SILICON GENERAL

LINEAR INTEGRATED CIRCUITS

QUAD SINK MEMORY DRIVER

DESCRIPTION

The SG55326/SG75326 is a monolithic quad positive-OR sink driver designed to meet the high current and fast switching speed requirements of magnetic memory systems. Each driver is independently controlled and capable of sinking up to 600mA.

Paired with the SG55327 Quad Source Driver, the SG55326/SG75326 provides the current drive necessary for many sink/source applications.

Although designed specifically for magnetic memory applications, the SG55326/SG75326 has been used to drive clock circuits, relays, lamps, and small motors, or any application where a 600mA sink driver is needed.

The SG55326 is characterized for use over the full military operating ambient temperature range of -55°C to 125°C while the SG75326 is characterized over the operating ambient temperature of 0°C to 70°C.

These devices are available in 16-pin ceramic DIP, 16-pin plastic DIP, and 16-pin flatpack.

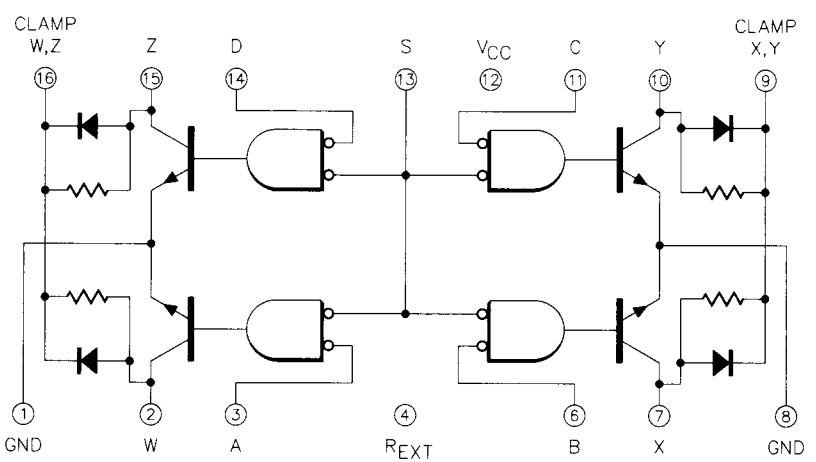
FEATURES

- **600mA output current sink capability**
- **24V output capability**
- **Clamp voltage variable to 24V**
- **High-repetition-rate driver compatible with high–speed magnetic memories**
- **Inputs compatible with TTL level decoders**
- **Minimum time skew between strobe and output–current rise**
- **Pulse-transformer coupling eliminated**
- **Drive-line lengths reduced**

HIGH RELIABILITY FEATURES - SG55326

- **Available to MIL-STD-883**
- **MIL-M-38510/13002BEA - JAN55326J**
- **SG level "S" processing available**

BLOCK DIAGRAM



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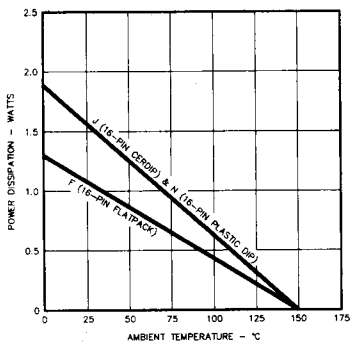
ABSOLUTE MAXIMUM RATINGS (Note1)

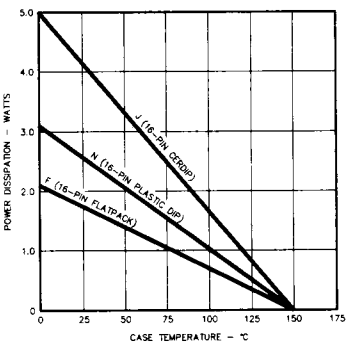
Supply Voltage (V_{CC}) (Note 2) 7.0V
Input Voltage (any address or strobe input) 5.5V
Output Collector Voltage 25V
Output Clamp Voltage 25V
Output Collector Current 750mA
Operating Ambient Temperature (T_C)
Hermetic (J, F-Packages) ..... 150°C
Plastic (N-Package) ..... 150°C
Storage Temperature Range ..... -65°C to 150°C
Lead Temperature (Soldering, 10 seconds) ..... 300°C

Note 1. Values beyond which damage may occur.
Note 2. Voltage values are with respect to network ground terminal.

THERMAL DERATING CURVES



MAXIMUM POWER DISSIPATION vs AMBIENT TEMPERATURE



MAXIMUM POWER DISSIPATION vs CASE TEMPERATURE

RECOMMENDED OPERATING CONDITIONS (Note 3)

Supply Voltage (V_{CC}) ..... 4.5V to 5.5V
Output Collector Voltage 24V
Output Clamp Voltage (V_{CLAMP}) ..... 4.5V to 24V
Output Collector Current 600mA
Operating Ambient Temperature Range:
SG55326 ..... -55°C to 125°C
SG75326 ..... 0°C to 70°C

Note 3. Range over which the device is functional.

