

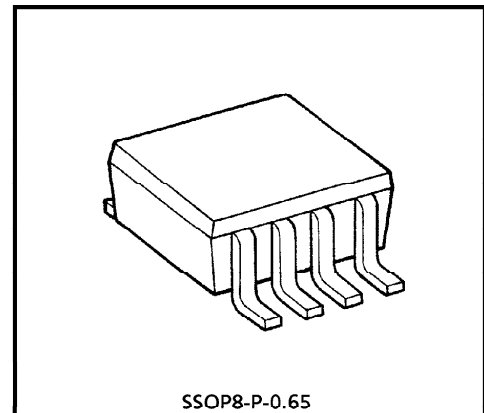
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

# TA75W01FU

## DUAL OPERATIONAL AMPLIFIER

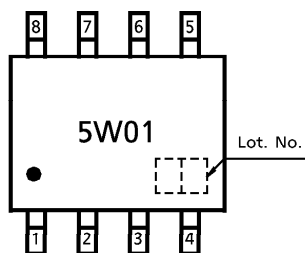
### FEATURES

- 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 :  $0V_{DC}$  to  $3.4V_{DC}$  ( $V_{CC} = 5V_{DC}$ )
- Wide power supply voltage range and single power supply is possible.
- Single supply  $3V_{DC}$  to  $12V_{DC}$  or dual supplies  $\pm 1.5V_{DC}$  to  $\pm 6V_{DC}$ .

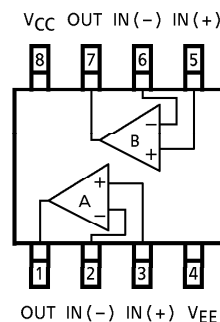


Weight : 0.021g (Typ.)

### MARKING (TOP VIEW)



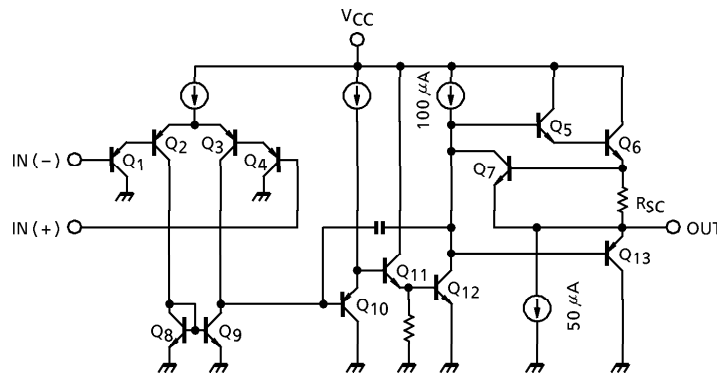
### PIN CONNECTION (TOP VIEW)



961001EBA2

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EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta = 25°C)

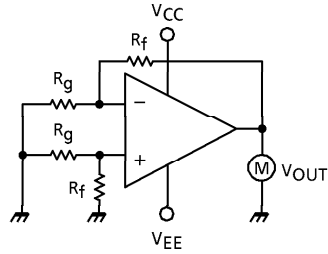
| CHARACTERISTIC             | SYMBOL           | RATING             | UNIT |
|----------------------------|------------------|--------------------|------|
| Supply Voltage             | $V_{CC}, V_{EE}$ | $\pm 6$ or 12      | V    |
| Differential Input Voltage | $DV_{IN}$        | $\pm 12$           | V    |
| Input Voltage              | $V_{IN}$         | $-0.3 \sim V_{CC}$ | V    |
| Power Dissipation          | $P_D$            | 250                | mW   |
| Operating Temperature      | $T_{opr}$        | $-40 \sim 85$      | °C   |
| Storage Temperature        | $T_{stg}$        | $-55 \sim 125$     | °C   |

ELECTRICAL CHARACTERISTICS ( $V_{CC} = 5V, V_{EE} = GND, T_a = 25^\circ C$ )

