

KA2402

DC MOTOR SPEED CONTROLLER

INTRODUCTION

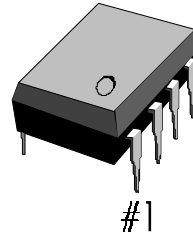
USE

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

8-DIP-300



ORDERING INFORMATION

Device	Package	Operating Temperature
KA2402	8-DIP-300	$-20^{\circ}\text{C} \sim +80^{\circ}\text{C}$

BLOCK DIAGRAM

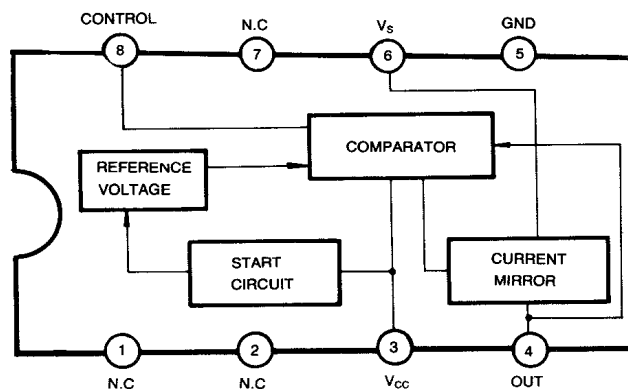


Fig. 1

KA2402**DC MOTOR SPEED CONTROLLER****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}		1.8 ~ 8	V
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	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta V_{REF}$	$I_M = 100mA$, $V_{CC} = 1.8 \sim 8V$ (KA2402) $1.8 \sim 4.5V$ (KA2402D)		0.1		%/V
Voltage Characteristic of Current Coefficient	$\frac{\Delta K}{K} / \Delta V_{CC}$	$I_M = 50, 150mA$ $V_{CC} = 1.8 \sim 8V$ (KA2402) $1.8 \sim 4.5V$ (KA2402D)		0.3		%/mA
Voltage Characteristic of Reference Voltage	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta I_M$	$I_M = 3V$ $I_M = 20 \sim 200mA$		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	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta T_a$	$V_{CC} = 3V, I_M = 100mA$ $T_a = -20 \sim +80^\circ C$		-0.008		%/°C
Temperature Characteristic of Current Coefficient	$\frac{\Delta K}{K} / \Delta T_a$	$V_{CC} = 3V, I_M = 50m, 150mA$ $T_a = -20 \sim +80^\circ C$		0.02		%/°C

