



## BA6220

## LINEAR INTEGRATED CIRCUIT

### GENERAL USE ELECTRONIC GOVERNOR

#### DESCRIPTION

The UTC **BA6220** is a monolithic integrated circuit, developed for speed control of general use DC motors.

#### FEATURES

- \* Wide range of working power supply voltage range ( $V_{CC} = 3.5V - 16V$ ).
- \* Very large starting torque at the low voltage.
- \* Large permissible loss due to effective utilization of substrate radiation.
- \* Usable for various DC motors by means of changing constants of the external components.

#### APPLICATION

- \* Radio cassette tape recorders

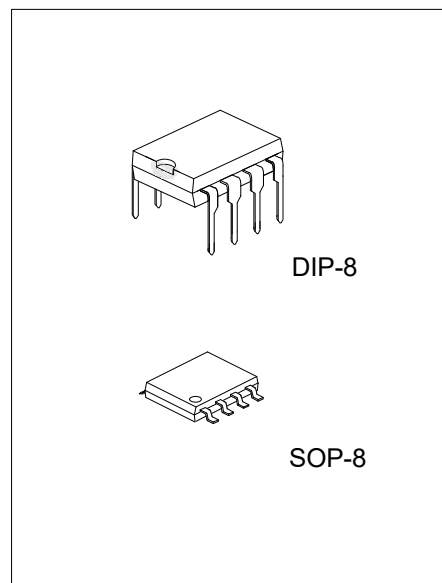
#### ORDERING INFORMATION

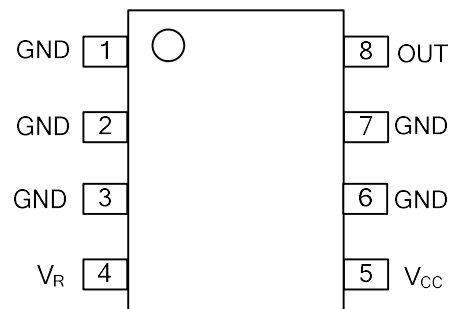
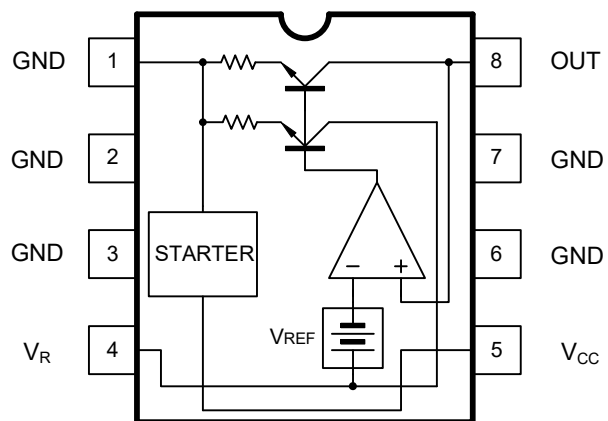
Ordering Number		Package	Packing
Lead Free	Halogen Free		
BA6220L-D08-T	BA6220G-D08-T	DIP-8	Tube
BA6220L-S08-R	BA6220G-S08-R	SOP-8	Tape Reel

<p>BA6220G-D08-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) D08: DIP-8, S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING

DIP-8	SOP-8
<p>8 7 6 5</p> <p>UTC □ □ □ □ → Date Code</p> <p>BA6220 □ □ → L: Lead Free</p> <p>□ □ → G: Halogen Free</p> <p>□ □ → Lot Code</p> <p>1 2 3 4</p>	<p>8 7 6 5</p> <p>UTC □ □ □ □ → Date Code</p> <p>BA6220 □ □ → L: Lead Free</p> <p>□ □ → G: Halogen Free</p> <p>□ □ → Lot Code</p> <p>1 2 3 4</p>



**■ PIN CONFIGURATION****■ BLOCK DIAGRAM**

■ **ABSOLUTE MAXIMUM RATINGS** ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified.)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	18	V
Power Dissipation (Note 2)	DIP-8	1.4	W
	SOP-8	0.8	W
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$
Operating Temperature	$T_{OPR}$	-25 ~ +75	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. PCB (Copper-surfaced)  $9\text{cm}^2$ ,  $T$  1.0mm.

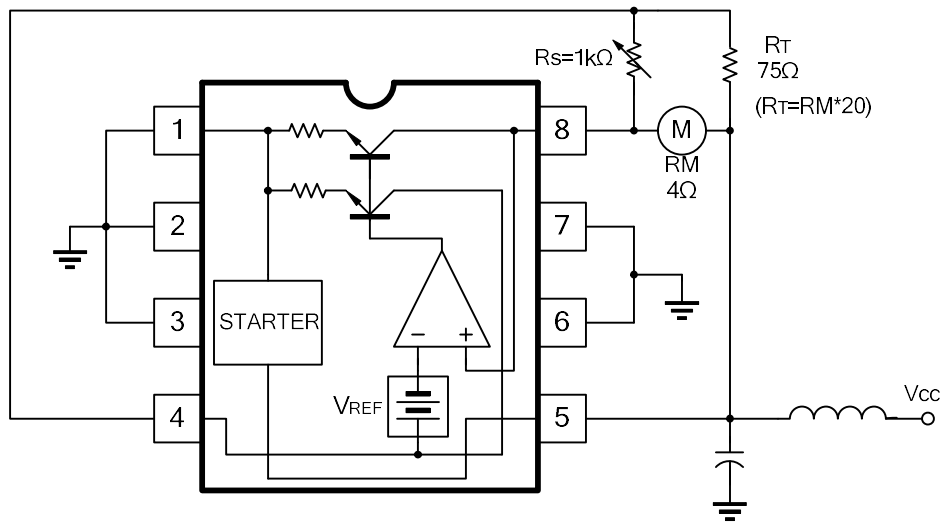
■ **RECOMMENDED OPERATING CONDITIONS** ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Supply Voltage	$V_{CC}$	Loader: 8g-cm	3.5		16	V

