

MOTOR CONTROL CIRCUIT—YD5530

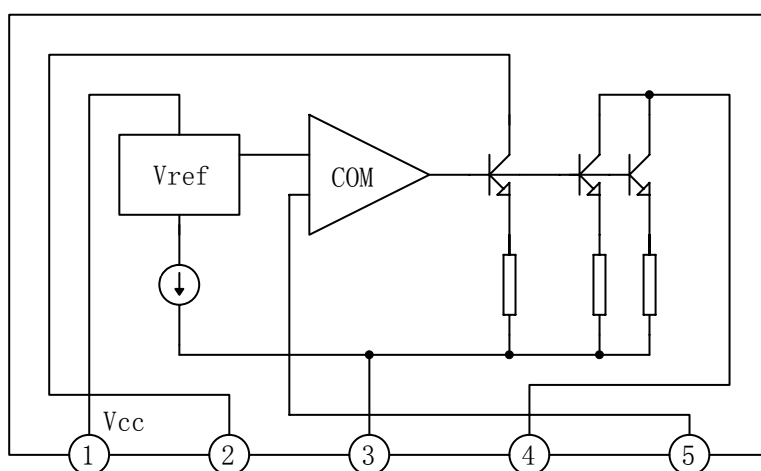
DESCRIPTION

The YD5530 is an IC designed for the rotating speed control of a compact DC motor which is used for a tape recorder, record played, etc.

FEATURES

- *Small four-lead plastic package for compact motor;
- *Fewer external parts;
- *Stable low reference voltage (0.49V typ.), wide motor speed setting;
- *Highly stable operation over a wide range of supply voltage and torque supply voltage: $V_{cc}=4.5\sim 16V$;
- *Reverse voltage protection circuit is built-in.

BLOCK DIAGRAM



NO.	1	2	3	4	5
SYMBOL	Vcc	CON	GND	OUT	Vref

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YOU DA INTEGRATED CIRCUIT

YD5530

ABSOLUTE MAXIMUM RATINGS (T_{amb}=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	V _{CC}	18	V
Power Dissipation	P _D	1.0	W
Operating Temperature	T _{opr}	-20~+85	°C
Storage Temperature	T _{stg}	-40~+150	°C

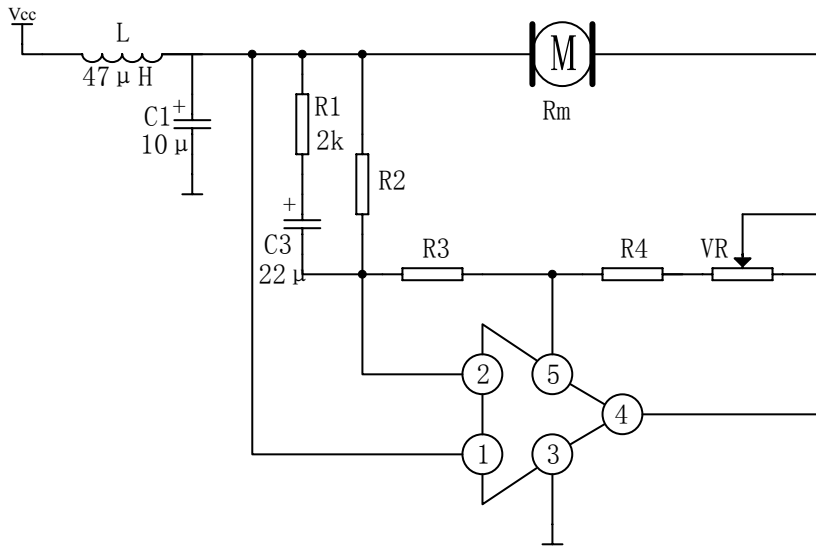
ELECTRICAL CHARACTERISTICS

(T_{amb}=25°C, V_{CC}=12V, Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Voltage	V _{ref}	I _M =100mA	0.46	0.49	0.52	V
Quiescent Circuit Current	I _{ccq}	I _M =100mA	2.5	3.5	6.0	mA
Current Proportional Constant	K	I _M =50~150mA	19.5	20.5	21.5	
Saturation Voltage	V _{sat}	I _M =450mA		0.95	1.5	V
Voltage Characteristics (1)	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta V_{CC}$	V _{CC} =4.5V~18V I _M =100mA	-0.1	0	0.1	%/V
Voltage Characteristics (2)	$\frac{\Delta K}{K} / \Delta V_{CC}$	V _{CC} =4.5V~18V I _M =50~150mA	0	0.3	0.8	%/V
Current Characteristics (1)	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta I_M$	I _M =20mA~200mA	-0.005	0.001	0.01	%/mA
Current Characteristics (2)	$\frac{\Delta K}{K} / \Delta I_M$	I _M =20~50mA ~170~200mA	-0.05	0.01	0.1	%/mA
Temperature Characteristics (1)	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta T_{amb}$	T _{amb} =-20°C~+85°C I _M =50~150mA		0.0055		%/°C
Temperature Characteristics (2)	$\frac{\Delta K}{K} / \Delta T_{amb}$	T _{amb} =-20°C~+85°C I _M =50~150mA		0.01		%/°C
Bias Current	I _b	I _M =0	0.24	0.28	0.32	mA
Temperature Characteristics (3)	$\frac{\Delta I_b}{I_b} / \Delta T_{amb}$	I _M =0 T _{amb} =-20°C~+85°C		-0.1		%/°C
Voltage Characteristics (3)	$\frac{\Delta I_b}{I_b} / \Delta V_{CC}$	I _M =0 V _{CC} =4.5V~18V	-0.5	-0.3	0.5	%/V

APPLICATION CIRCUIT

$$R2 < Rm \times 20$$



OUTLINE DRAWING

