TOSHIBA CMOS Linear Integrated Circuit Silicon Monolithic

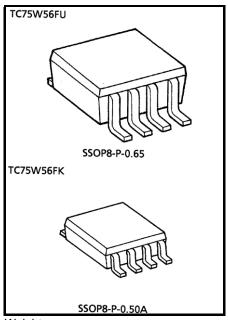
TC75W56FU, TC75W56FK

Dual Comparator

TC75W56 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

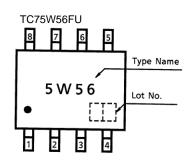
- Low supply current: $I_{DD} = 20\mu A$ (typ.)
- Single power supply operation
- Wide common mode input voltage range: VSS to VDD-0.9V
- Push-pull output circuit
- Low input bias current
- Small package

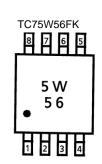


Weight

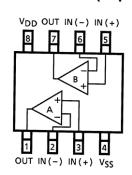
SSOP8-P-0.65 : 0.021g (typ.) SSOP8-P-0.50A : 0.01g (typ.)

Marking (Top View)





Pin Connection (Top View)





Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	N	
Supply voltage	V _{DD} , V _{SS}	±3.5 or 7	V	
Differential input voltage	DVIN	±7	V	
Input voltage	VIN	V _{SS} to V _{DD}	V	
Output current	lout	±35	mA	
Dower discipation	D-	250 (TC75W56FU)	m\\/	
Power dissipation	P _D	200 (TC75W56FK)	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 latchcap, which is peculiar to CMOS devices, note the following points:

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- Don't raise the voltage level of I/O pins beyond VDD, nor lower it below VSS.
 Consider the timing for power supply, too.
- Don't let any abnormal noise enter the device.



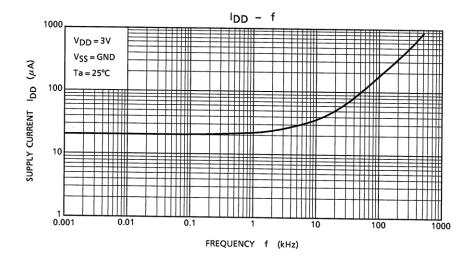
Electrical Characteristics (VDD = 5V, Vss = GND, Ta = 25°C)

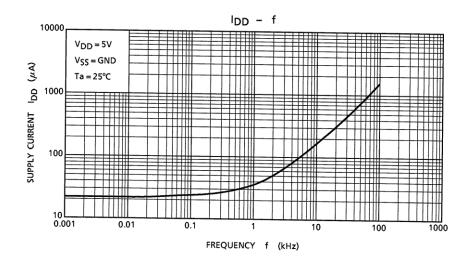
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Input offset voltage	Vio	_	_	_	±1	±7	mV
Input offset current	lio	_	_	_	1	_	pA
Input bias current	lį	_	_	_	1	_	pA
Common mode input voltage	CMVIN	_	_	0	_	4.1	V
Supply current	I _{DD} (Note)	_	_	_	22	44	μА
Voltage gain	GV	_	_	_	94	_	dB
Sink current	I _{sink}	_	V _{OL} = 0.5V	13	25	_	mA
Source current	I _{source}	_	V _{OH} = 4.5V	9	21	_	mA
Output voltage	VoL	_	I _{sink} = 5.0mA	_	0.1	0.3	V
	Voh	_	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	_	680	_	ns
	t _{PLH} (2)	_	TTL step input	_	500	_	
Propagation delay time (turn off)	t _{PHL} (1)	_	Over drive = 100mV	_	250	_	ns
	t _{PHL} (2)	_	TTL step i nput	_	380	_	
Response time	tTLH	_	Over drive = 100mV	_	60	_	ns
	tTHL	_	Over drive = 100mV	_	8	_	

Electrical Characteristics (VDD = 3V, Vss = GND, Ta = 25°C)

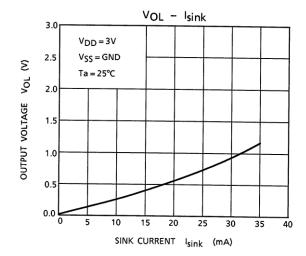
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Input offset voltage	VIO	_	_	_	±1	±7	mV
Input offset current	lio	_	_	_	1	_	pA
Input bias current	lį	_	_	_	1	_	pA
Common mode input voltage	CMVIN	_	_	0	_	2.1	V
Supply current	IDD (Note)	_	_	_	20	40	μΑ
Sink current	Isink	_	V _{OL} = 0.5V	6	18	_	mA
Source current	Isource	_	V _{OH} = 2.5V	3	15	_	mA
Output voltage	Vol	_	I _{sink} = 5.0mA	_	0.15	0.35	V
	Voн	_	Isource = 5.0mA	2.65	2.85	_	
Propagation delay time (turn on)	tPLH	_	Over drive = 100mV	_	550	_	ns
Propagation delay time (turn off)	tPHL	_	Over drive = 100mV	_	250	_	ns
Response time	tTLH	_	Over drive = 100mV	_	30	_	ns
	tTHL	_	Over drive = 100mV	_	8	_	

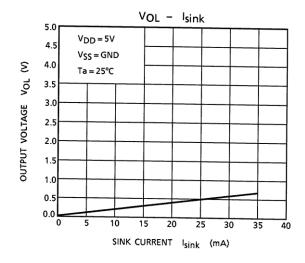
Note: Since this product causes an increase in current consumption with a rise in operational frequency, make sure that power consumption does not exceed the allowable dissipation.

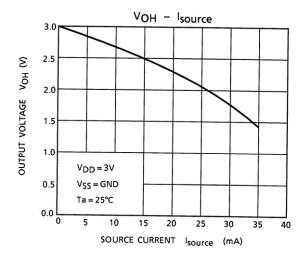


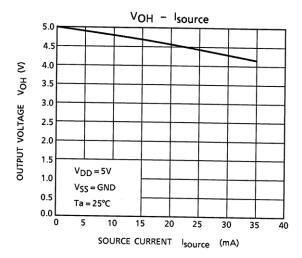


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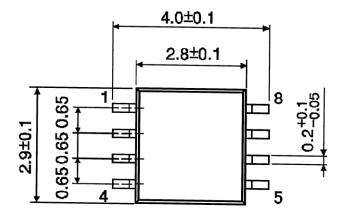


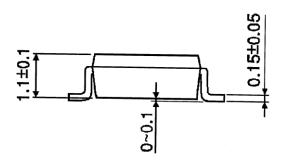


Package Dimensions

SSOP8-P-0.65

Unit: mm

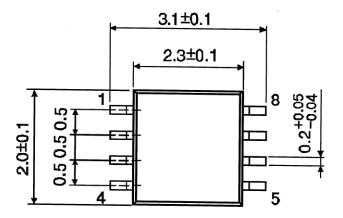


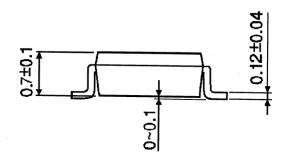


Weight: 0.021g(typ.)

Package Dimensions

SSOP8-P-0.50A Unit: mm





Weight: 0.01g(typ.)

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