



Line Receivers/Drivers

DM7830/DM8830 dual differential line driver

general description

The DM7830/DM8830 is a dual differential line driver that also performs the dual four-input NAND or dual four-input AND function.

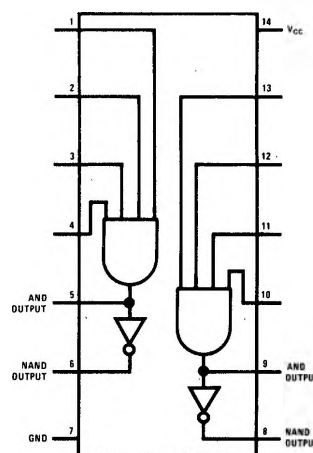
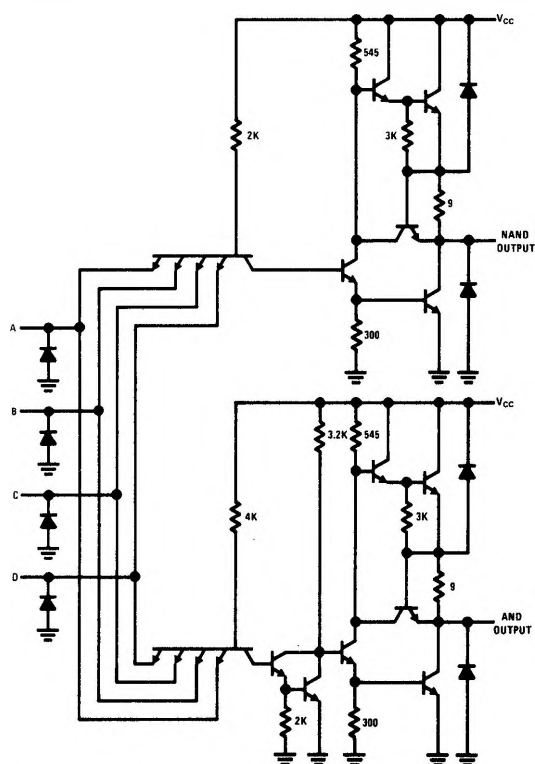
TTL (Transistor-Transistor-Logic) multiple emitter inputs allow this line driver to interface with standard TTL or DTL systems. The differential outputs are balanced and are designed to drive long lengths of coaxial cable, strip line, or twisted pair transmission lines with characteristic impedances of 50Ω to 500Ω . The differential feature of the output eliminates troublesome ground-loop errors

normally associated with single-wire transmissions.

Key Features:

- Single 5 volt power supply
- Diode protected outputs for termination of positive and negative voltage transients
- Diode protected inputs to prevent line ringing
- High Speed
- Short Circuit Protection

schematic* and connection diagram

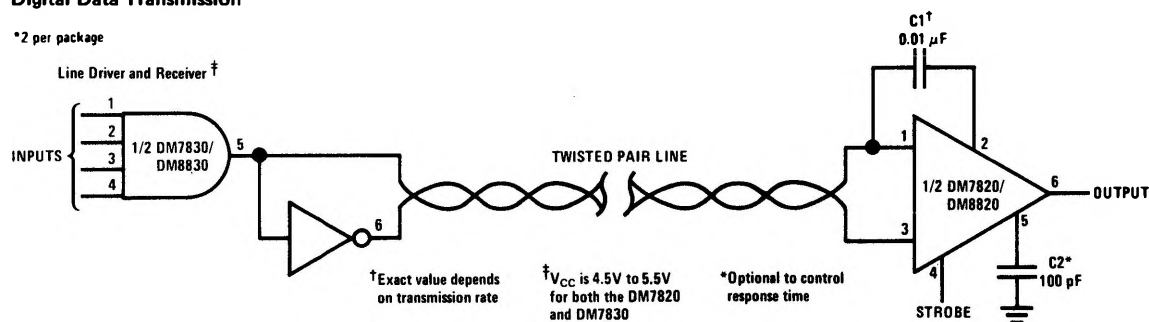


typical application

Digital Data Transmission

*2 per package

Line Driver and Receiver †



absolute maximum ratings

V_{CC}		7.0V
Input Voltage		5.5V
Operating Temperature	DM7830	-55°C to +125°C
	DM8830	0°C to 70°C
Storage Temperature		-65°C to +150°C
Lead Temperature (soldering, 60 sec)		300°C
Output Short Circuit Duration (125°C)		1 second

