chanhvinh.com

ROHM	Products: Semiconductor IC	Type: BA6220	Page: 1/7

STRUCTURE Silicon Monolithic Integrated Circuit

TYPE BA6220

PACKAGE OUTLINE Fig.-1 (Plastic Mold)

BLOCK DIAGRAM Fig.-2

FUNCTION Motor Control

FEATURE 1.Small package of DIP 8pin,fitting for machine insert

2.Actual value of power dissipation becomes higher using board heat sink

3.High starting torque at low voltage

4.Neither hunching nor oscillating extraordinarilly at low voltage

ABSOLUTE MAXIMUM RATING (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	18	V
Power dissipation	Pd	1.4 *	W
Operating temperature	Topr	-25 ~ +75	°C
Storage temperature	Tstg	-55 ~ +150	°C

* 9cm² t=1mm when mounted on bakelite board
Derate 11.2mW/°C for the operating above Ta=25°C

ROHM assumes no responsibility for the use of any circuits described herein,conveys no license under any patent or other right,and makes no representations that the circuits are free from patent infringement.

Design	Check	Approval	Date NOV/28/1991	Specification
H. Okada	J. Mimada	M. Kawakami	ROHM CO., LTD.	Specification No.

chanhvinh.com

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, Ta=25°C, Vcc=12V)

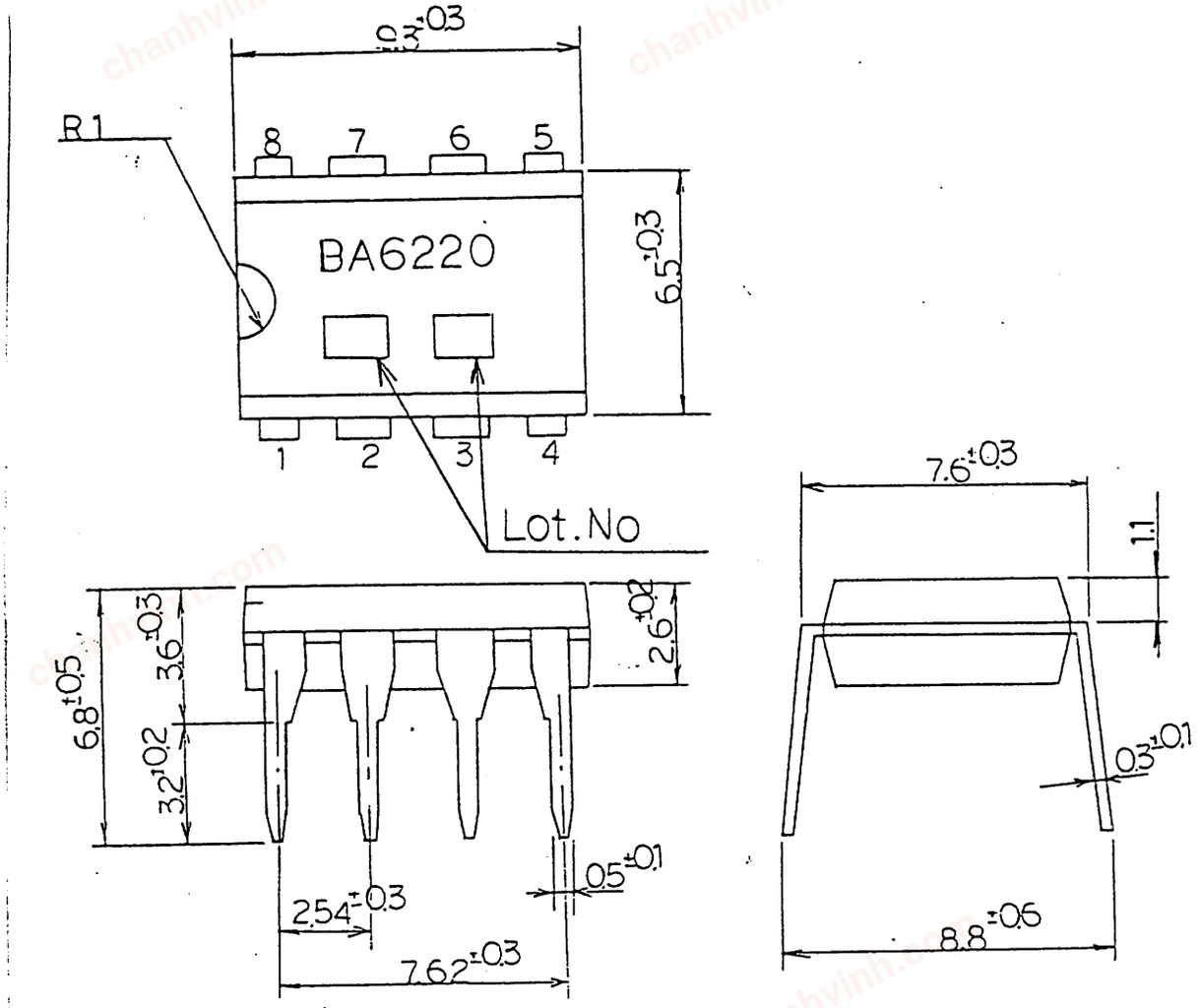
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Test Circuit
Reference voltage	Vref	1.10	1.27	1.40	V	I_8=10mA	Fig.-1
Terminal 4, Bias current	I(4)	0.5	0.8	1.2	mA	RM=180Ω	Fig.-4
Current proportion	K	18	20	22		RM1=44Ω, RM2=33Ω	Fig.-2
Saturation voltage	V_8 (sat)	–	1.5	2.0	V	Vcc=4.2V, RM=4.4Ω	Fig.-3
Voltage characteristics	$\frac{\Delta Vref}{Vref}/\Delta Vcc$	–	0.06	–	%/V	I_8=100mA, Vcc=6.3～16V	Fig.-1
〃	$\frac{\Delta K}{K}/\Delta Vcc$	–	0.4	–	%/V	I_8=100mA, Vcc=6.3～16V	Fig.-2
Current characteristics	$\frac{\Delta Vref}{Vref}/\Delta I8$	–	-0.02	–	%/mA	I_8=30～200mA	Fig.-1
〃	$\frac{\Delta K}{K}/\Delta I8$	–	-0.02	–	%/mA	I_8=30～200mA	Fig.-2
Temperature characteris-tics	$\frac{\Delta Vref}{Vref}/\Delta Ta$	–	0.01	–	%/°C	I_8=100mA, Ta=-25～+75°C	Fig.-1
〃	$\frac{\Delta K}{K}/\Delta Ta$	–	0.01	–	%/°C	I_8=100mA, Ta=-25～+75°C	Fig.-2

