

SN75436, SN75437A QUADRUPLE PERIPHERAL DRIVERS

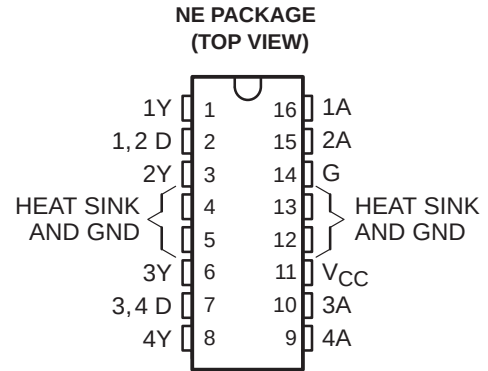
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- Saturating Outputs With Low On-State Resistance
- High-Impedance Inputs Compatible With CMOS and TTL Levels
- Very Low Standby Power . . . 21 mW Max
- High-Voltage Outputs . . . 70 V Min
- No Power-Up or Power-Down Output Glitch
- No Latch-Up Within Recommended Operating Conditions
- Output-Clamp Diodes for Transient Suppression
- 2-W Power Package

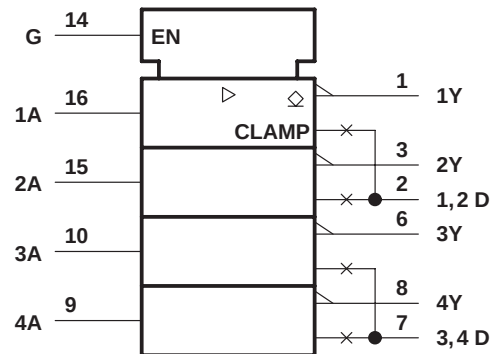
description

The SN75436 and SN75437A quadruple peripheral drivers are designed for use in systems requiring high current, high voltage, and high load power. Each device features four inverting open-collector outputs with a common-enable input that, when taken low, disables all four outputs. The envelope of 1-V characteristics exceeds the specifications sufficiently to avoid high-current latch-up. Applications include driving relays, lamps, solenoids, motors, LEDs, transmission lines, hammers, and other high-power-demand devices.

The SN75436 and SN75437A are offered in a 16-pin wide-body surface-mount (NE) package and is characterized for operation over the free-air temperature of 0°C to 70°C.



logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC publication 617-12.

FUNCTION TABLE
(each NAND driver)

INPUTS		OUTPUT
A	G	Y
H	H	L
L	X	H
X	L	H

H = high level, L = low level,
X = irrelevant

SELECTION GUIDE

FEATURE	SN75436	SN75437A	UNIT
Maximum recommended output current	0.5	0.5	A
Maximum V_{OL} at maximum I_{OL}	0.5	0.5	V
Maximum recommended output supply voltage in an inductive switching circuit, V_S	50	35	V

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.



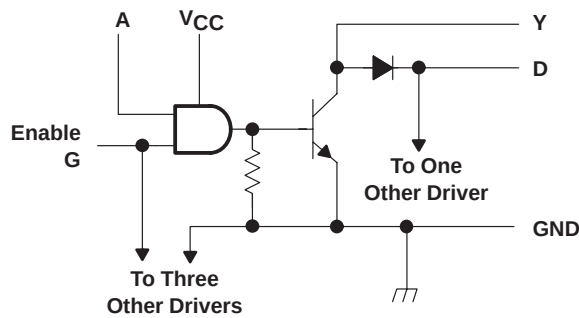
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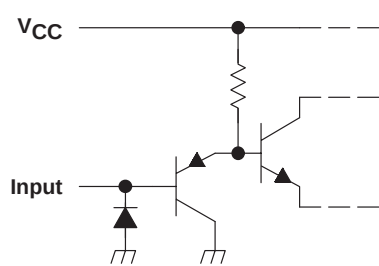
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logic diagram (positive logic, each driver)



equivalent schematic of each input



absolute maximum ratings over operating temperature range (unless otherwise noted)

