

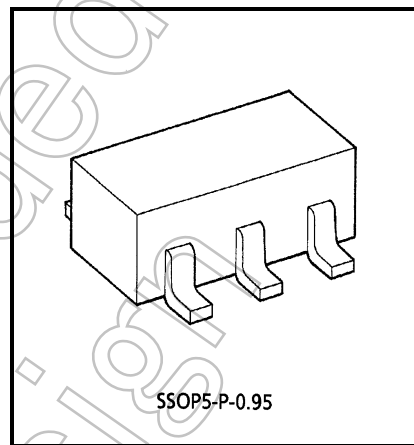
TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

## TA75S01F

Single Operational Amplifier

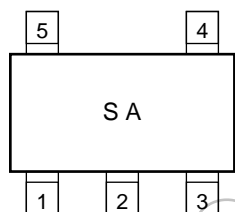
### Features

- In the linear mode the input common mode voltage range includes ground.
- The internally compensated Operational Amplifier is small package.
- Low power dissipation and power drain suitable for battery operation.
- Differential input voltage range equal to the power supply voltage.
- Large output voltage swing: 0 VDC to 3.4 VDC ( $V_{CC} = 5\text{ V}$ )
- Wide power supply voltage range and single power supply is possible.
- Single supply 3 VDC to 12 VDC or dual supplies  $\pm 1.5\text{ VDC}$  to  $\pm 6\text{ VDC}$ .

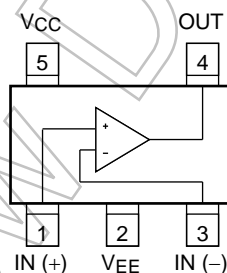


Weight:0.014g (typ.)

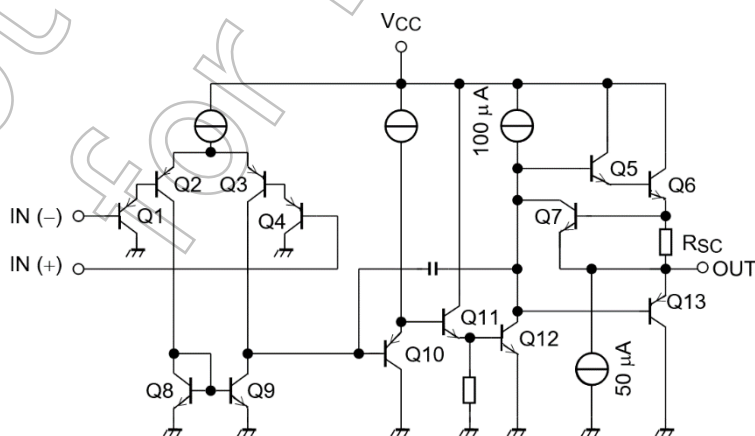
### Marking (top view)



### Pin Connection (top view)



### Equivalent Circuit



Start of commercial production  
1991-02

### Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	VCC, VEE	±6 or 12	V
Differential input voltage	DVIN	±12	V
Input voltage	VIN	-0.3 to VCC	V
Power dissipation	PD	200	mW
Operating temperature	Topr	-40 to 85	°C
Storage temperature	Tstg	-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.

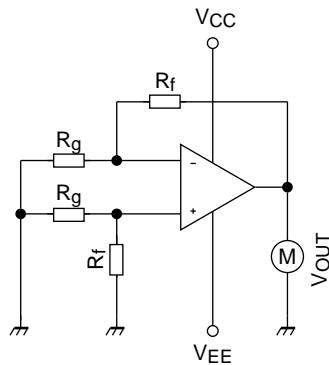
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

### Electrical Characteristics (VCC = 5 V, VEE = GND, Ta = 25°C)

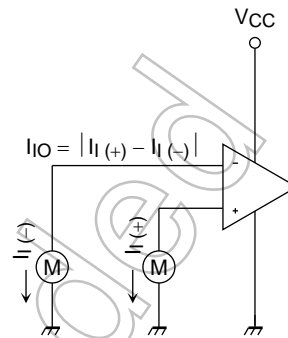
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	V <sub>IO</sub>	1	R <sub>g</sub> ≤ 10kΩ	—	2	7	mV
Input offset current	I <sub>IO</sub>	2	—	—	5	50	nA
Input bias current	I <sub>I</sub>	2	—	—	45	250	nA
Common mode input voltage	CMV <sub>IN</sub>	3	—	0	—	VCC-1.5	V
Supply current	I <sub>CC</sub>	4	—	—	0.4	0.8	mA
Voltage gain	G <sub>V</sub>	—	R <sub>L</sub> ≥ 2kΩ	86	100	—	dB
Maximum output voltage swing	V <sub>op-p</sub>	5	R <sub>L</sub> = 2kΩ	0	—	3.4	V
Common mode rejection ratio	CMRR	3	—	65	85	—	dB
Supply voltage rejection ratio	SVRR	—	R <sub>g</sub> = 10kΩ	65	100	—	dB
Source current	I <sub>source</sub>	6	IN (-) = 0V, IN (+) = 1V	20	40	—	mA
Sink current	I <sub>sink</sub>	7	IN (-) = 1V, IN (+) = 0V	10	20	—	mA
Unity gain cross frequency	f <sub>T</sub>	—	—	—	0.3	—	MHz