This product is not designed for protection against radioactive rays.

The product described in this specification is designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communications devices, electrical appliances, and electronic toys).

Should you intend to use this product with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

chanhvinh.com



OUTLINE (UNIT : mm)

Fig-1 Plastic Mold

Date NOV./28/'91	Specification
ROHM CO., LTD.	Specification No.

chanhvinh.com

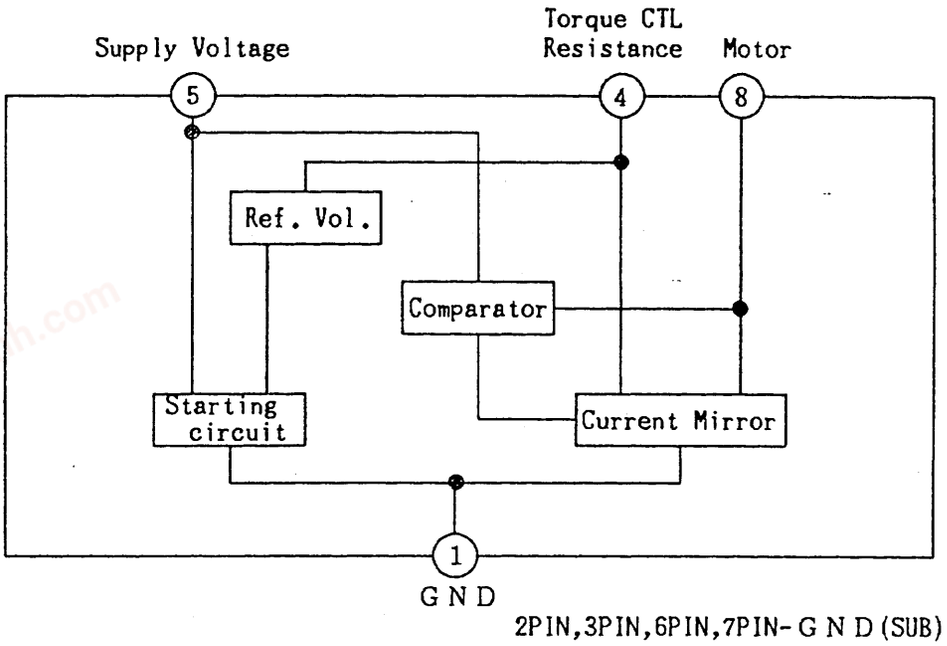


Fig-2 BLOCK DIAGRAM

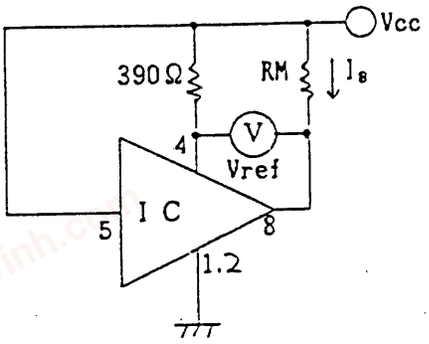
A4 63.11(1×100×20) Y

chanhvinh.com

TEST CIRCUIT

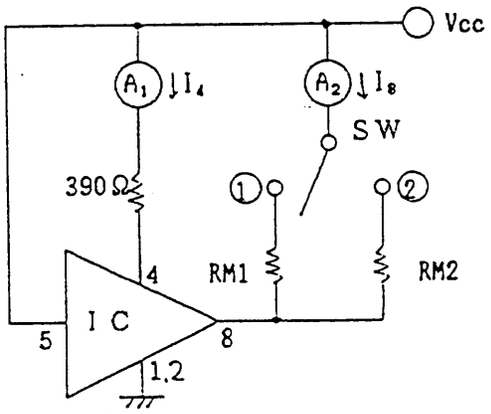
TEST CIRCUIT1

$$\left(V_{ref}, \frac{\Delta V_{ref}}{V_{ref}} / \Delta V_{cc}, \frac{\Delta V_{ref}}{V_{ref}} / \Delta I_B, \frac{\Delta V_{ref}}{V_{ref}} / \Delta T_a \right)$$



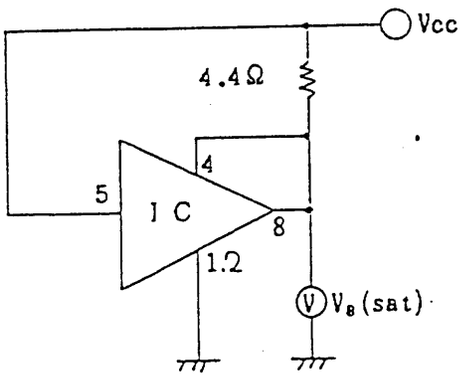
TEST CIRCUIT2

$$\left(K, \frac{\Delta K}{K} / \Delta V_{cc}, \frac{\Delta K}{K} / \Delta I_B, \frac{\Delta K}{K} / \Delta T_a \right)$$

