TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

TA75W393FU

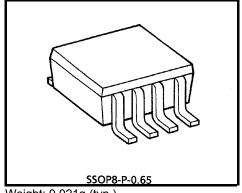
Dual Voltage Comparator

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.

 $\ensuremath{V\text{CC}}$ 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 $\pm 1V_{DC}$ to $\pm 18V_{DC}$

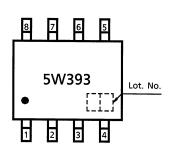
Low supply current : 0.8mA (typ.)
 Low input offset voltage : ±2mV (typ.)

Wide input common mode voltage range
 OVDC to VCC - 1.5VDC

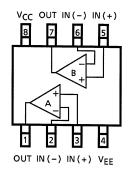
• Output compatible with TTL, DTL, MOS and CMOS logic system.

• The output can be connected to achieve Wired-OR relation..

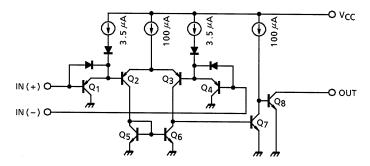
Marking (Top View)



Pin Connection (Top View)



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.

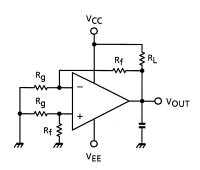
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (V_{CC} = 5V, V_{EE} = GND, Ta = 25°C)

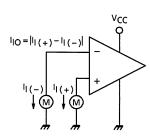
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Input offset voltage	V _{IO}	1	_	_	2	5	mV
Input bias current	IĮ	2	_	_	25	250	nA
Input offset current	I _{IO}	2	_	_	5	50	nA
Common mode input voltage	CMV _{IN}	_	_	0	_	V _{CC} -1.5	V
Supply current	I _{CC}	3	No load	_	0.8	2	mA
Voltage 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	ILEAK	_	$IN (+) = 1V_{DC}, IN (-) = 0V_{DC}$ $V_{O} = 5V_{DC}$	_	0.1	_	nA
Response Time	t _{rsp}	6	$R_L = 5.1 k\Omega$, $C_L = 15 pF$		1.3	_	μs

Test Circuit

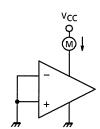
(1) V_{IO}



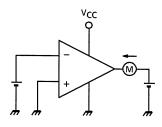
(2) I_I, I_{IO}



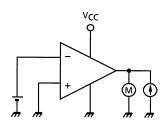
(3) I_{CC}



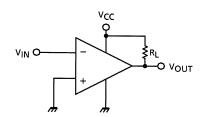
(4) I_{sink}

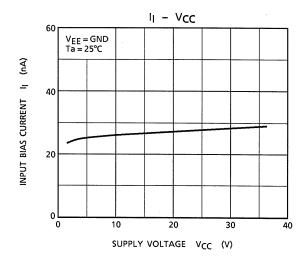


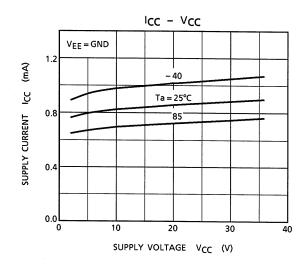
(5) V_{OL}

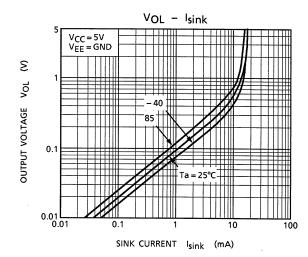


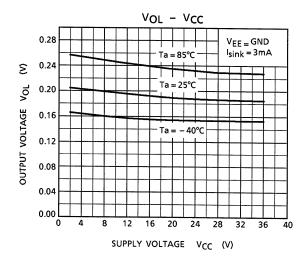
(6) t_{rsp}

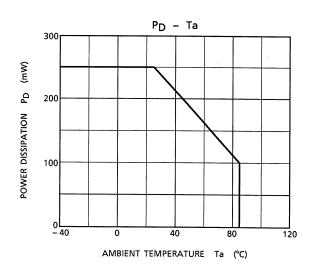








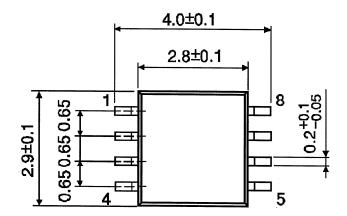


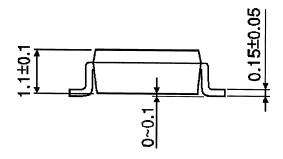




Package Dimensions

SSOP8-P-0.65





Weight: 0.021g (typ.)

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