TOSHIBA CMOS Linear Integrated Circuit Silicon Monolithic

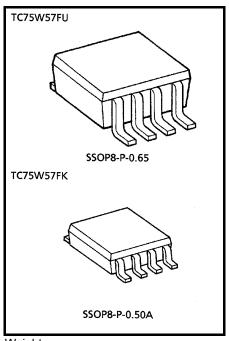
TC75W57FU, TC75W57FK

Dual Comparator

TC75W57 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 local IC's such as TTL and CMOS circuits.

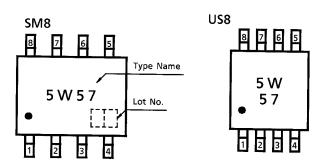
Features

- Low supply current: IDD = 200µA (typ.)
- Single power supply operation
- Wide common mode input voltage range: $V_{\rm SS}$ to $V_{\rm DD}$ -0.9V
- Push-pull output circuit
- Low input bias current
- Small package

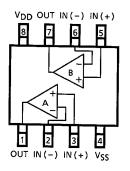


Weight SSOP8-P-0.65: 0.021g (typ.) SSOP8-P-0.50A: 0.01g (typ.)

Marking (Top View)



Pin Connection (Top View)



Start of commercial production 1997-05

Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Ν	
Supply voltage	V _{DD} , V _{SS}	±3.5 or 7	V	
Differential input voltage	DVIN	±7	V	
Input voltage	V _{IN}	V_{SS} to V_{DD}	V	
Output current	IOUT	±35	mA	
Dower discipation	D-	250 (TC75W57FU)	mW	
Power dissipation	PD	200 (TC75W57FK)	IIIVV	
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 latchcap, 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 $V_{SS}.$ Consider the timing for power supply, too.
 - Don't let any abnormal noise enter the device.

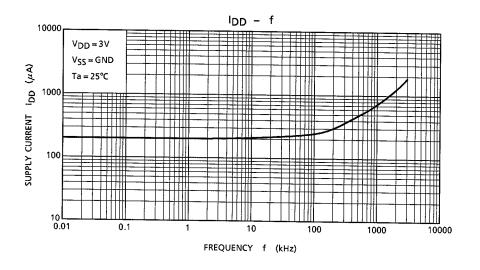
Electrical Characteristics (V_{DD} = 5V, V_{SS} = GND, Ta = 25°C)

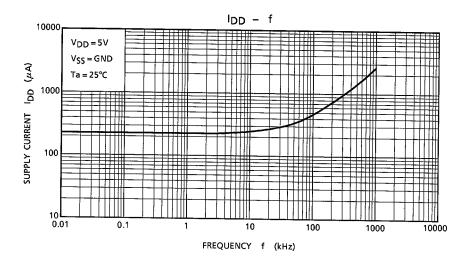
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Input offset voltage	V _{IO}	—	—	_	±1	±7	mV
Input offset current	I _{IO}	_	—	_	1	—	pА
Input bias current	lı	_	—	_	1	_	pА
Common mode input voltage	CMVIN	_	—	0	_	4.1	V
Supply current	I _{DD} (Note)	_	—	_	220	440	μA
Voltage gain	GV	_	—	_	94	_	dB
Sink current	I _{sink}	_	V _{OL} = 0.5V	13	25	_	mA
Source current	I _{source}	_	V _{OH} = 4.5V	9	21	_	mA
Output voltage	V _{OL}	_	I _{sink} = 5.0mA	_	0.1	0.3	v
	V _{OH}	_	I _{source} = 5.0mA	4.7	4.9	_	
Operating supply voltage	V _{DD}	_	—	1.8	_	7.0	V
Propagation delay time (turn on)	t _{PLH} (1)	_	Over drive = 100mV	_	140		ns
	t _{PLH} (2)	_	TTL step input	_	90	_	
Propagation delay time (turn off)	t _{PHL} (1)	_	Over drive = 100mV	_	90	_	ns
	t _{PHL} (2)	_	TTL step input	_	70	_	
Response time	t _{TLH}	—	Over drive = 100mV		11	_	ns
	tтнL	-	Over drive = 100mV	—	7	—	

Electrical Characteristics (V_{DD} = 3V, V_{SS} = GND, Ta = 25°C)

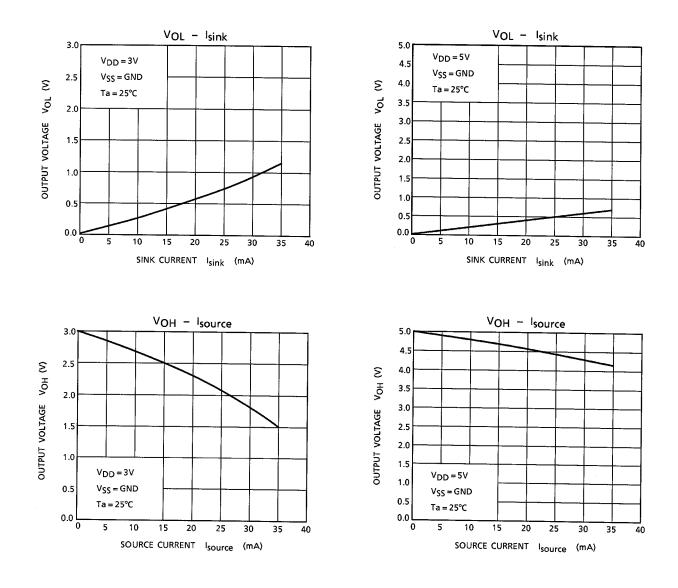
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Input offset voltage	V _{IO}	-	—	—	±1	±7	mV
Input offset current	l _{IO}	-	—	—	1	—	pА
Input bias current	l	-	—	—	1	—	pА
Common mode input voltage	CMVIN	-	—	0	—	2.1	V
Supply current	I _{DD} (Note)	_	—	—	200	400	μA
Sink current	I _{sink}	-	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	_	110	_	ns
Propagation delay time (turn off)	t _{PHL}	_	Over drive = 100mV	_	90	_	ns
Response time	t _{TLH}	_	Over drive = 100mV	—	7	—	ns
	t _{THL}	—	Over drive = 100mV	—	8	—	

Note: Since this product causes an increase in current consumption with a rise in operational frequency, make sure that power consumption does not exceed the allowable dissipation.





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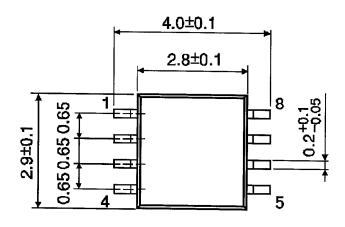


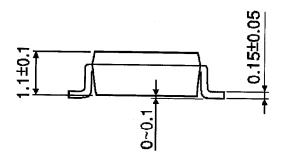
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Package Dimensions

SSOP8-P-0.65

Unit: mm





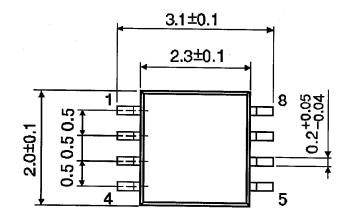
Weight: 0.021g(typ.)

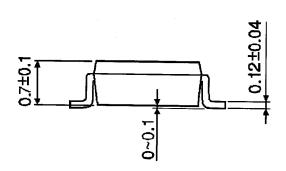
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Package Dimensions

SSOP8-P-0.50A

Unit: mm





Weight: 0.01g(typ.)

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