DESCRIPTION

The DS3611 series of dual peripheral drivers was designed for applications where higher breakdown voltage is required than that provided by the 75451 series.

The pin out for the 3611 series is identical to those of the 75451 through 75454. The 3611 series feature high voltage outputs (80V breakdown in the "off" state) as well as high current (300mA/driver in the on state).

FEATURES

- • **High voltage PNP inputs**
- • **PMOS/CMOS TTL or DTL compatible inputs**
- • **Low input currents**
- **High voltage outputs 80V (off)**
- **High current—300mA/driver (on)**
- **Input clamping diodes**
- **Choice of logic function**
- **DS3611/12/13/14, DS1611/12/13/14**
- **Military qualifications pending**

NOTE

• • **Special Signetics features**

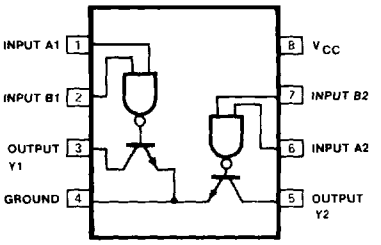
APPLICATIONS

- **Power drivers**
- **Relay drivers**
- **Lamp drivers**
- **Mos drivers**
- **Memory drivers**

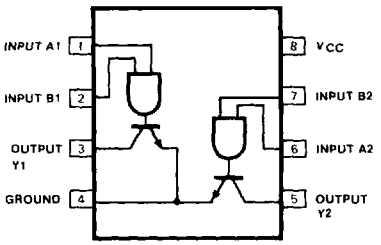
PIN CONFIGURATIONS

N PACKAGE

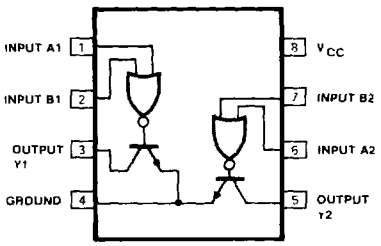
DUAL AND DRIVER
DS3611



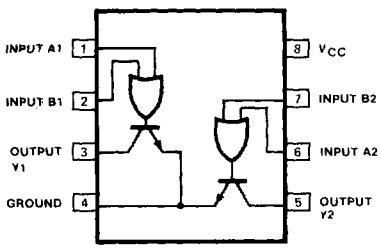
DUAL NAND DRIVER
DS3612



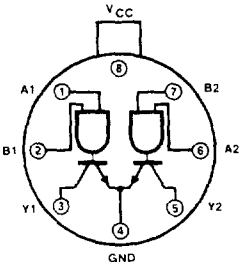
DUAL OR DRIVER
DS3613



DUAL NOR DRIVER
DS3614

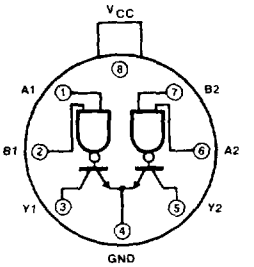


T PACKAGE
DS3611T



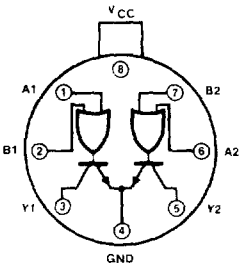
Pin 4 is in electrical contact with the case.

DS3612T



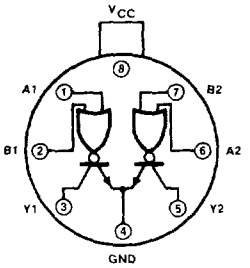
Pin 4 is in electrical contact with the case

DS3613T



Pin 4 is in electrical contact with the case.

DS3614T



Pin 4 is in electrical contact with the case

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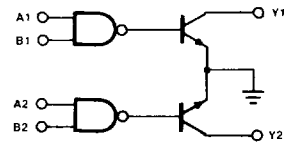
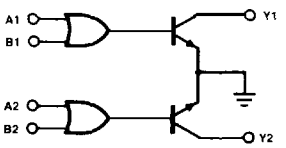
BLOCK DIAGRAMS

