

TOSHIBA CMOS Linear Integrated Circuit Silicon Monolithic

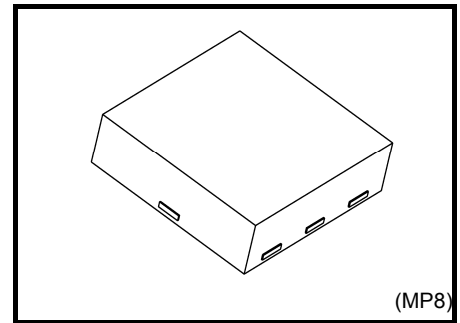
TC75W64L8X

Dual Comparators

TC75W64L8X is a CMOS type general-purpose dual-comparator capable of single power supply operation and using lower supply currents than the conventional bipolar comparators. Its push-pull output can connect directly to logic IC's such as CMOS circuits.

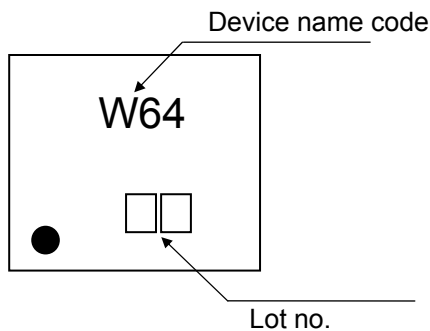
Features

- Low supply current : $I_{DD} = 30\mu A$ (typ.)
- Single power supply operation
- Common mode input voltage range : V_{SS} to $V_{DD} - 0.4V$
- Push-pull output circuit
- Low input bias current
- Small package

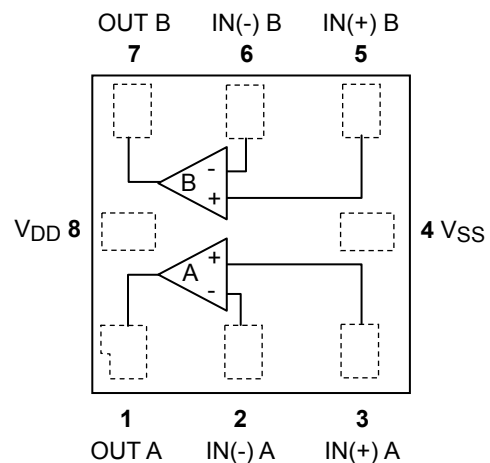


Weight: 3.9 mg (typ.)

Marking (Top view)



Pin Assignment (Top view)



Absolute Maximum Ratings

Characteristic	Symbol	Rating	Unit
Supply voltage	V_{DD}, V_{SS}	± 2.3 or 4.6	V
Differential input voltage	DV_{IN}	± 4.6	V
Input voltage	V_{IN}	V_{SS} to V_{DD}	V
Output current	I_{OUT}	± 35	mA
Power dissipation	P_D	300 (Note1)	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).

Note: Since this product sometimes brings about latchup, which is peculiar to CMOS devices, note the following points:

- Don't raise the voltage level of I/O pins beyond V_{DD} , nor lower it below V_{SS} .
In addition, consider the timing for power supply.
- Don't let any abnormal noise enter the device.

Note1: Mounted on an FR4 board.

Operating Ranges ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Supply voltage	V_{DD}, V_{SS} (Note)	1.65 to 4.6	V

Note: $V_{SS} = 0\text{V}$

Electrical Characteristics (unless otherwise specified, $V_{DD} = 3.0V$, $V_{SS} = GND$, $T_a = 25^\circ C$)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	V_{IO}	—	—	± 1	± 7	mV
Input offset current	I_{IO}	—	—	1	—	μA
Input bias current	I_I	—	—	1	—	μA
Common mode input voltage	CMV_{IN}	—	0	—	2.6	V
Supply current	I_{DD} (Note)	—	—	30	60	μA
Voltage gain	G_V	—	—	90	—	dB
Sink current	I_{sink}	$V_{OL} = 0.5V$	6	18	—	mA
Source current	I_{source}	$V_{OH} = 2.5V$	3	15	—	mA
Output voltage	V_{OL}	$I_{sink} = 5.0mA$	—	0.15	0.35	V
	V_{OH}	$I_{source} = 5.0mA$	2.65	2.85	—	
Propagation delay time (turn on)	t_{PLH}	Over drive = 100mV	—	550	—	ns
Propagation delay time (turn off)	t_{PHL}	Over drive = 100mV	—	300	—	ns
Response time	t_{TLH}	Over drive = 100mV	—	30	—	ns
	t_{THL}	Over drive = 100mV	—	8	—	

