

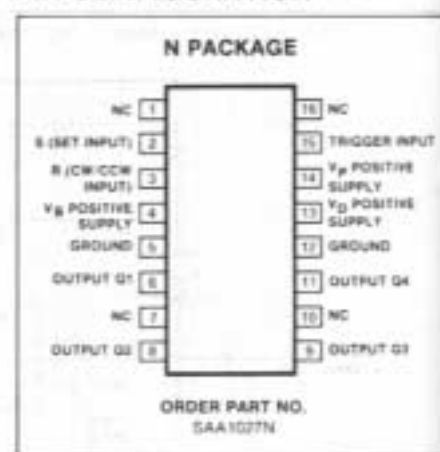
DESCRIPTION

The SAA1027 is intended for driving a four phase two stator stepper motor. The circuit consists of four output stages, a logic part and three input stages. The logic part is driven by three input stages; a trigger input stage, an input stage which can change the switching sequence of the logic part so that the motor can rotate clock wise (CW) or counter clock wise (CCW) and a set input stage to set the four output stages. The three inputs are compatible with high noise immunity logic to ensure proper operation, even in noisy environments. The output can deliver 350mA in each phase. The right switching sequence of the four phases is obtained from the logic part of the circuit. Integrated diodes protect the outputs against transient spikes.

