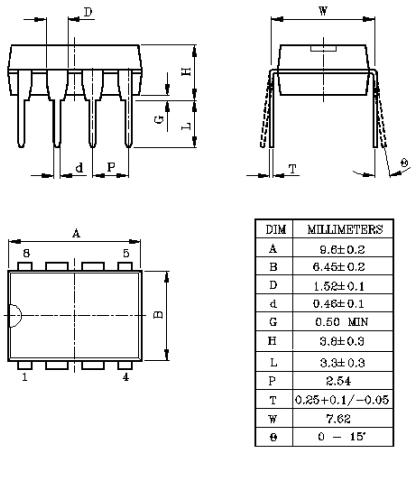
DC MOTOR SPEED CONTROLLER FOR CASSETTE TAPE RECORDER SYSTEM

The KIA6903P is a monolithic IC developed for speed control of general purpose DC motors. This IC consist of a reference voltage generator, current multiplier, comparator and start circuit. The IC controls the speed of a DC motor by detecting counter electromotive force from the DC motor.



DIM	MILLIMETERS
A	9.6±0.2
B	6.45±0.2
D	1.52±0.1
d	0.46±0.1
G	0.50 MIN
H	3.8±0.3
L	3.3±0.3
P	2.54
T	0.25+0.1/−0.05
W	7.62
θ	0 ~ 15°

DIP-8

FEATURES

- Wide Range of Working Power Supply Voltage. (V_{CC}=3.5~18V)
- Very Large Starting Torque at the low Voltage.
- Large Allowable Loss due to Effective Utilization of Substrate Radiation.
- Usable for Various DC Motors by Means of Changing Constants of the External Components.

Applications

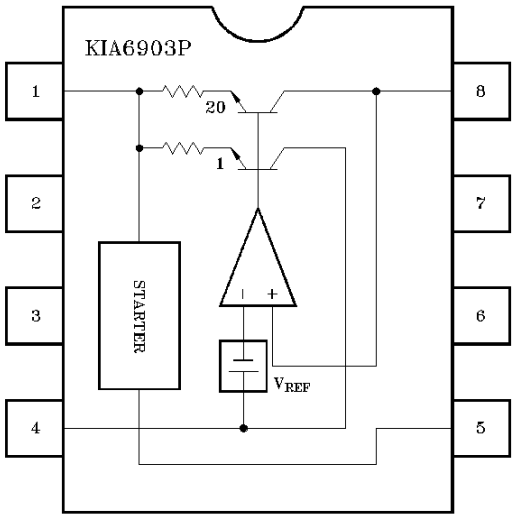
- Radio Cassette Tape Recorders

ABSOLUTE MAXIMUM RATINGS(Ta=25℃)

PARAMETERS	SYMBOL	LIMITS	UNIT	CONDITIONS
Supply Voltage	V_{CC}	18	V	-
Power Dissipation	P_D	1.4*	W	PCB:9㎠, T=1.0

Note : Derated above Ta=25℃ in the proportion of 11.2mW/℃.

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS (V_{CC}=12V, Ta=25℃)

CHARACTERISTICS	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Bias Current	I_4	Fig.1(d)	R_M=180Ω	0.5	0.8	1.2	mA
Output Saturation Voltage	V_{sat}	Fig.1(c)	V_{IN}=4.2V, R_M=4.4Ω	-	1.5	2.0	V
Reference Voltage	V_{REF}	Fig.1(a)	I_M=10mA	1.10	1.27	1.40	V
Current Ratio	K	Fig.1(b)	R_{M1}=44Ω, R_{M2}=33Ω	18	20	22	-
Reference Voltage Variance-Power Supply Voltage Variance	$\frac{\Delta V_{REF}}{V_{REF}}/\Delta V_{CC}$	Fig.1(a)	I_M=100mA, V_{CC}=6.3~18V	-	0.06	-	%/V
Current Ratio Variance-Power Supply Voltage Variance	$\frac{\Delta K}{K}/\Delta V_{CC}$	Fig.1(b)	I_M=100mA, V_{CC}=6.3~18V	-	0.4	-	%/V
Reference Voltage Variance-Motor Current Variance	$\frac{\Delta V_{REF}}{V_{REF}}/\Delta I_M$	Fig.1(a)	I_M=30~200mA	-	-0.02	-	%/mA
Current Ratio Variance-Motor Current Variance	$\frac{\Delta K}{K}/\Delta I_M$	Fig.1(b)	I_M=30~200mA	-	-0.02	-	%/mA
Reference Voltage Variance-Ambient Temperature Variance	$\frac{\Delta V_{REF}}{V_{REF}}/\Delta T_a$	Fig.1(a)	I_M=100mA, Ta=-25~75℃	-	0.01	-	%/℃
Current Ratio Variance-Ambient Temperature Variance	$\frac{\Delta K}{K}/\Delta T_a$	Fig.1(b)	I_M=100mA, Ta=-25~75℃	-	0.01	-	%/℃

TEST CIRCUIT

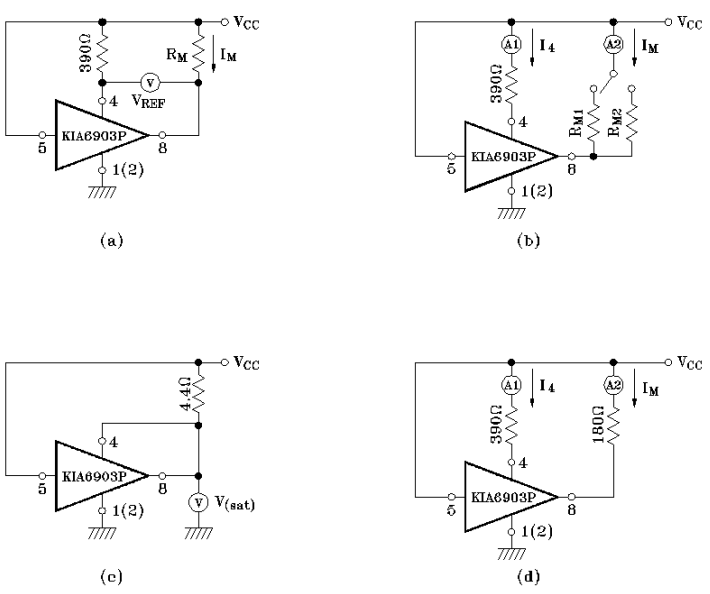


Fig.1

APPLICATION CIRCUIT