Supply voltage, V_{CC}	7 V
Input voltage, V_I	30 V
Output current (see Note 1)	0.75 A
Output clamp-diode current, I_{OK}	1.25 A
Output voltage, V_O (off state)	70 V
Continuous total power dissipation at (or below) 25°C free-air temperature (see Note 2)	2075 mW
Operating free-air temperature range, T_A	0°C to 70°C
Storage temperature range, T_{stg}	-65°C to 150°C
Lead temperature 1,6 mm (1/16-inch) from case for 10 seconds	260°C

- NOTES: 1. All four sections of these circuits may conduct rated current simultaneously; however, power dissipation averaged over a short time interval must fall within the continuous dissipation ratings.
2. For operation above 25°C free-air temperature, derate linearly to 1328 mW at 70°C at the rate of 16.6 mW/°C.

recommended operating conditions

PARAMETER	SN75436			SN75437A			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}	4.75	5	5.25	4.75	5	5.25	V
High-level input voltage, V_{IH}	2			2			V
Low-level input voltage, V_{IL}			0.8			0.8	V
Output supply voltage in inductive switching circuit (see Figure 2), V_S			50			35	V
Output current, I_O			0.5			0.5	A
Operating free-air temperature, T_A	0		70	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		TEST CONDITIONS	MIN	TYP [†]	MAX	UNIT
V _{IK}	Input clamp voltage	V _{CC} = 4.75 V, I _I = –12 mA	–0.9	–1.5		V
V _{OL}	Low-level output voltage	V _{CC} = 4.75 V, I _{OL} = 250 mA	0.14	0.25		V
		V _{IH} = 2 V, I _{OL} = 500 mA	0.28	0.5		
V _{R(K)}	Output clamp-diode reverse voltage	V _{CC} = 4.75 V, I _R = 100 µA	70	100		V
V _{F(K)}	Output clamp-diode forward voltage	I _F = 500 mA	1	1.6		V
I _{OH}	High-level output current	V _{CC} = 4.75 V, V _{IH} = 2 V, V _{IL} = 0.8 V, V _{OH} = 70 V	1	100		µA
I _{IH}	High-level input current	V _{CC} = 5.25 V, V _I = 5.25 V	0.1	10		µA
I _{IL}	Low-level input current	V _{CC} = 5.25 V, V _I = 0.8 V	–0.25	–10		µA
I _{CCH}	Supply current, outputs high	V _{CC} = 5.25 V, V _I = 0	1	4		mA
I _{CCL}	Supply current, outputs low	V _{CC} = 5.25 V, V _I = 5 V	45	65		mA

[†] All typical values are at V_{CC} = 5 V, T_A = 25°C.

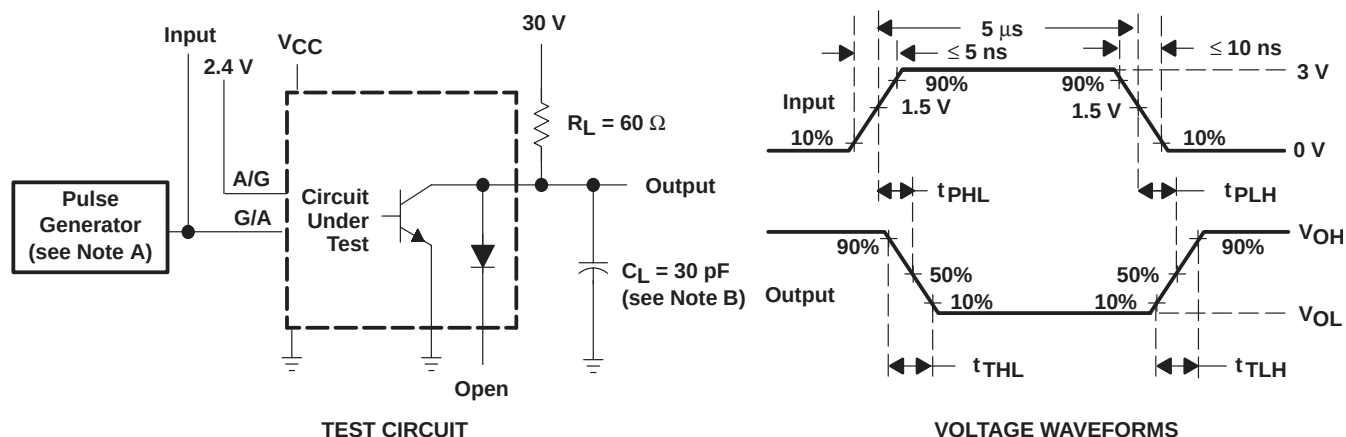
switching characteristics, V_{CC} = 5 V, T_A = 25°C