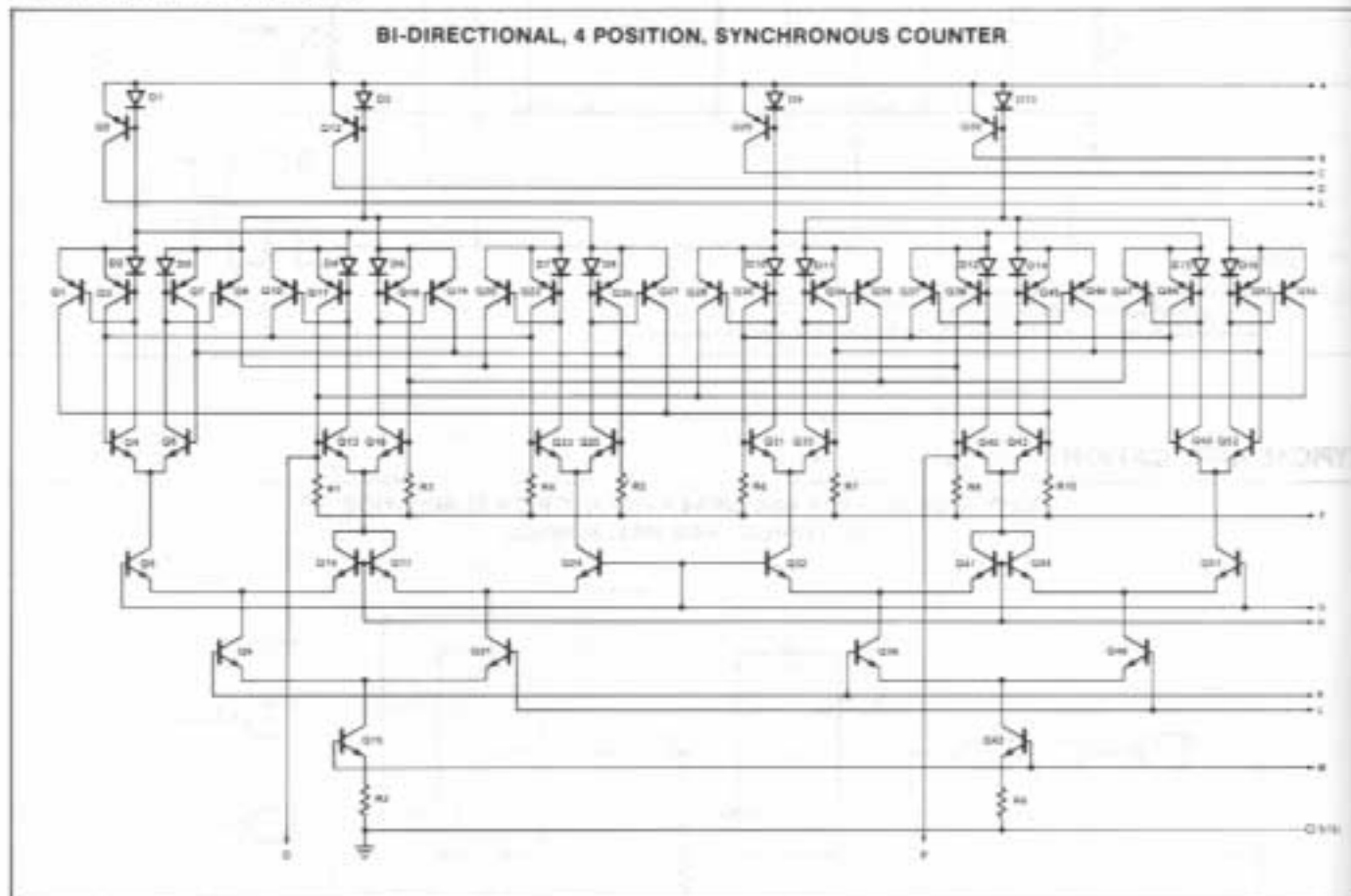
FEATURES

- CW or CCW rotation
- 4-phase drive
- Few external components

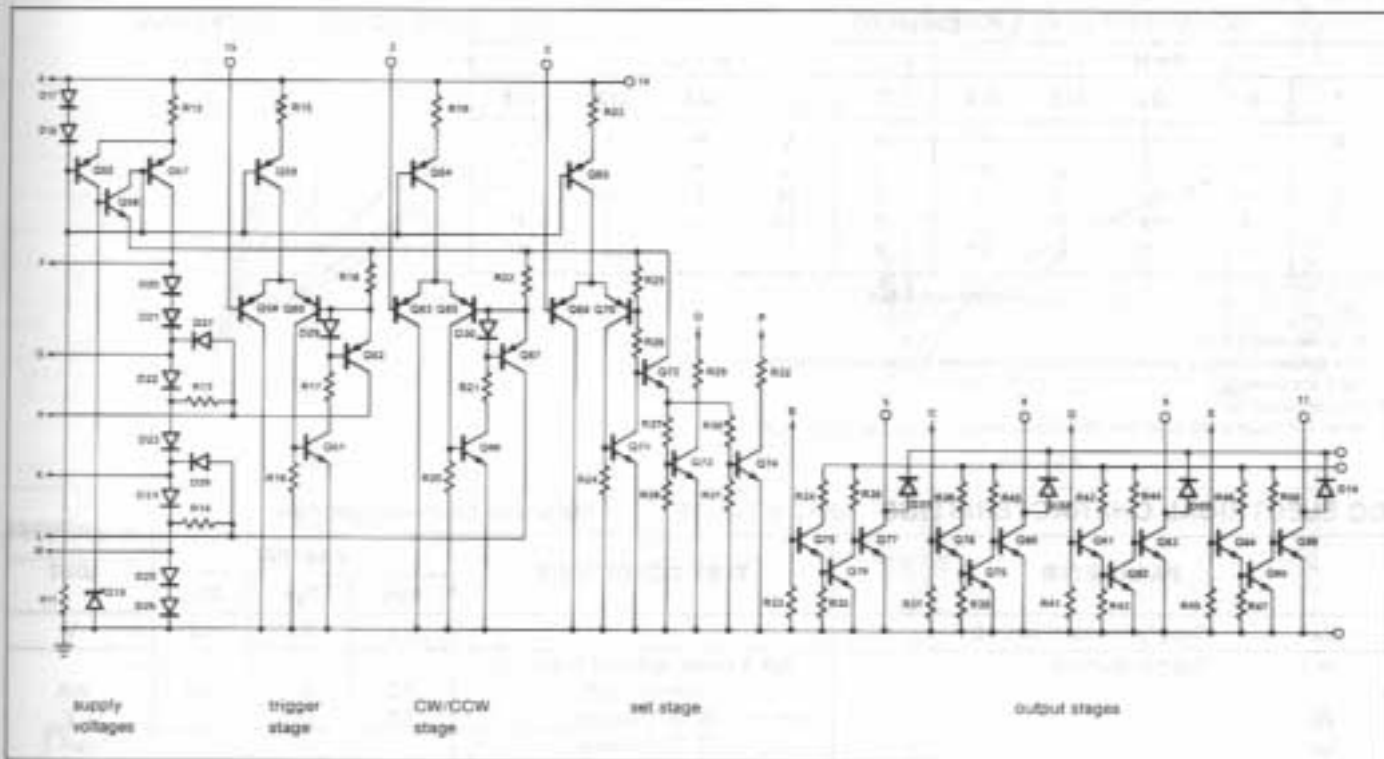
PIN CONFIGURATION



EQUIVALENT SCHEMATIC



EQUIVALENT SCHEMATIC (Cont'd)



ABSOLUTE MAXIMUM RATINGS Limiting values in accordance with the Absolute Maximum System (IEC 134)

PARAMETER	RATING	UNIT
VOLTAGES		
V _P Supply voltage (pin 4, 13, 14)	20	V
V _I Input voltage; R (pin 3), S (pin 2), T (pin 15)	20	V
CURRENT		
I _O Output current; Q ₁ (pin 6), Q ₂ (pin 8), Q ₃	500	mA
POWER DISSIPATION		
	See figure 1	
TEMPERATURES		
T _{STG} Storage temperature	-40 to +125	°C
T _A Operating ambient temperature	-20 to +70	°C
THERMAL RESISTANCE		
θ _{JA} From junction to ambient	70	°C/W

NOTE

Additional power caused by the self-inductance of the motor-coils will be dissipated in the coils (Q1 to Q12).

TRUTH TABLE 1,2

		S = H								
		R = H				R = L				
T		Q1	Q2	Q3	Q4	T	Q1	Q2	Q3	Q4
0		L	H	L	H	0	L	H	L	H
1		H	L	L	H	1	L	H	H	L
2		H	L	H	L	2	H	L	H	L
3		L	H	H	L	3	H	L	L	H
4		L	H	L	H	4	L	H	L	H

Trigger Conditions: T

NOTES

- Direction conditions (R)
The direction of rotation can be changed at any moment independent of the state of the T and S inputs.
- Set conditions (S)
When T is HIGH and S LOW then the outputs are set: Q1 = L, Q2 = H, Q3 = L, Q4 = H.

DC ELECTRICAL CHARACTERISTICS -20°C ≤ TA ≤ 65°, VP = 12V unless otherwise specified.

PARAMETER	TEST CONDITIONS	SAA1027			UNIT
		Min	Typ	Max	
VP	Supply voltage (pin 14)	9.5	12	18	V
IP	Supply current	Pin 4 open, without loads, all inputs high			
VIH	R, S, T inputs	2.0	4.5	6.5	mA
IiH	R, S, T inputs	7.5	1		V
VIL	R, S, T inputs			4.5	μA
IiL	R, S, T inputs		30		V
VO	Supply voltage	1.5	12	18	μA
IQ	Supply current	Each output stage			
VSAT	Saturation voltage			350	V
	Bias voltage and current			1	
	Bias resistor	Reference Figure 2.			
	Bias resistor power dissipation	Reference Figure 3.			
	Device power dissipation	Reference Figure 4.			

TYPICAL PERFORMANCE CHARACTERISTICS