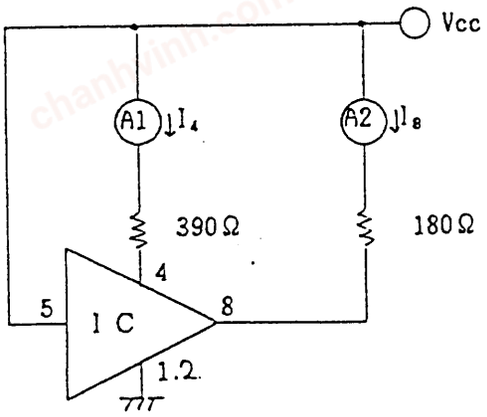


$$K = \frac{I_B(sw②) - I_B(sw①)}{I_4(sw②) - I_4(sw①)}$$

TEST CIRCUIT3 ($V_{B(sat)}$)



TEST CIRCUIT4 ($I_{(4)}$)



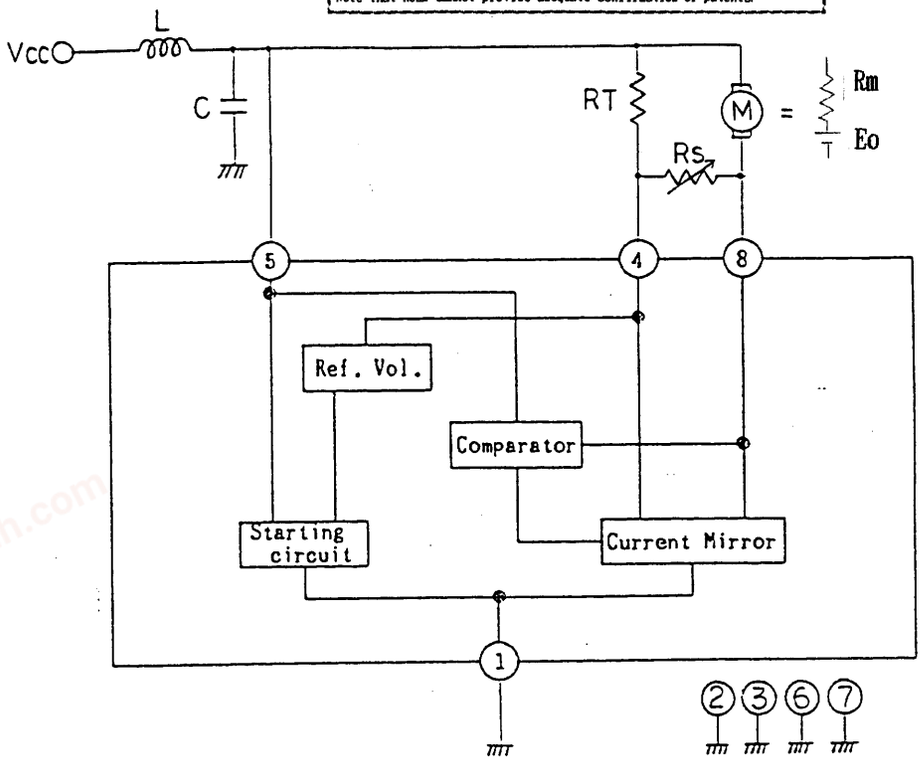
$$I_{(4)} = I_4 - \frac{I_B}{K}$$

Date NOV./28/'91	Specification
ROHM CO., LTD.	Specification No.

chanhvinh.com

Application example
The application circuit is recommended for use.
Make sure to confirm the adequacy of the characteristics.
When using the circuit with changes to the external circuit constants, make sure to leave an adequate margin for external components including static and transitional characteristics as well as dispersion of the IC.
Note that ROHM cannot provide adequate confirmation of patents.

APPLICATION EXAMPLE



RT : Torque Control Resistor
Rs : Speed Control Resistor

THE PRINCIPLE FORMULAS

$$\begin{cases} Et = Vref + RT\left(i_4 + \dfrac{Vref}{Rs}\right) \\ i_4 = \dfrac{1}{K} i_8 + iq \\ i_8 = im + \dfrac{Vref}{Rs} \end{cases}$$

