2-PHASE DD MOTOR DRIVER

The kA8310 is a monolithic integrated circuit for 2-phase full wave linear DD motor driving. This IC contains hall AMP, control circuit, CW/CCW circuit, thermal shutdown circuit and motor drivers.

20-ZIP-325

FUNCTION

- TSD
- CTL/AMP
- CW/CCW
- HALL AMP
- Driver & AMP

FEATURES

- Incorporates rotation direction switching function.
- With regulated power supply for hall device feeding.
- High output current-control current ratio.
- High power dissipation.
- Built-in TSD (Thermal Shut Down) circuit.

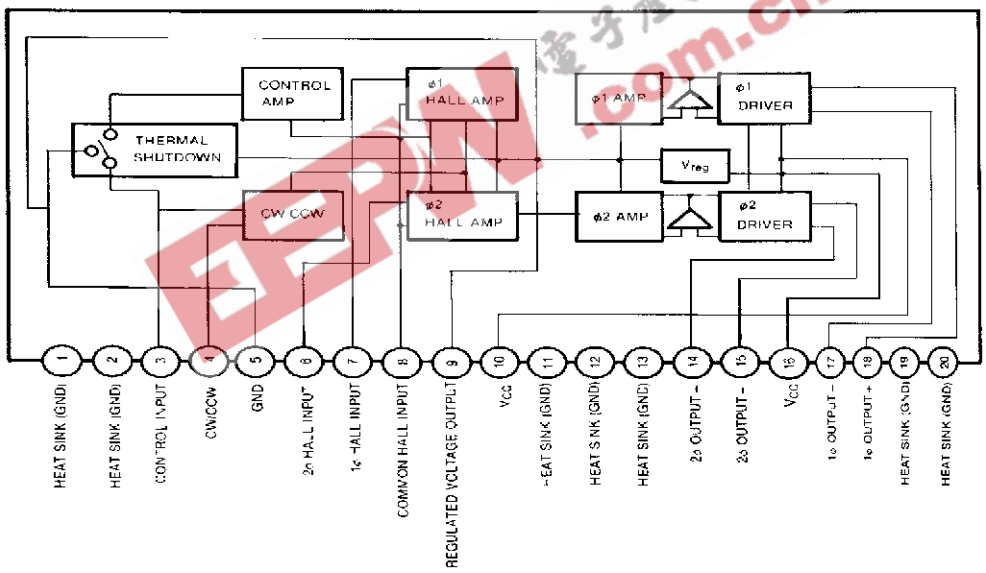
APPLICATION

- VCRs, video disk players
- Compact disk players
- Tape recorders

ORDERING IN FORMATION

Device	Package	Operating Temperature
KA8310	20-ZIP-325	-20℃~+75℃

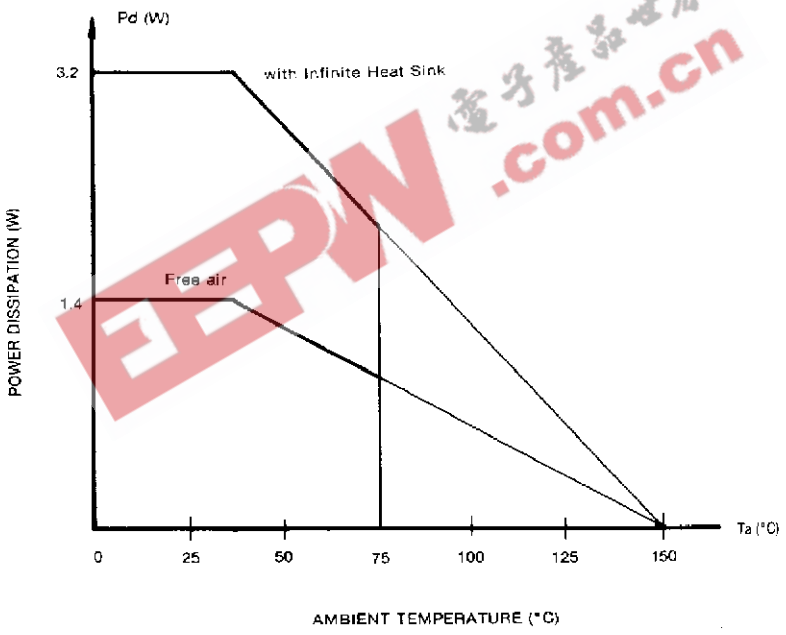
BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit	Remark
Supply Voltage	V_{CC}	20	V	
Maximum Output Current (1)	I_O1	2.4	A	No Signal
Maximum Output Current (2)	I_O2	1.6		
Hall Input Voltage	V_H	6	V	DC
Pin 3 Current	I_3	1	mA	
Pin 4 Voltage	V_4	VREG	V	
Output Current	I_{REG}	40	mA	
Pin 16 Voltage	V_{16}	VCC	V	$V_{CC} \geq V16$
AMP Common Input Voltage	V_{COM}	VREG-1.0	V	
Hall Device Frequency	f_{HALL}	1	KHz	
Operating Voltage Range	V_{OPR}	7.2~20	V	
Junction Temperature	T_J	150	℃	
Operating Temperature	T_{OPR}	-20~+75	℃	
Storage Temperature	T_{STG}	-40~+150	℃	