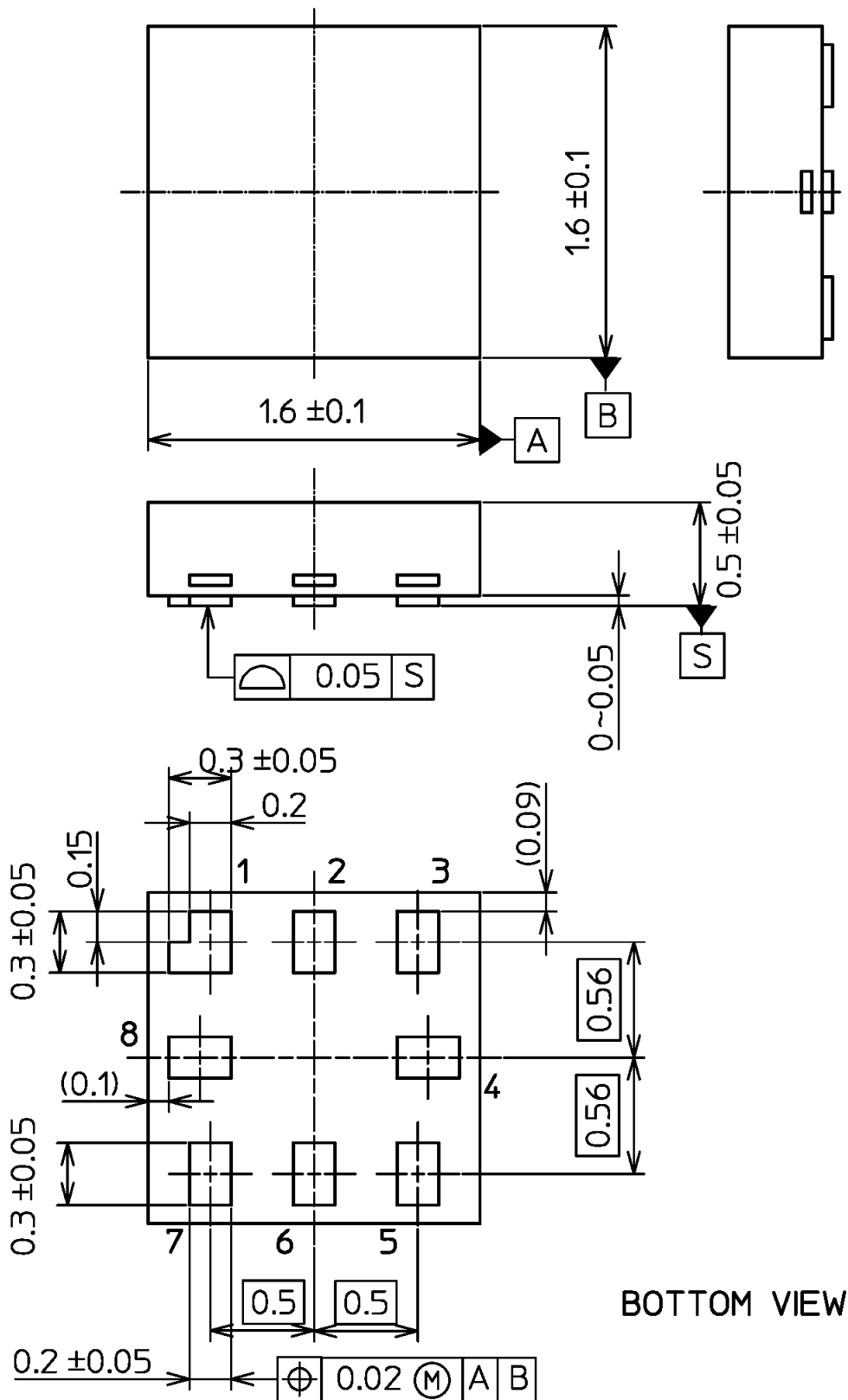
Electrical Characteristics (unless otherwise specified, $V_{DD} = 1.8V$, $V_{SS} = GND$, $T_a = 25^\circ C$)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	V_{IO}	—	—	± 1	± 7	mV
Input offset current	I_{IO}	—	—	1	—	μA
Input bias current	I_I	—	—	1	—	μA
Common mode input voltage	CMV_{IN}	—	0	—	1.4	V
Supply current	I_{DD} (Note)	—	—	28	56	μA
Voltage gain	G_V	—	—	85	—	dB
Sink current	I_{sink}	$V_{OL} = 0.5 V$	3	10	—	mA
Source current	I_{source}	$V_{OH} = 1.3 V$	2	8	—	mA
Output voltage	V_{OL}	$I_{sink} = 5.0mA$	—	0.25	0.5	V
	V_{OH}	$I_{source} = 5.0mA$	1.3	1.55	—	
Propagation delay time (turn on)	t_{PLH}	Over drive = 100mV	—	500	—	ns
Propagation delay time (turn off)	t_{PHL}	Over drive = 100mV	—	350	—	ns
Response time	t_{TLH}	Over drive = 100mV	—	14	—	ns
	t_{THL}	Over drive = 100mV	—	13	—	

Note: This device's current consumption increases as its operating frequency increases. Note that the power dissipation should not exceed the allowable power dissipation.

Package Dimensions

Unit: mm



Weight: 3.9 mg (Typ.)

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