KA2402

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TEST CIRCUIT

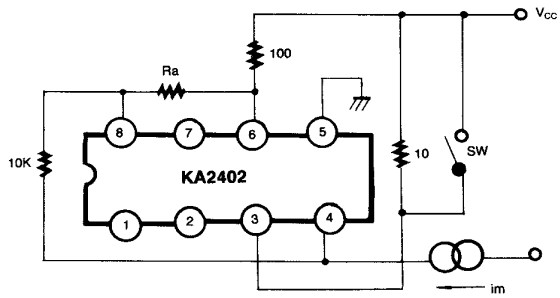


Fig. 2

APPLICATION CIRCUIT

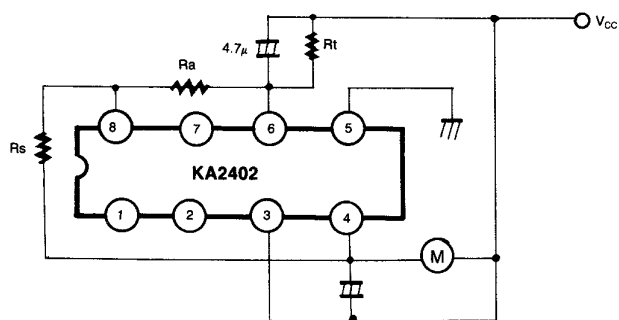
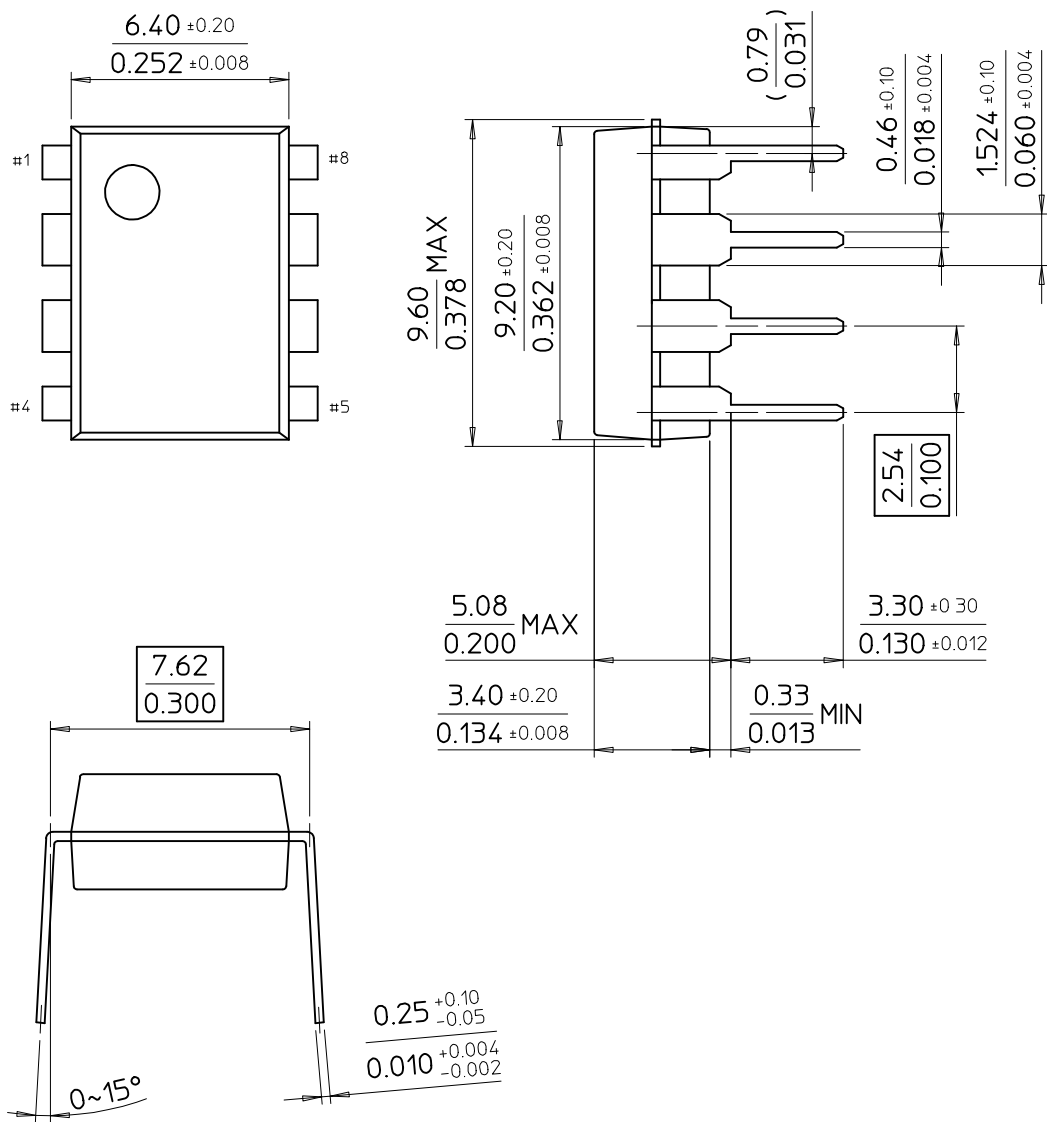


Fig. 3

8-DIP-300

Dimensions in Millimeters/inches



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