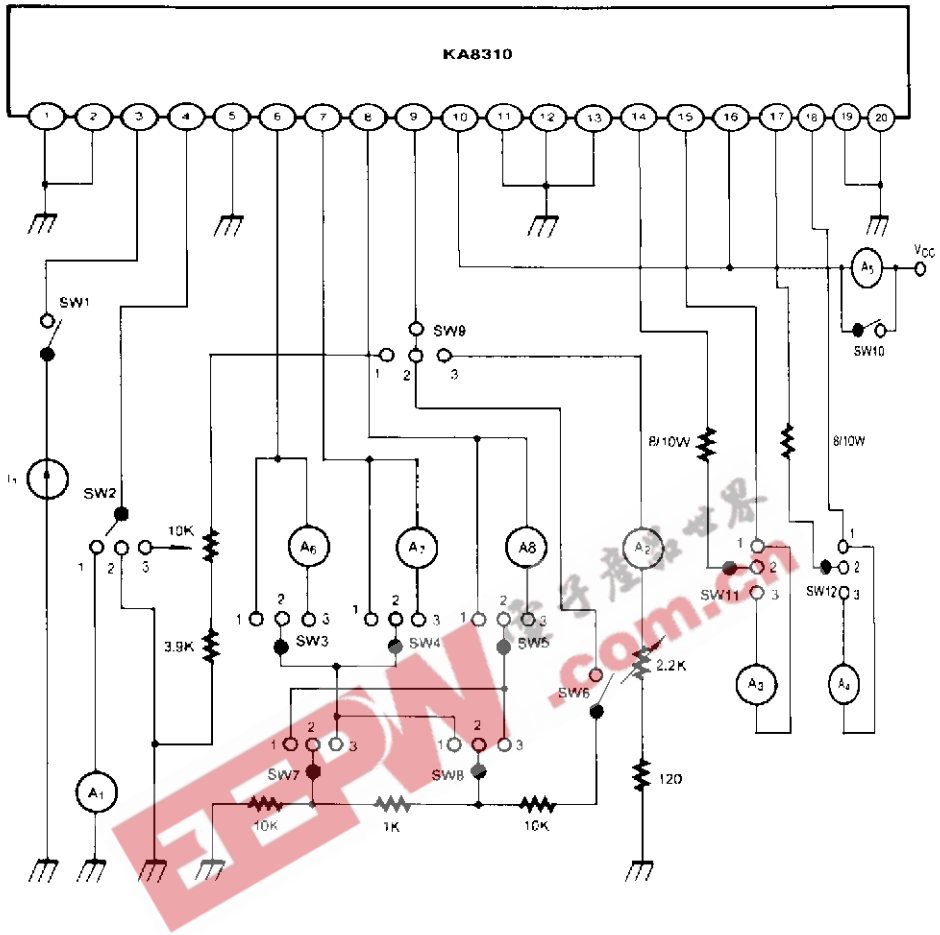
POWER DISSIPATION CURVE



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

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Quiescent Current	IQ	I_1=0μA	4.5	6.5	8.5	mA
Regulated Voltage (1)	V_{REG1}	I_1=0μA	6.0	6.7	7.4	V
Regulated Voltage (2)	V_{REG2}	I_1=0μA A_2=10mA	6.0	6.7	7.4	V
Regulated Voltage (3)	V_{REG3}	I_1=0μA A_2=30mA	6.0	6.7	7.4	V
ControlInput Voltage	V_{CT1}	$I_1$10μA	1.2	1.35	1.5	V
CW/CCW Output Current	I_4	I_1=0μA	200	410	600	μA
CW/CCW Threshold Voltage (1)	VT_1	V_6=V_7=3.1V V_8=3.4V I_1=50μA	2.5	—	—	V
