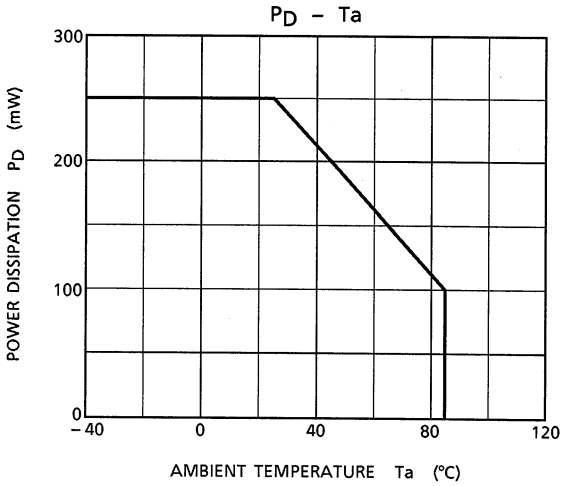
V_{OL} – I_{sink}



V_{OL} – V_{CC}

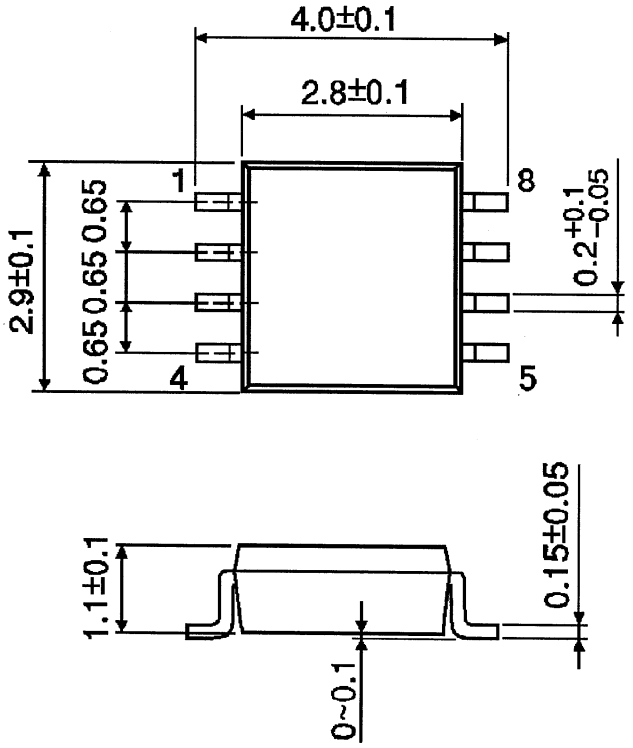


P_D – Ta



Package Dimensions

SSOP8-P-0.65 Unit: mm



Weight: 0.021g (typ.)

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