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
t _{PLH}	Propagation delay time, low-to-high-level output	C _L = 30 pF, R _L = 60 Ω, See Figure 1		1950	5000	ns
t _{PHL}	Propagation delay time, high-to-low-level output			150	500	ns
t _{TLH}	Transition time, low-to-high-level output			40		ns
t _{THL}	Transition time, high-to-low-level output			36		ns
V _{OH}	High-level output voltage after switching	SN75436 V _S = 50 V, R _L = 100 Ω, I _O ≈ 500 mA, See Figure 2	V _S –10			mV
		SN75437A V _S = 35 V, R _L = 70 Ω, I _O ≈ 500 mA, See Figure 2	V _S –10			mV

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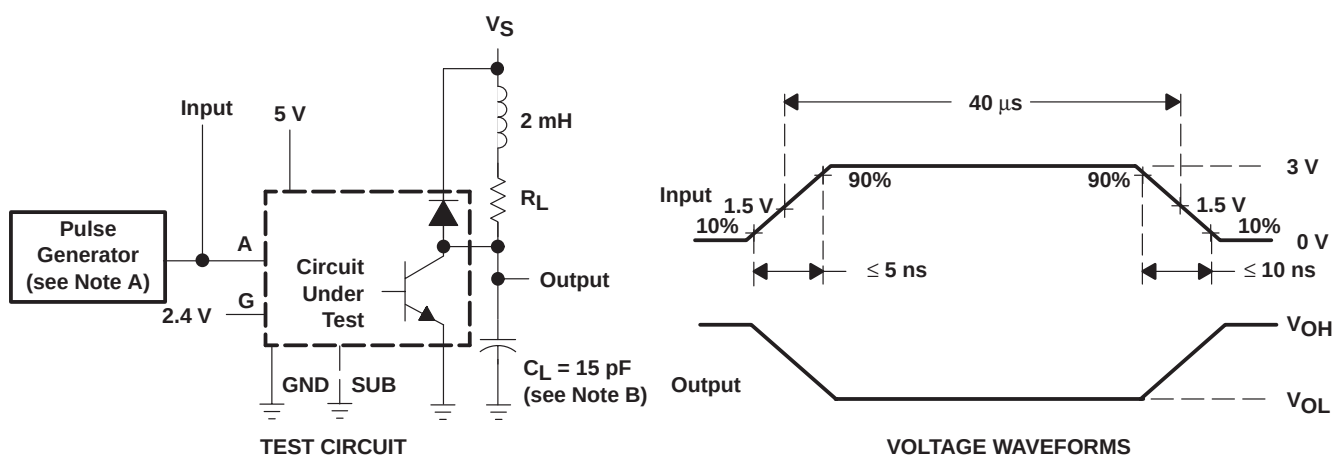
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PARAMETER MEASUREMENT INFORMATION



NOTES: A. The pulse generator has the following characteristics: PRR = 100 kHz, $Z_O = 50 \Omega$.
B. C_L includes probe and jig capacitance.

Figure 1. Test Circuit and Voltage Waveforms



NOTES: A. The pulse generator has the following characteristics: PRR = 12.5 kHz, $Z_O = 50 \Omega$.
B. C_L includes probe and jig capacitance.

Figure 2. Latch-Up Test Circuit and Voltage Waveforms

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