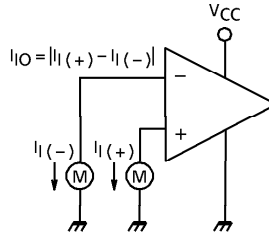
| CHARACTERISTIC                 | SYMBOL       | TEST CIR-CUIT | TEST CONDITION           | MIN. | TYP. | MAX.           | UNIT |
|--------------------------------|--------------|---------------|--------------------------|------|------|----------------|------|
| Input Offset Voltage           | $V_{IO}$     | 1             | $R_g \leq 10k\Omega$     | —    | 2    | 7              | mV   |
| Input Offset Current           | $I_{IO}$     | 2             | —                        | —    | 5    | 50             | nA   |
| Input Bias Current             | $I_I$        | 2             | —                        | —    | 45   | 250            | nA   |
| Common Mode Input Voltage      | $CMV_{IN}$   | 3             | —                        | 0    | —    | $V_{CC} - 1.5$ | V    |
| Supply Current                 | $I_{CC}$     | 4             | —                        | —    | 0.7  | 1.2            | mA   |
| Voltage Gain                   | $G_V$        | —             | $R_L \geq 2k\Omega$      | 86   | 100  | —              | dB   |
| Maximum Output Voltage Swing   | $V_{op-p}$   | 5             | $R_L = 2k\Omega$         | 0    | —    | 3.4            | V    |
| Common Mode Rejection Ratio    | CMRR         | 3             | —                        | 65   | 85   | —              | dB   |
| Supply Voltage Rejection Ratio | SVRR         | —             | $R_g = 10k\Omega$        | 65   | 100  | —              | dB   |
| Source Current                 | $I_{source}$ | 6             | $IN(-) = 0V, IN(+) = 1V$ | 20   | 40   | —              | mA   |
| Sink Current                   | $I_{sink}$   | 7             | $IN(-) = 1V, IN(+) = 0V$ | 10   | 20   | —              | mA   |
| Unity Gain Cross Frequency     | $f_T$        | —             | —                        | —    | 0.3  | —              | MHz  |