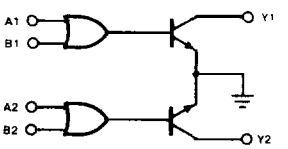
DS3611



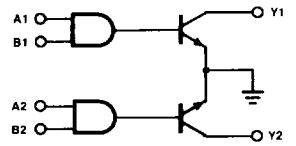
DS3613



DS3614

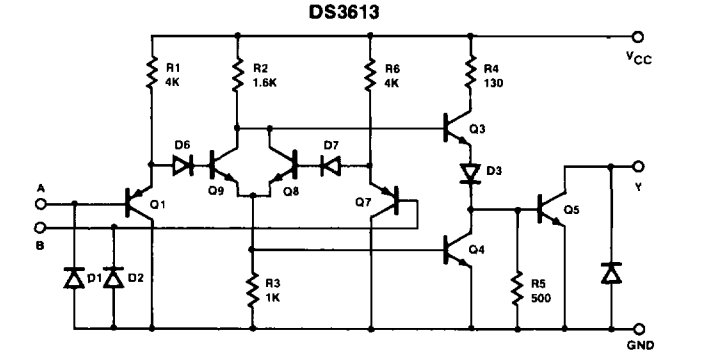


DS3612

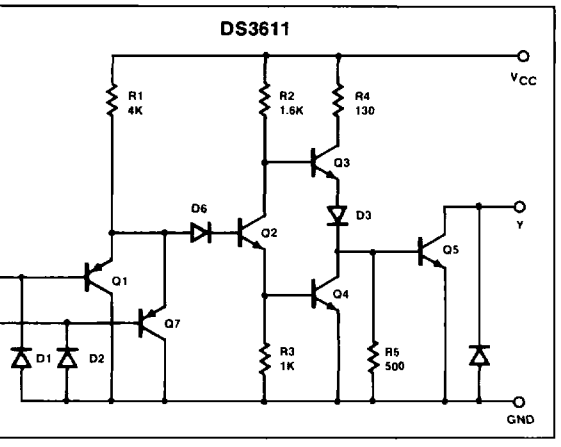


EQUIVALENT SCHEMATICS

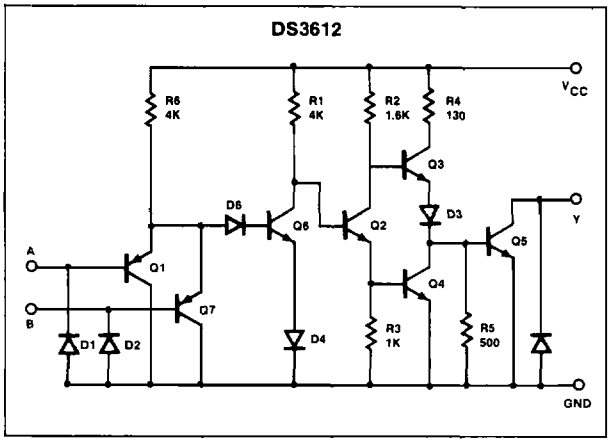
DS3613



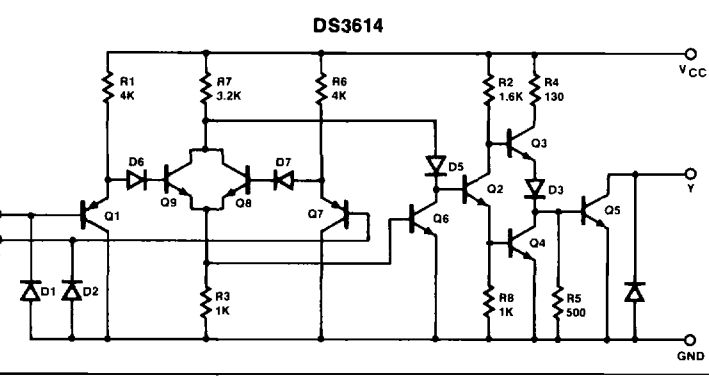
DS3611



DS3612



DS3614



NOTE

One circuit only shown

ABSOLUTE MAXIMUM RATINGS

	PARAMETER	RATING	UNIT
V_{CC}	Supply voltage		
	continuous	7	V
	momentary (1 second)	15	V
V_{IN}	Input voltage	30	V
V_{OUT}	Output voltage (off state)	80	V
I_{OUT}	Output current (continuous)	300	mA
P_D	Power dissipation*	750	mW
T_A	Operating temperature range	0 to 70	°C
T_{STG}	Storage temperature range	-65 to +150	°C
	Lead temperature (soldering, 10 sec)	300	°C

NOTE

*The maximum junction temperature is 150°C. Derate at 162°C/Watt above 25°C.

