

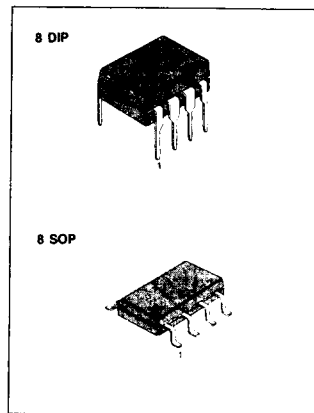
LOW VOLTAGE DC MOTOR SPEED CONTROLLER

USE

- Speed control or general-purpose low-voltage compact DC motor for microcassette tape recorders, radio cassettes and their equivalents.

FEATURES

- Operating supply voltage range
KA2402: $V_{CC} = 1.8V \sim 8V$
KA2402D: $V_{CC} = 1.8V \sim 4.5V$
- Capable of making the applicable set compact because of a minimum to adjust speed.
- Easy to adjust speed.
- Built-in stable low reference power meeting the requirements for 2 speeds.
- $V_{REF} = 0.2V$



ORDERING INFORMATION

Device	Package	Operating Temperature
KA2402	8 DIP	-20°C ~ +80°C
KA2402D	8 SOP	

BLOCK DIAGRAM

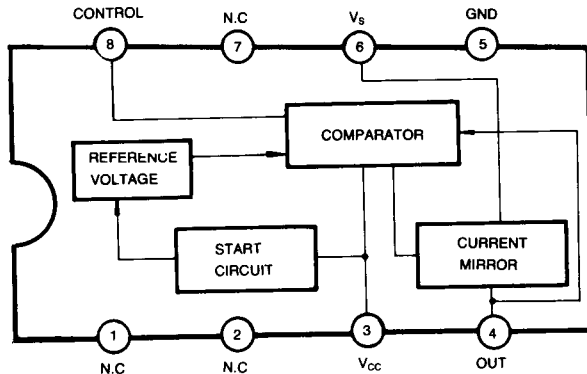


Fig. 1

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Maximum Supply Voltage	V _{CC}	10	V
Maximum Motor Current	I _{M (MAX)}	700	mA
Power Dissipation	P _D	600	mW
Operating Temperature	T _{OPR}	-20 ~ +80	°C
Storage Temperature	T _{STG}	-40 ~ +125	°C

RECOMMENDED OPERATING CONDITIONS (Ta = 25°C)

Characteristic	Symbol	Value		Unit
Supply Voltage	V _{CC}	KA2402	1.8 ~ 8	V
		KA2402D	1.8 ~ 4.5	
Recommended Operating Temperature	T _{OPR}	-20 ~ 60		°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Voltage	V _{REF}	V _{CC} = 3V, I _M = 100mA	0.18	0.2	0.22	V
Circuit Current	I _{CC}	V _{CC} = 3V, I _M = 100mA		2.4	6.0	mA
Current Coefficient	K	V _{CC} = 3V, I _M = 50mA I _M = 100mA	45	50	55	
Saturation Voltage	V _{SAT}	V _{CC} = 3V, I _M = 100mA		0.13	0.3	V
Voltage Characteristic of Reference Voltage	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta V_{CC}$	I _M = 100mA V _{CC} = 1.8 ~ 8V (KA2402) 1.8 ~ 4.5V (KA2402D)		0.1		%/V
Voltage Characteristic of Current Coefficient	$\frac{\Delta K}{K} / \Delta V_{CC}$	I _M = 50, 150mA V _{CC} = 1.8 ~ 8V (KA2402) 1.8 ~ 4.5V (KA2402D)		0.3		%/V
Voltage Characteristic of Reference Voltage	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta I_M$	I _M = 3V I _M = 20 ~ 200mA		0.005		%/mA
Current Characteristic of Current Coefficient	$\frac{\Delta K}{K} / \Delta I_M$	V _{CC} = 3V, I _M = 20, 50mA - 170, 200mA		-0.07		%/mA
Temperature Characteristic of Reference Voltage	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta T_a$	V _{CC} = 3V, I _M = 100mA T _a = -20 ~ +80°C		-0.008		%/°C
Temperature Characteristic of Current Coefficient	$\frac{\Delta K}{K} / \Delta T_a$	V _{CC} = 3V, I _M = 50mA, 150mA T _a = -20 ~ +80°C		0.02		%/°C

TEST CIRCUIT

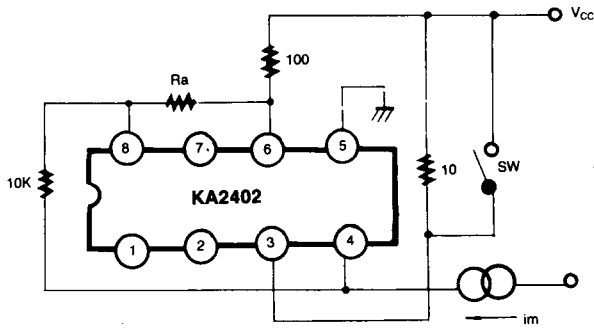


Fig. 2

APPLICATION CIRCUIT

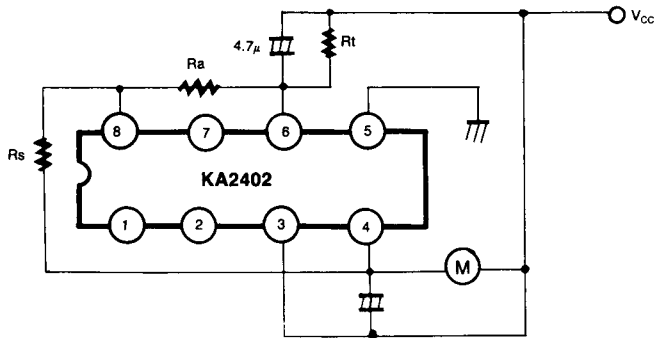


Fig. 3