TEST CIRCUIT

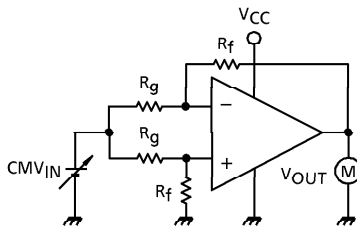
(1)  $V_{IO}$



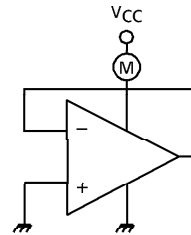
(2)  $I_I, I_{IO}$



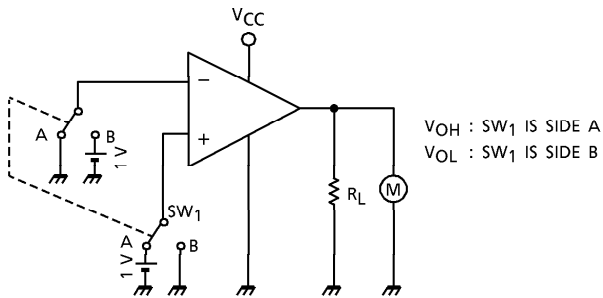
(3)  $CMV_{IN}, CMRR$



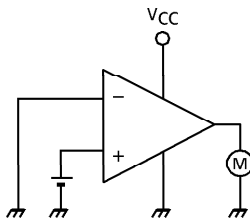
(4)  $I_{CC}$



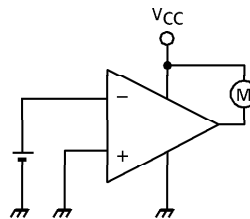
(5)  $V_{op-p}$

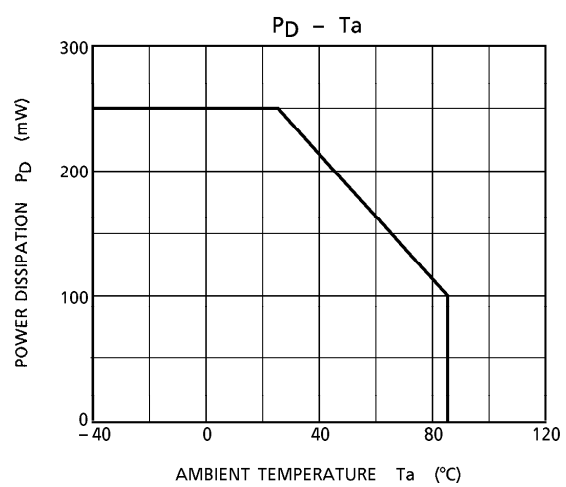
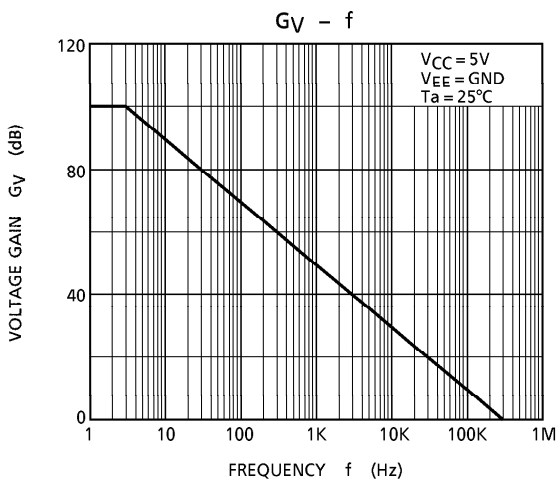
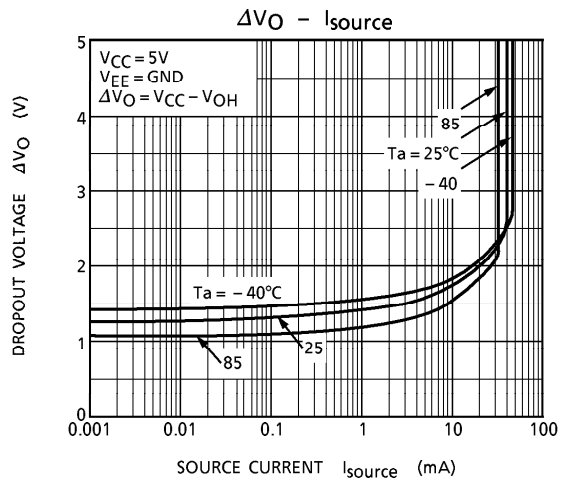
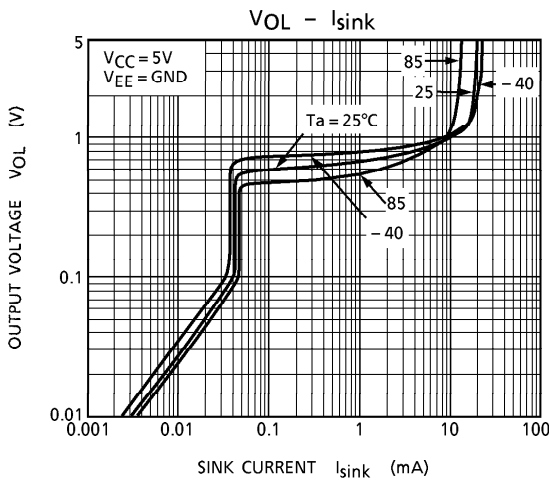
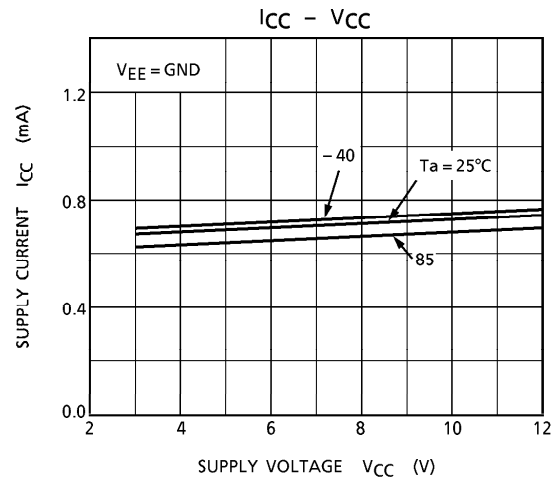
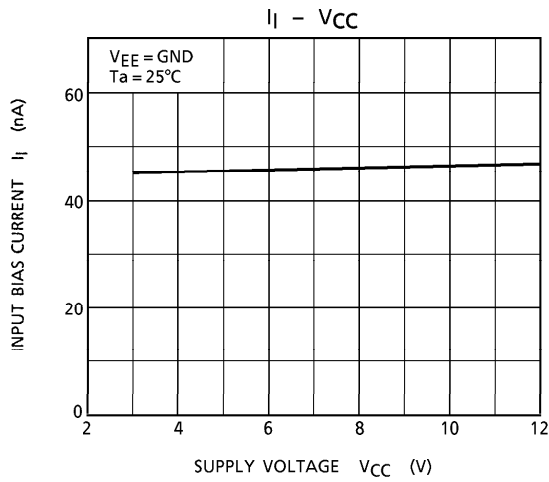


(6)  $I_{source}$



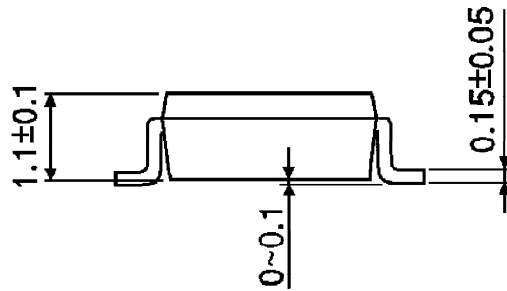
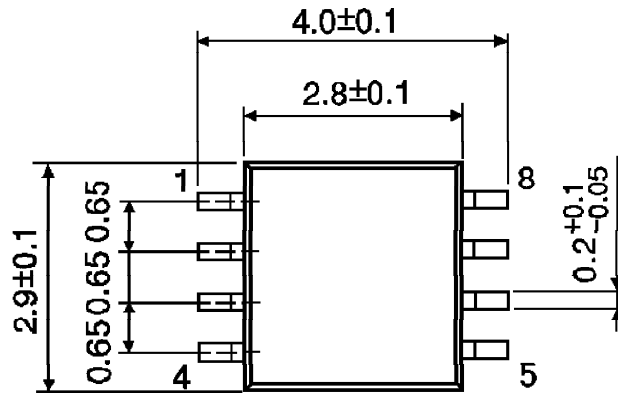
(7)  $I_{sink}$





OUTLINE DRAWING  
SSOP8-P-0.65

Unit : mm



Weight : 0.021g (Typ.)