CW/CCW Threshold Voltage (1)	VT_2	V_6=V_7=3.1V V_8=3.4V I_1=50μA	2.5			V
Current Gain (1)	G_1	V_6=3.1V V_8=3.4V I_1=100μA G_1=I_{OUT2}/I_1	4000	4700	5500	-
Current Gain (2)	G_2	V_6=3.4V V_8=3.1V I_1=100μA G_2=I_{OUT2}/I_1	4000	4700	5500	-
φ1, φ2 Current Ratio	R	R=G_1/G_2	0.8	1	1.2	
Output Current (1)	I_{OUT1}	V_6=3.4V V_8=3.1V I_1=180μA	750	890	1150	mA
Output Current (2)	I_{OUT2}	V_7=3.4V V_8=3.1V I_1=180μA	750	890	1150	mA

TEST CIRCUIT

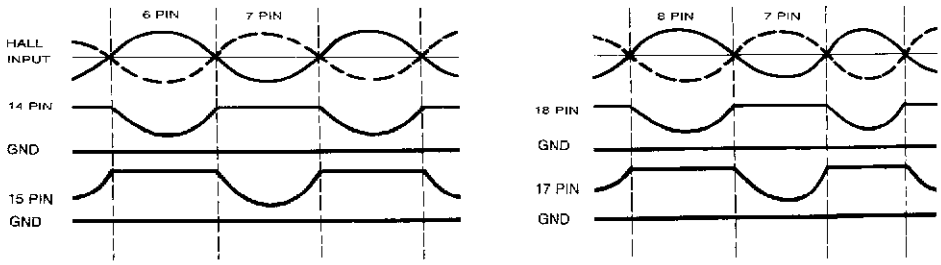


TEST METHOD (V_{CC}=12V)