ELECTRICAL SPECIFICATIONS

(Unless otherwise specified, these specifications apply over the operating ambient temperatures for SG55326 with $-55°C \le T_A \le 125°C$, and SG75326 with $0°C \le T_A \le 70°C$. All typical values are measured at $T_A = 25°C$. Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

Parameter	Test Conditions	SG55326			SG75326			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Static Section								
High-Level Input Voltage (V_{IH})		**2**			**2**			**V**
Low-Level Input Voltage (V_{IL})				0.8			0.8	V
Input Clamp Voltage (V_{IK})	**V_{CC} = 4.5V, I_{IN} = -10mA, T_A = 25°C**		**-1.0**	**-1.7**		**-1.0**	**-1.7**	**V**
High-Level Output Voltage (V_{OH})	V_{CC} = 4.5V, I_{OUT} = 0	19	23		19	23		V
Saturation Voltage (V_{SAT}) (Note 4)	**V_{CC} = 4.5V, I_{SINK} = 600mA**			**0.9**			**0.9**	**V**
	V_{CC} = 4.5V, I_{SINK} = 600mA, T_A = 25°C		0.43	0.70		0.43	0.75	V
Output-Clamp-Diode Forward Voltage ($V_{F(CLAMP)}$)	V_{CLAMP} = 0V, I_{CLAMP} = -10mA, T_A = 25°C			1.5			1.5	V
Output-Clamp Current (I_{CLAMP})	**One Output On, I_{SINK} = 50mA, T_A = 25°C**		**5**	**7**		**5**	**7**	**mA**
Input Current (I_{IN})	V_{IN} = 5.5V							
Address				**1**			**1**	**mA**
Strobe				4			4	mA
High-Level Input Current (I_{IH})	**V_{IN} = 2.4V**							
Address				40			40	µA
Strobe				**160**			**160**	**µA**

ELECTRICAL SPECIFICATIONS (continued)

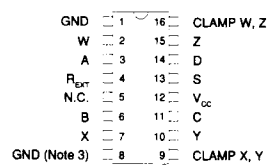
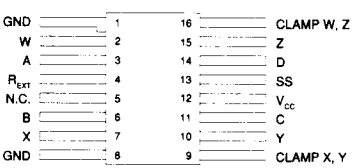
Parameter	Test Conditions	SG55326 Min.	SG55326 Typ.	SG55326 Max.	SG75326 Min.	SG75326 Typ.	SG75326 Max.	Units
Static Section (continued)								
Low-Level Input Current (I_{IL})	**V_{IN} = 0.4V**							
Address			-1.0	-1.6		-1.0	-1.6	mA
Strobe			**-4.0**	**-6.4**		**-4.0**	**-6.4**	**mA**
Supply Current	All outputs off, all inputs at 5V, T_A = 25°C		18	25		18	25	mA
Supply Current	**One output on, I_{SINK} = 50mA, T_A = 25°C**		**58**	**75**		**58**	**75**	**mA**

Parameter	To (Output)	Test Conditions	SG55326/75326 Min.	SG55326/75326 Typ.	SG55326/75326 Max.	Units
Dynamic Section (Note 5)						
Propagation Delay, Low to High (TPLH)	**W, X, Y, or Z**			**30**	**50**	**ns**
Propagation Delay, High to Low (TPHL)	W, X, Y, or Z			25	50	ns
Transition Time, Low to High (TTLH)	**W, X, Y, or Z**			**7.0**	**15**	**ns**
Transition Time, High to Low (TTHL)	W, X, Y, or Z			10	20	ns
Storage Time	**W, X, Y, or Z**			**24**	**35**	**ns**
High-Level Output Voltage (V_{OH})		$V_S = V_{CLAMP}$ = 24V, $I_{SINK} \approx$ 500mA, **C_L = 25pF, R_L = 47Ω**	V_S–25			mV

Note 4. Under these conditions, not more than one output is to be on at any one time.

Note 5. Unless otherwise specified, V_{CC} = 5V, $V_S = V_{CLAMP}$ = 15V, C_L = 25pF, R_L = 24Ω, and T_A = 25°C.

CONNECTION DIAGRAMS & ORDERING INFORMATION (See Notes Below)

Package	Part No.	Ambient Temperature Range	Connection Diagram
16-PIN CERAMIC DIP J - PACKAGE	SG55326J/883B SG55326J SG75326J	-55°C to 125°C -55°C to 125°C 0°C to 70°C	
16-PIN PLASTIC DIP N - PACKAGE	SG75326N	0°C to 70°C	
16-PIN CERAMIC FLAT PACK F - PACKAGE	SG55326F/883B SG55326F	-55°C to 125°C -55°C to 125°C	

Note 1. All packages are viewed from the top.
Note 2. Contact factory for LCC availability.
Note 3. Pin 8 is in electrical contact with the metal base.