### Test Circuit

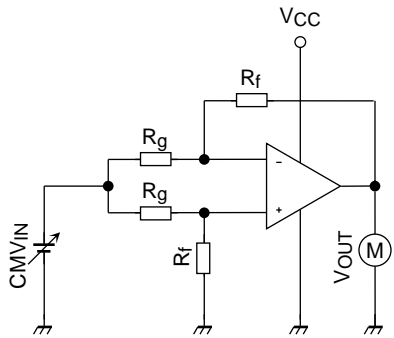
#### 1. $V_{io}$



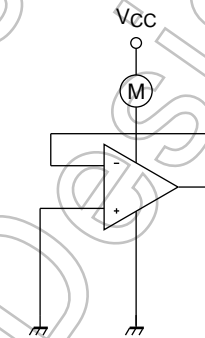
#### 2. $I_I, I_{IO}$



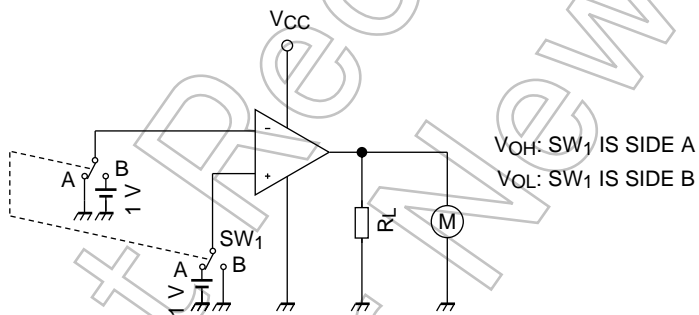
#### 3. $CMV_{IN}, CMRR$



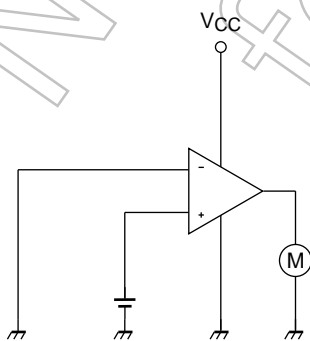
#### 4. $I_{CC}$



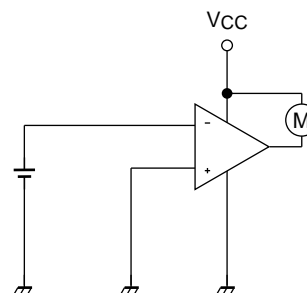
#### 5. $V_{op-p}$



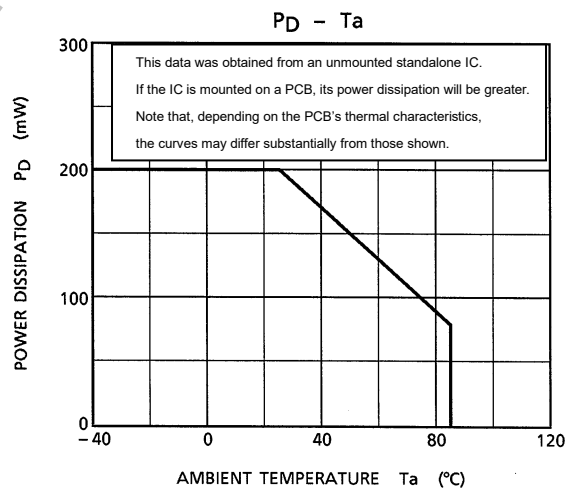
