



Peripheral/Power Drivers

LM75450, LM350

LM75450, LM350 dual peripheral driver

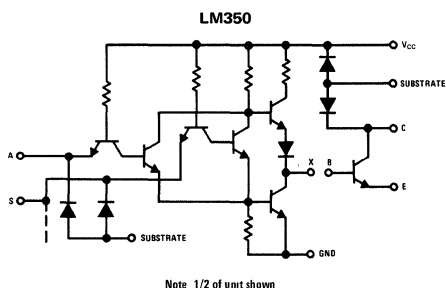
general description

The LM75450 and LM350 are general purpose dual peripheral drivers. The design employs two standard TTL gates (NOR in LM350, NAND in LM75450) and two totally uncommitted, high-voltage, high-current NPN transistors. These transistors are capable of sinking 300 mA and will withstand 30V in the OFF state. Inputs are fully DTL/TTL compatible. The LM75450 meets or exceeds the specifications for both the SN75450 and the SN75450A and is a pin-for-pin replacement.

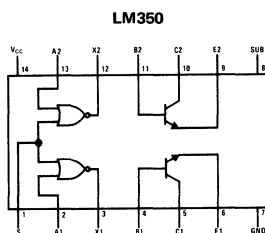
features

- High speed
- High sink current 300 mA
- Separate gates and transistors
- Both transistors can sink 300 mA simultaneously
- Transistors withstand 30V collector to emitter in the OFF state
- Input clamp diodes

schematic and connection diagrams

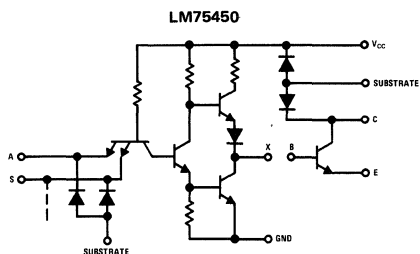


Note 1/2 of unit shown

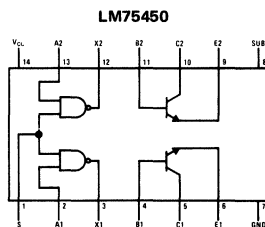


Positive Logic: $\overline{A \cdot S} = X$

Order Number LM350N
See Package 22



Note 1/2 of unit shown



Positive Logic: $\overline{A \cdot S} = X$

Order Number LM75450N
See Package 22

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absolute maximum ratings (Note 1)Supply Voltage V_{CC}

Input Voltage

 V_{CC} -to-Substrate Voltage

Collector-to-Substrate Voltage

Collector-Base Voltage

Collector-Emitter Voltage (Note 2)

7V

5.5V

35V

35V

35V

30V

Emitter-Base Voltage

Continuous Collector Current

Continuous Total Power Dissipation (Note 3)

Operating Free-Air Temperature Range

Storage Temperature Range

5V

300 mA

800 mW

0°C to 70°C

-65°C to 150°C

electrical characteristicsThe following apply for 0°C ≤ T_A ≤ 70°C, V_{CC} = 5V ±5%, for LM75450 and LM350 unless otherwise specified.**TTL GATES**

PARAMETER	COMMENTS	LOGIC INPUT	LOGIC OUTPUT	SUPPLY VOLTAGE	MIN	TYP	MAX	UNIT
Logical "1" Input Voltage	Logic Output ≤ 0.4V	V_{IN}	16 mA	4.75V	2			V
Logical "0" Input Voltage	Logic Output ≥ 2.4V	V_{IN}	-400 μ A	4.75V			0.8	V
Logical "1" Output Voltage		0.8V	-400 μ A	4.75V	2.4			V
Logical "0" Output Voltage		2V	16 mA	4.75V			0.4	V
Logical "1" Input Current	A Input	2.4V		5.25V			40	μ A
	S Input	2.4V		5.25V			80	μ A
	A Input	5.5V		5.25V			1	mA
	S Input	5.5V		5.25V			2	mA
Logical "0" Input Current	A Input	0.4V		5.25V			-1.6	mA
	S Input	0.4V		5.25V			-3.2	mA
Output Short Circuit Current	Note 4	0V	0V	5.25V	-18		-55	mA
Supply Current								
Output Low								
LM350	Per Package	5V		5.25V		8	14	mA
LM75450	Per Package	5V		5.25V		6	11	mA
Output High								
LM350	Per Package	0V		5.25V		4	7	mA
LM75450	Per Package	0V		5.25V		2	4	mA
Input Diode Clamp Voltage	$T_A = 25^\circ\text{C}$, $V_{SUB} = 0V$	-12 mA		5V			-1.5	V

TRANSISTORS

PARAMETER	COMMENTS	BASE	EMITTER	COLLECTOR	MIN	TYP	MAX	UNIT
BV_{CBO}	$R_{BE} \leq 500\Omega$	0V		100 μ A	35			V
BV_{CER}			0V	100 μ A	30			V
BV_{EBO}		0V	100 μ A		5			V
V_{BE}		10 mA	0V	100 mA	0.85	1		V
		30 mA	0V	300 mA	1.05	1.2		V
$V_{CE(sat)}$	$V_{CE} = 3V$, $T_A = 0^\circ\text{C}$, Note 5 $V_{CE} = 3V$, $T_A = 0^\circ\text{C}$, Note 5 $V_{CE} = 3V$, $T_A = 25^\circ\text{C}$, Note 5 $V_{CE} = 3V$, $T_A = 25^\circ\text{C}$, Note 5	10 mA	0V	100 mA	0.25	0.4		V
		30 mA	0V	300 mA	0.5	0.7		V
h_{FE}		I_B	0V	100 mA	20			
		I_B	0V	300 mA	25			
		I_B	0V	100 mA	25			
		I_B	0V	300 mA	30			

The following apply for $V_{CC} = 5V$, $T_A = 25^\circ\text{C}$ **TTL GATES (Note 6)**

PARAMETER	TYP	MAX
t_{pd1}	10 ns	22 ns
t_{pd0}	5 ns	15 ns

TRANSISTORS

PARAMETER	TYP	MAX
t_d	6 ns	15 ns
t_r	12 ns	20 ns
t_s	6 ns	15 ns
t_f	8 ns	15 ns

GATES AND TRANSISTORS (Note 7)

PARAMETER	TYP
t_{pd1}	30 ns
t_{pd0}	30 ns
t_r	12 ns
t_f	15 ns

Note 1: All voltage values are with respect to ground terminal. Positive current is defined to be current into referenced pin.**Note 2:** With base-emitter resistance ≤ 500 Ω .**Note 3:** The maximum junction temperature is 150°C. For operating at elevated temperatures the package must be derated based on a thermal resistance of 150°C/W θ_{JA} .**Note 4:** Only one output should be shorted at a time.**Note 5:** These parameters are to be measured with less than 2% duty cycle.**Note 6:** Delays measured with fanout of 10, 15 pF total load capacitance; measured from 1.5V input to 1.5V output.**Note 7:** Delays measured with 50 Ω load to 10V, 15 pF total load capacitance; measured from 1.5V input to 50% of output.