■ **ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$ ,  $V_{CC}=12\text{V}$ , unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Saturate Voltage	$V_{SAT}$	$V_{CC}=4.2\text{V}$ , $R_M=4.4\Omega$ (Fig.3)		1.5	2.3	V
Reference Voltage	$V_{REF}$	$I_M=10\text{mA}$ (Fig.1)	1.10	1.27	1.40	V
Current Ratio	K	$R_M=33 - 44\Omega$ (Fig.2)	18	20	22	
Voltage Feature of Reference Voltage	$\Delta V_{REF}/V_{REF}/\Delta V_{CC}$	$I_M=100\text{mA}$ , $V_{CC}=6.3 - 16\text{V}$ (Fig.1)		0.06		%/V
Voltage Feature of Current Ratio	$\Delta K/K/\Delta V_{CC}$	$I_M=100\text{mA}$ , $V_{CC}=6.3 - 16\text{V}$ (Fig.2)		0.4		%/V
Bias Current	$I_{BIAS}$	$R_M=180\Omega$ (Fig.4)	0.5	0.8	1.2	mA
Current Feature of Reference Voltage	$\Delta V_{REF}/V_{REF}/\Delta I_M$	$I_M=30 - 200\text{mA}$ (Fig.1)		-0.02		%/mA
Current Feature of Current Ratio	$\Delta K/K/\Delta I_M$	$I_M=30 - 200\text{mA}$ (Fig.2)		-0.02		%/mA
Temperature Feature of Reference Voltage	$\Delta V_{REF}/V_{REF}/\Delta T_A$	$I_M=100\text{mA}$ , $T_A=-25 \sim 75^{\circ}\text{C}$ (Fig.1)		0.01		%/ $^{\circ}\text{C}$
Temperature Feature of Current ratio	$\Delta K/K/\Delta T_A$	$I_M=100\text{mA}$ , $T_A=-25 \sim 75^{\circ}\text{C}$ (Fig.2)		0.01		%/ $^{\circ}\text{C}$

## ■ APPLICATION CIRCUIT



## ■ TEST CIRCUIT

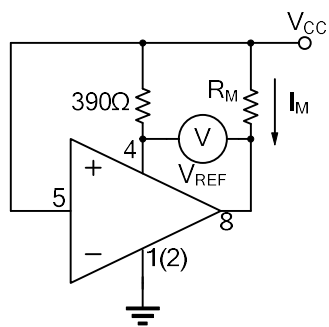


Fig. 1

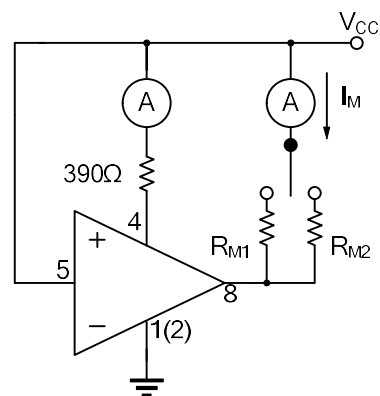


Fig. 2

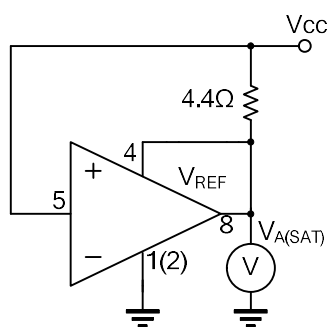


Fig. 3

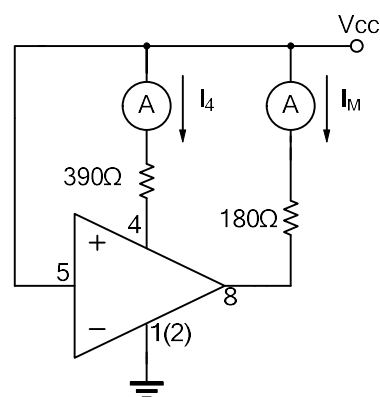
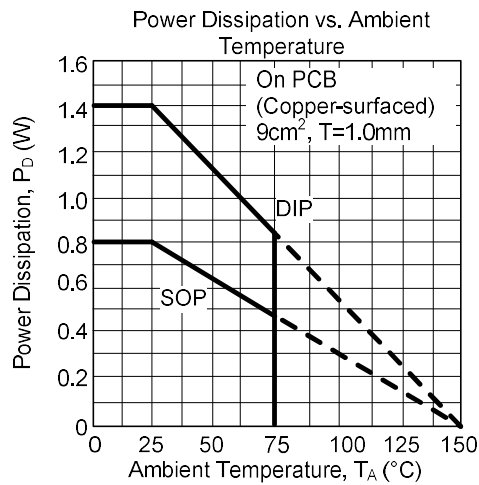


Fig. 4

## ■ TYPICAL CHARACTERISTICS



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