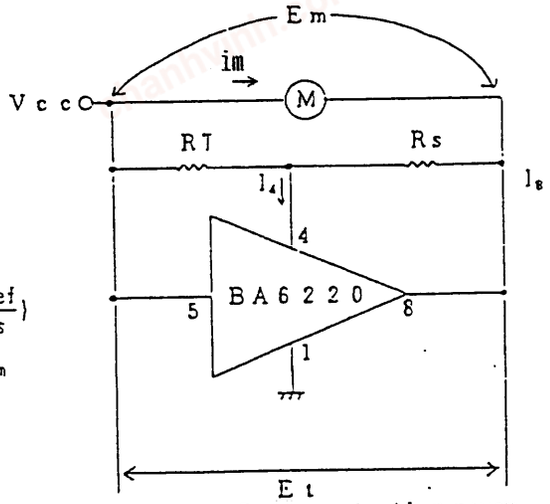
$$Et = Vref + RT\left(\frac{1}{K} i_8 + iq + \frac{Vref}{Rs}\right)$$

$$Et = Vref + RT\left\{\frac{1}{K}\left(im + \frac{Vref}{Rs}\right) + iq + \frac{Vref}{Rs}\right\}$$

$$Et = Vref\left\{1 + \frac{RT}{Rs}\left(1 + \frac{1}{K}\right)\right\} + RT\,iq + \frac{RT}{K} im$$

If $Em = Eo + Rm\,im$ then

$$\begin{cases} Eo = Vref\left\{1 + \dfrac{RT}{Rs}\left(1 + \dfrac{1}{K}\right)\right\} + RT\,iq \\ Rm = \dfrac{RT}{K} \end{cases}$$

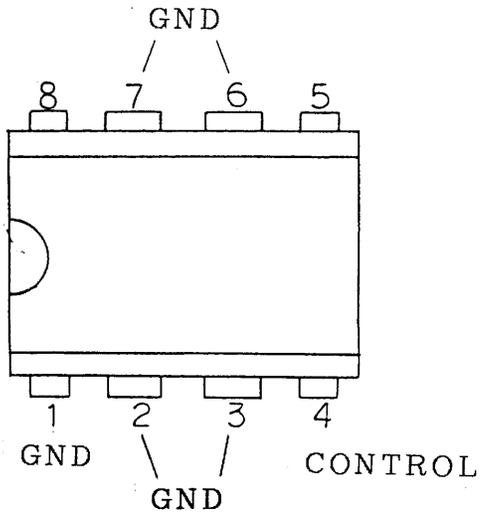


Eo : Inverse starting power
Rm : In-motor impedance
K : Current proportion ($=i_8/i_4$)

RT is decided by internal inpedance and current characteristics.
RS is selected for fixing the inital rotation.

Date NOV./28/'91	Specification
ROHM CO., LTD.	Specification No.

chanhvinh.com



BA6220 Motor Governor IC Pin Lay-out

Date NOV/28/1991	Specification
ROHM CO., LTD.	Specification No.

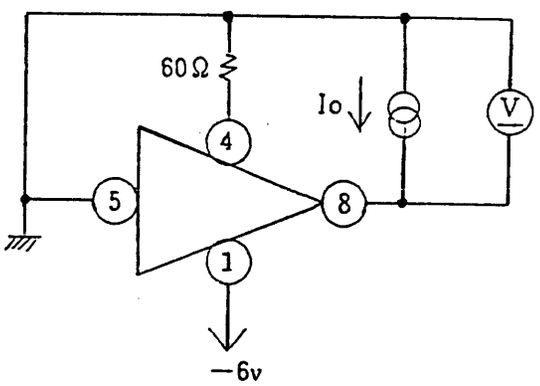
chanhvinh.com

Ranking of Electrical Characteristics(by ΔV value)

1. Ranking

Rank	ΔV value(mv)
K	340 ~ 380
L	310 ~ 350
M	280 ~ 320

2. ΔV Test Circuit



3. ΔV Measuring Conditions

V1 : Voltag at I_o = 40mA
V2 : Voltag at I_o = 160mA
ΔV = V2 − V1

ROHM assumes no responsibility for the use of any circuits described herein, conveys no license under any patent or other right, and makes no representations that the circuits are free from patent infringement.

Date MAR/25/'94	Specification
ROHM CO., LTD.	Specification No.