Peripheral/Power Drivers

LM75454 dual peripheral driver

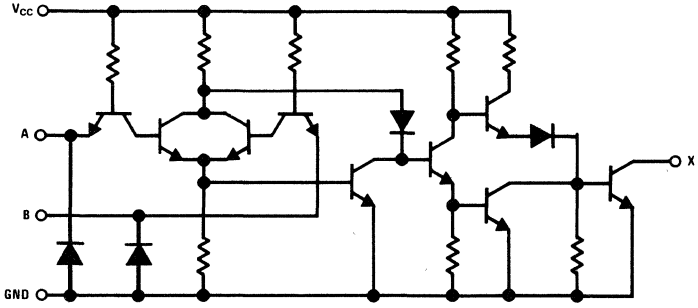
general description

The LM75454 is a dual NOR peripheral line driver with output transistors rated up to 300mA continuous current. Both output transistors can sink this current at the same time, bringing maximum chip power dissipation to 820mW. Switching speeds are compatible with standard TTL and logic levels interface directly with TTL, DTL, and LPTTL logic families. The overall input to output NOR function allows pin for pin replacement with TI's SN75454 positive logic NOR driver.

features

- High speed
- Both outputs can sink 300 mA simultaneously
- Withstands 30V on outputs
- Input clamp diodes
- Maximum package power dissipation at maximum current rating $\leq$ 820 mW

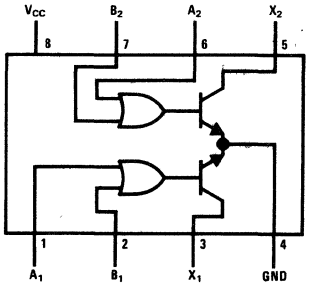
schematic diagram



NOTE: 1/2 SCHEMATIC SHOWN

connection diagram

Dual-In-Line Package



TOP VIEW

Order Number LM75454N
See Package 20

truth table

A	B	X
0	0	1
0	1	0
1	0	0
1	1	0

absolute maximum ratings (Note 1)

Supply Voltage, V_{CC}	7V
Input Voltage	5.5V
Output Voltage (Note 4)	30V
Continuous Output Current	300mA
Continuous Total Power Dissipation (Note 2)	820mW
Operating Free Air Temperature Range	0°C to +70°C
Storage Temperature Range	−65°C to +150°C
Lead Temperature (soldering, 10 sec)	300°C

electrical characteristics The following apply at $0°C \leqq T_A \leqq +70°C$, V_{CC} = 5V + 5% unless otherwise noted.

PARAMETER	LOGIC INPUT	OUTPUT	SUPPLY VOLTAGE	COMMENTS	MIN	TYP	MAX	UNITS
Logical "1" Input Voltage	V_{IN}	300mA	4 75V	Output $\leqq$ 0 7V	2 0			V
Logical "0" Input Voltage	V_{IN}	30V	4 75V	Output $\leqq$ 100μA			0 8	V
Logical "1" Input Current	2.4V		5 25V				40	μA
	5.5V		5 25V				1	mA
Logical "0" Input Current	0.4V		5 25V			−1.0	−1 6	mA
Output Low Voltage	2.0V	100mA	4 75V			0 25	0 4	V
	2 0V	300mA	4 75V			0 5	0 7	V
Output Leakage Current	0 8V	30V	4 75V				100	μA
	0.8V	30V	0V				100	μA
Supply Currents:								
Output Low	A_1 = 5V, B_1 = 0V		5 25V	Per Package		61	79	mA
Output High	$A_1 = B_1$ = 0V		5 25V	Per Package		13	17	mA
Input Clamp Diode Voltage	−12mA		5V	T_A = 25°C			−1 5	V
Propagation Delay Times. The following Apply for V_{CC} = 5V, T_A = 25°C								
t_{pd1}, Input "0" to Output "1"			(Note 3)			13	35	ns
t_{pd1}, Input "1" to Output "0"			(Note 3)			19	35	ns
Output Risetime								ns
Output Falltime								ns

Note 1: All voltage values are with respect to ground. Positive current is defined to be current into referenced pin.

Note 2: Maximum junction temperature is 150°C. For operating at elevated temperatures, the package must be derated based on a thermal resistance, θ_{JA}, of 110°C/W.

Note 3: Delay is measured with a 50Ω load to 10V, 15pF load capacitance, measured from 1.5V input to 50% point on output. Unused inputs should be grounded for this test.

Note 4: Maximum voltage to be applied to either output in the off state.