

3V electronic governor

BA6235F

The BA6235 and BA6235F are ICs for controlling the speed of low voltage DC motors. They consist of a reference voltage generator, current multiplier, and DC amplifier. The speed of DC motor is controlled by detecting the counter-electromotive force generated by the motor. Various DC motors can be driven by changing the external CR time constants.

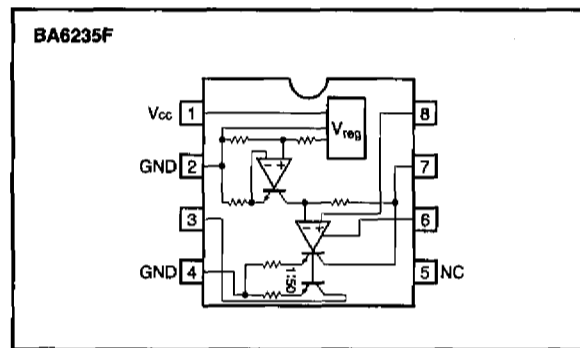
●Applications

3V radio cassette tape recorders
Micro-cassette tape recorders

●Features

- 1) Wide range of operating voltage. (1.8~5V)
- 2) Low current consumption. ($I_a=2.0\text{mA}$)
- 3) Various DC motors can be driven by changing the external CR time constants.

●Block diagram



●Absolute maximum ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Power supply voltage	V_{cc}	8.0	V
Power dissipation	BA6235F P_d	350*	mW
Operating temperature	T_{opr}	-20~75	$^\circ\text{C}$
Storage temperature	T_{stg}	-55~125	$^\circ\text{C}$

* Reduce power by 5.0 mW for each degree above 25 $^\circ\text{C}$.

●Recommended operating conditions ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{cc}	1.8	3.0	5.0	V
Maximum motor current	I_M	-	-	800	mA

●Electrical characteristics (Unless otherwise noted, Ta=25°C and Vcc=3.0V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	I_o	—	2.0	5.5	mA	$I_M=0mA$
Output saturation voltage	$V_{O_{sat}}$	—	0.1	0.3	V	$I_M=120mA$
Reference voltage	V_{REF}	165	190	215	mV	$I_M=120mA$
Current ratio	K	45	50	55	—	$I_M=50\sim150mA$
Reference voltage vs. voltage	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta V_{CC}$	—	0.1	—	% / V	$I_M=120mA, V_{CC}=1.8\sim3.5V$
Current ratio vs. voltage	$\frac{\Delta K}{K} / \Delta V_{CC}$	—	0.1	—	% / V	$I_M=50\sim150mA, V_{CC}=1.8\sim3.5V$
Reference voltage vs. current	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta I_M$	—	0.002	—	% / mA	$I_M=20\sim200mA$
Current ratio vs. current	$\frac{\Delta K}{K} / \Delta I_M$	—	0.05	—	% / mA	$I_M=20\sim200mA$
Reference voltage vs. temperature	$\frac{\Delta V_{REF}}{V_{REF}} / \Delta T_a$	—	0.02	—	% / °C	$I_M=120mA, T_a=-20\sim75^\circ C$
Current ratio vs. temperature	$\frac{\Delta K}{K} / \Delta T_a$	—	0.02	—	% / °C	$I_M=50\sim150mA, T_a=-20\sim75^\circ C$

●Application circuit example

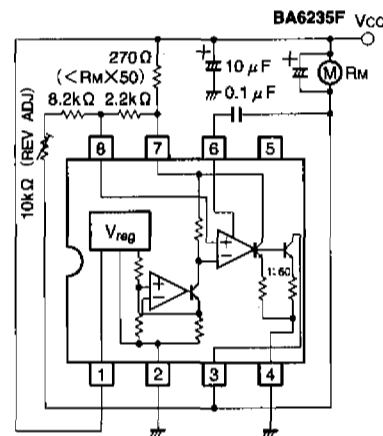


Fig.1

● External dimensions (Units: mm)

