

## MOTOR CONTROL CIRCUIT—YD6651B

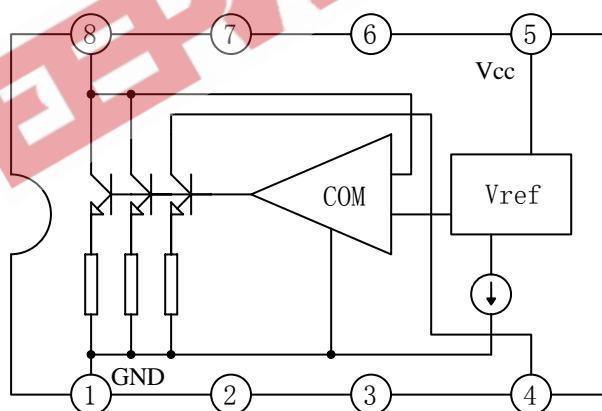
### DESCRIPTION

The YD6651B is an IC designed for the rotating speed control of a compact DC motor that is used for a tape recorder, record player, etc

### FEATURES

- \*Small four-lead plastic package for compact motor;
- \*Fewer external parts;
- \*Stable low reference voltage (1.0V typ.), wide motor speed setting
- \*Highly stable operation over a wide range of supply voltage and torque supply voltage,  $V_{cc}=3.5\sim 14.4V$ ;
- \*Reverse voltage protection circuit is built-in.

### BLOCK DIAGRAM



|        |     |     |                 |     |         |
|--------|-----|-----|-----------------|-----|---------|
| NO.    | 1   | 4   | 5               | 8   | 2/3/6/7 |
| SYMBOL | GND | CON | V <sub>cc</sub> | OUT | NC      |

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**ABSOLUTE MAXIMUM RATINGS** (Tamb=25°C)

| PARAMETER             | SYMBOL                  | VALUE    | UNIT |
|-----------------------|-------------------------|----------|------|
| Supply Voltage        | V <sub>CC</sub>         | 14.4     | V    |
| Supply Current        | I <sub>CC</sub> (Note1) | 2.0      | A    |
| Power Dissipation     | P <sub>D</sub> (Note 2) | 0.6      | W    |
|                       | P <sub>D</sub> (Note 3) | 1.0      |      |
| Operating Temperature | T <sub>opr</sub>        | -20~+75  | °C   |
| Storage Temperature   | T <sub>stg</sub>        | -40~+150 | °C   |

Note 1: t ≤ 5 Second

Note 2: No radiator fin

Note 3: With a 10×10mm<sup>2</sup> bakelite printed circuit board

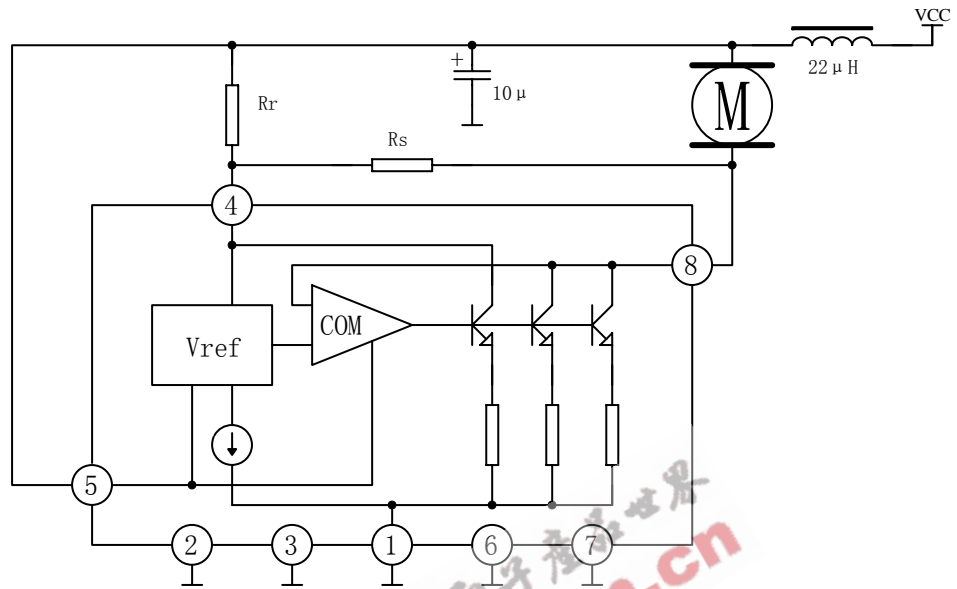
**ELECTRICAL CHARACTERISTICS**

(Tamb=25°C, V<sub>CC</sub>=6V, Unless otherwise specified)

| PARAMETER                       | SYMBOL                                    | TEST CONDITIONS   | MIN  | TYP   | MAX  | UNIT |
|---------------------------------|---|---|------|-------|------|------|
| Reference Voltage               | V <sub>ref</sub>                          | V <sub>CC</sub> =6V, R <sub>M</sub> =1kΩ                                | 0.85 | 1.0   | 1.15 | V    |
| Bias Current                    | I <sub>BIAS</sub>                         | V <sub>CC</sub> =6V   |      | 0.8   | 1.8  | mA   |
| Current Proportional Constant   | K   | V <sub>CC</sub> =6V, I <sub>4</sub> =40mA                               | 35   | 40    | 45   |      |
| Saturation Voltage              | V <sub>sat</sub>                          | V <sub>CC</sub> =4.2V, R <sub>M</sub> =5.0Ω                             |      | 1.15  | 2    | V    |
| Voltage Characteristics (1)     | $\frac{\Delta V_{ref}}{V_{ref}} / V_{CC}$ | V <sub>CC</sub> =3.5V~14V<br>R <sub>M</sub> =1kΩ                        |      | -0.1  |      | %/V  |
| Voltage Characteristics (2)     | $\frac{\Delta K}{K} / V_{CC}$             | V <sub>CC</sub> =3.5V~14V<br>I <sub>4</sub> =40mA                       |      | 0.2   |      | %/V  |
| Current Characteristics (1)     | $\frac{\Delta V_{ref}}{V_{ref}} / I_4$    | I <sub>4</sub> =50mA~200mA  |      | -0.02 |      | %/mA |
| Current Characteristics (2)     | $\frac{\Delta K}{K} / I_4$                | I <sub>4</sub> =50mA~200mA  |      | -0.01 |      | %/mA |
| Temperature Characteristics (1) | $\frac{\Delta V_{ref}}{V_{ref}} / T_a$    | T <sub>a</sub> =-20°C~+75°C<br>V <sub>CC</sub> =6V, R <sub>M</sub> =1kΩ |      | 0.01  |      | %/°C |
| Temperature Characteristics (2) | $\frac{\Delta K}{K} / T_a$                | T <sub>a</sub> =-20°C~+75°C<br>I <sub>4</sub> =40mA                     |      | 0.01  |      | %/°C |

APPLICATION CIRCUIT

$$R_r < R_m \times 40$$



OUTLINE DRAWING

DIP-8

unit:mm