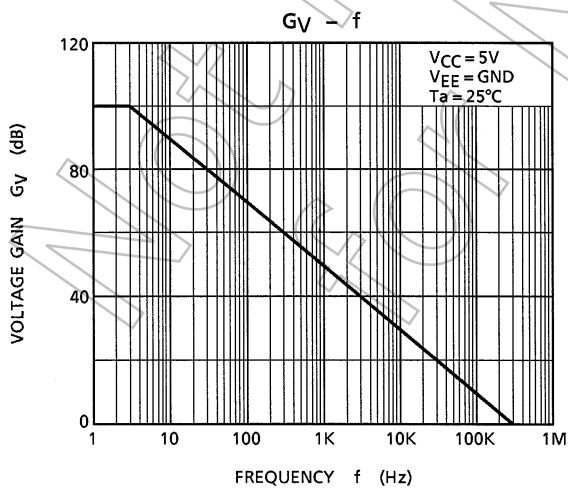
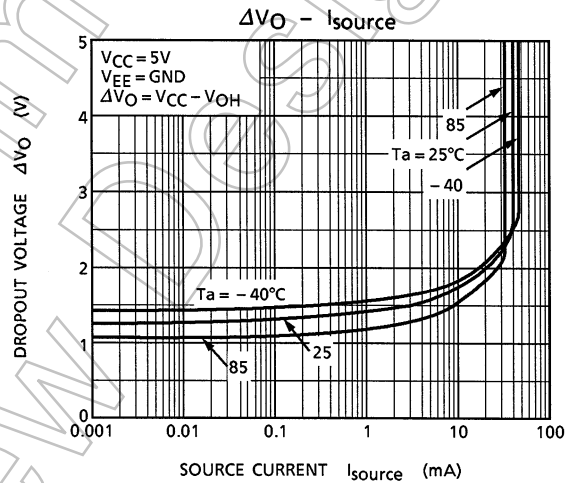
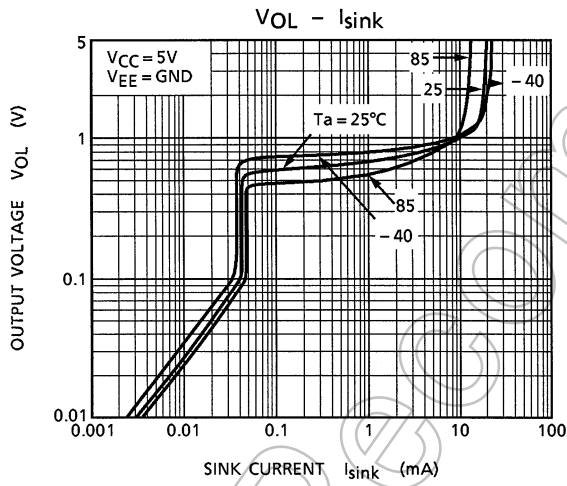
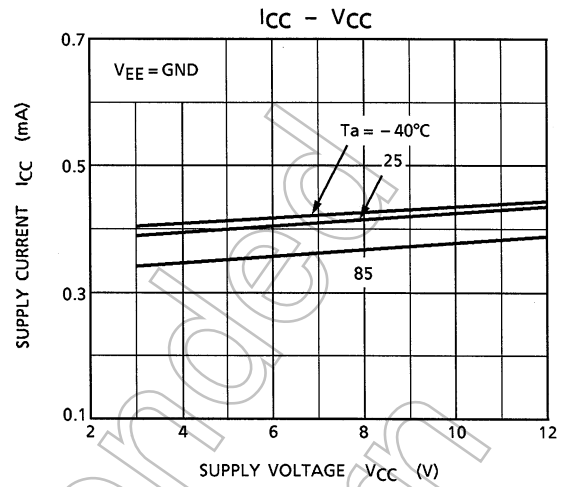
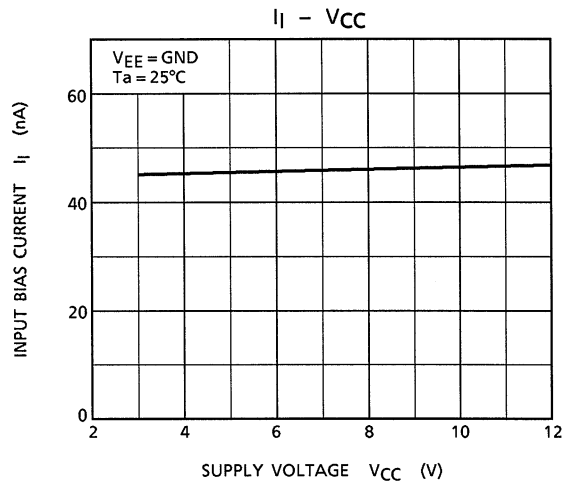
#### 6. $I_{source}$



#### 7. $I_{sink}$



### Characteristics Curves (Note)



Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.



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