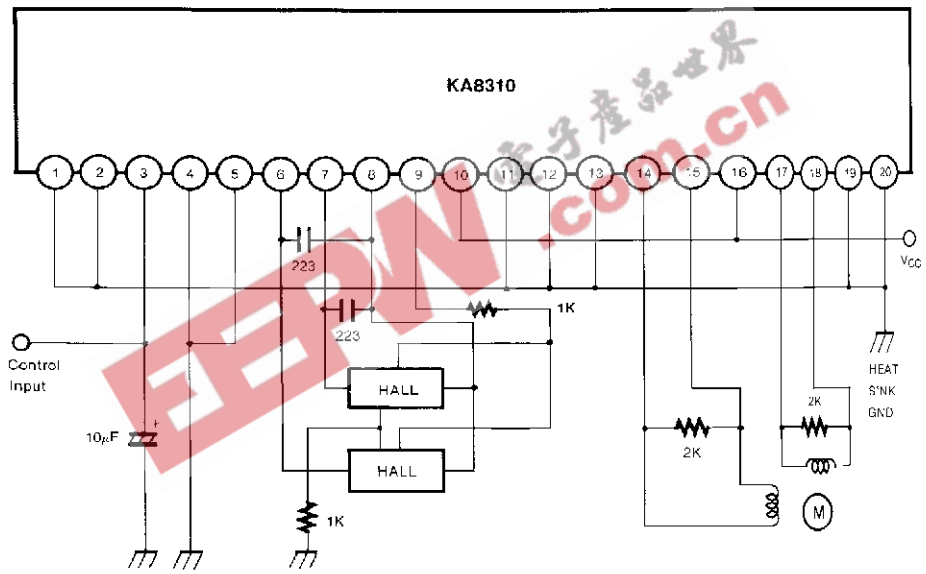
TEST Characteristic	Condition	Switch Condition												Test Point
		SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11	SW12	
Quiescent Current	I_1=0μA	1	2	2	2	2	2	2	2	2	2	2	2	A5
Regulated Voltage (1)	I_1=0μA	1	2	2	2	2	2	2	2	2	1	2	2	Pin9
Regulated Voltage (2)	I_1=0μA A_2=10mA	1	2	2	2	2	2	2	2	3	1	2	2	Pin9
Regulated Voltage (3)	I_1=0μA A_2=30mA	1	2	2	2	2	2	2	2	3	1	2	2	Pin9
Control Input Voltage	$I_1$10μA	1	2	2	2	2	2	2	2	2	1	2	2	Pin3
CW/CCW Output Current	I_1=0μA	1	1	2	2	2	2	2	2	2	1	2	2	A1
CW/CCW Threshold Voltage (1)	V_6=V_7=3.1V V_8=3.4V I_1=50μV	1	3	1	1	1	1	3	3	1	1	3	2	Pin4 (A_3)
CW/CCW Threshold Voltage (2)	V_6=V_7=3.1V V_8=3.4V I_1=50μA	1	3	1	1	1	1	3	3	1	1	2	3	Pin4 (A_4)
Current Gain (1)	V_6=3.1V V_8=3.4V I_1=100μA	1	2	1	2	1	1	3	3	2	1	3	2	A_3/I_1
Current Gain (2)	V_6=3.4V V_8=3.1V I_1=100μA	1	2	2	1	1	1	3	3	2	1	2	3	A_4/I_1
ϕ1, ○2 Current Ratio														
Output Current (1)	V_6=3.4V V_8=3.1V I_1=180μA	1	2	1	2	1	1	1	1	2	1	3	2	A3
Output Current (2)	V_7=3.4V V_8=3.1V I_1=180μA	1	2	2	1	1	1	1	1	2	1	2	3	A4

APPLICATION INFORMATION

OUTPUT WAVE FORM (4 PIN GND)



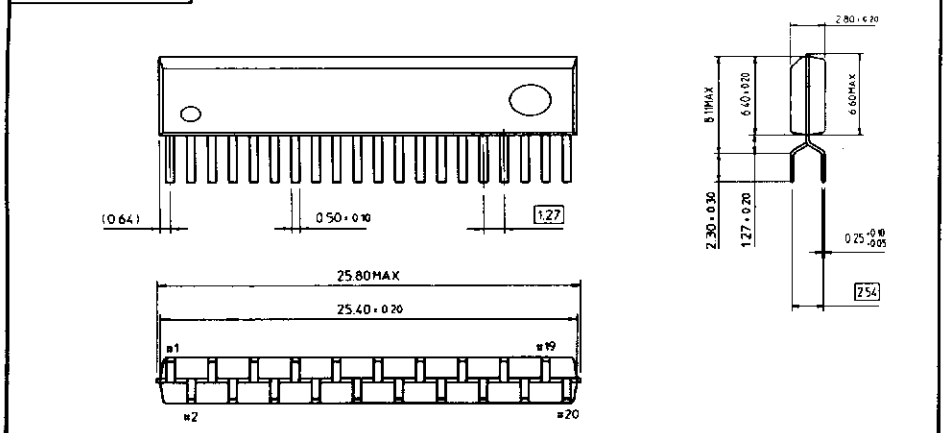
APPLICATION CIRCUIT



*The Application of HALL BIAS Pins must to follow above circuits.

Dimensions in Milimeters

20-ZIP-325



24-ZIP-400