DC ELECTRICAL CHARACTERISTICS $T_A = 25°C$, $V_{CC} = 5V$, $0°C < T_A < 70°C$ unless otherwise specified.

	PARAMETER	TEST CONDITIONS	DS3611 SERIES			UNIT
			Min	Typ	Max	
V_{IH}	Logical "1" input voltage	$V_{CC} = 4.75V$	2.0			V
V_{IL}	Logical "0" input voltage	$V_{CC} = 4.75V$			0.8	V
V_I	Input clamp voltage	$V_{CC} = 4.75V$, $I_I = -12mA$		-1.2	-1.5	V
I_{IH}	Logical "1" input current	$V_{CC} = 5.25V$, $V_{IN} = 2.4V$			10	μA
		$V_{IN} = 5.5V$		<1	10	μA
		$V_{IN} = 30V$		1	100	μA
I_{IL}	Logical "0" input current	$V_{CC} = 5.25V$, $V_{IN} = 0.4V$		-50	-100	μA
V_{OL}	Output low voltage	$V_{IN} = 0.8V$ (DS3611/3613)				
		$V_{IN} = 2.0V$ (DS3612/3614)				
		$V_{CC} = 4.75V$, $I_{OL} = 100mA$		0.20	0.40	V
		$I_{OL} = 300mA$		0.45	0.70	V
V_{OH}	Output breakdown voltage	$V_{CC} = 5.25V$, $V_{IN} = 2.0V$ (DS3611/3613)				
		$V_{IN} = 0.8V$ (DS3612/3614)	80			V
		$I_{OH} = 100\mu A$				
I_{OH}	Output leakage current	$V_{IN} = 2.0V$ (DS3611/3613)				
		$V_{IN} = 0.8V$ (DS3612/3614)				
		$V_{OUT} = 80V$, $V_{CC} = 5.25V$			100	μA
		V_{CC} = open			100	μA
I_{CCH}	Supply current with outputs high	$V_{CC} = 5.25V$:				
		DS3611 - $V_{IN} = 5V$		5	11	mA
		DS3612 - $V_{IN} = 0V$		8	14	mA
		DS3613 - $V_{IN} = 5V$		8	14	mA
		DS3614 - $V_{IN} = 0V$		10	17	mA
I_{CCL}	Supply current with outputs low	$V_{CC} = 5.25V$:				
		DS3611 - $V_{IN} = 0V$		44	69	mA
		DS3612 - $V_{IN} = 5V$		47	71	mA
		DS3613 - $V_{IN} = 0V$		44	73	mA
		DS3614 - $V_{IN} = 5V$		49	79	mA

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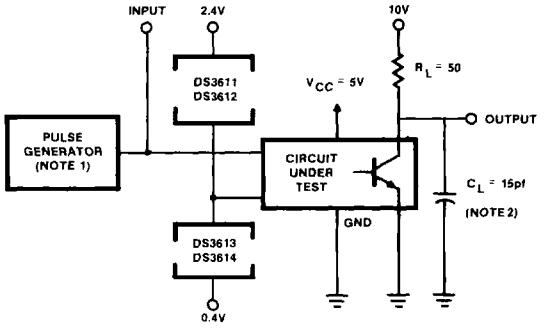
AC ELECTRICAL CHARACTERISTICS V_{CC} = 5V, T_A = 25°C unless otherwise specified.

PARAMETER		TEST CONDITIONS	DS3611 SERIES			UNIT
			Min	Typ	Max	
T_{PLH}	Propagation delay time, low-to-high output	$I_O \simeq 200mA$ $C_L \simeq 15pf$ $R_L \simeq 50\Omega$ (See test figure)				
		DS3611		130		ns
		DS3612		110		ns
		DS3613		125		ns
		DS3614		220		ns
T_{PHL}	Propagation delay time, high-to-low output					
		DS3611		125		ns
		DS3612		110		ns
		DS3613		125		ns
		DS3614		150		ns

TYPICAL CIRCUIT



NOTES

1 The pulse generator has the following characteristics.
PRR = 1.0MHz
Z_{OUT} = 50

2 C_L includes probe and jig capacitances.

TIMING WAVEFORMS