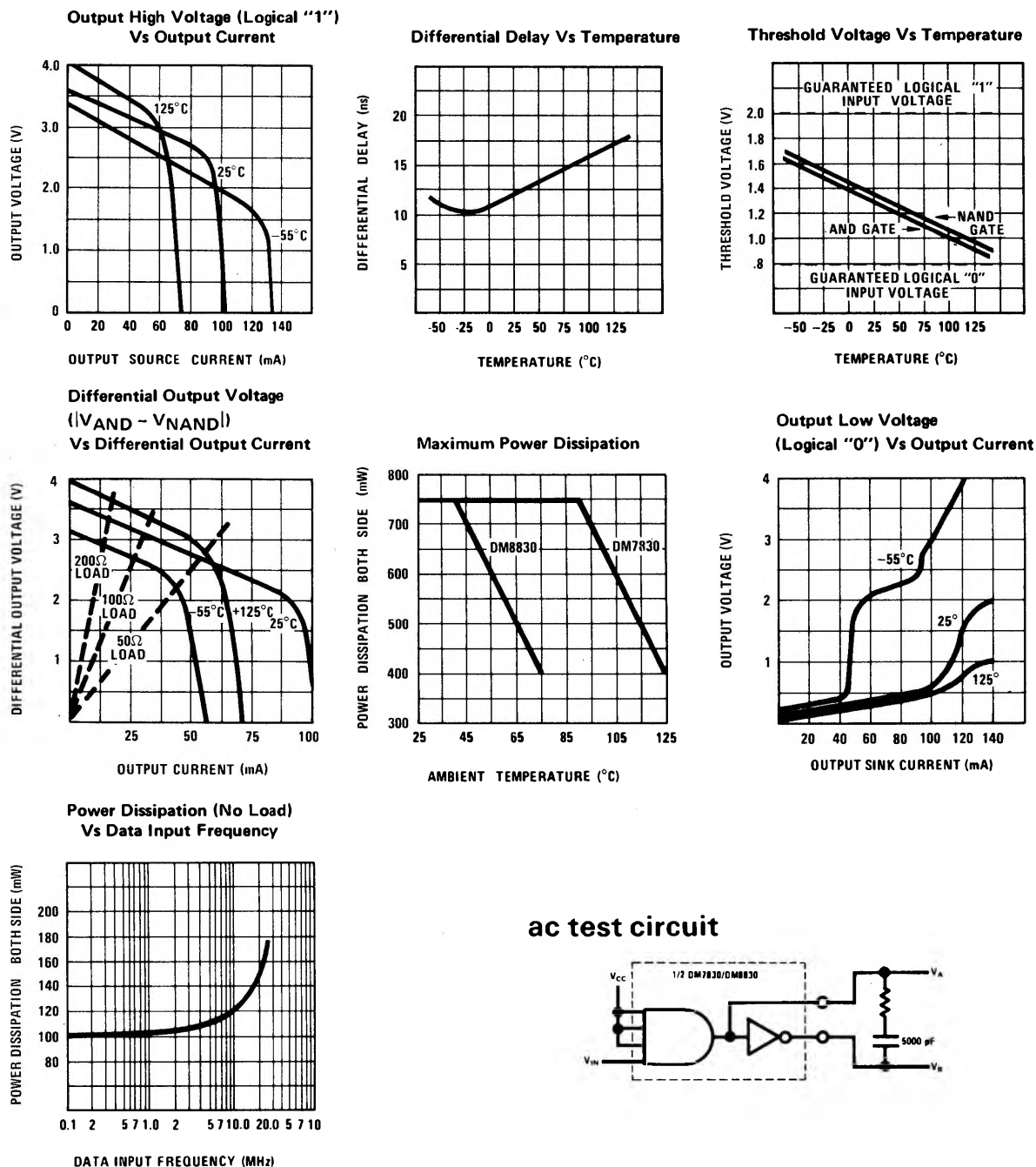
electrical characteristics (Note 1)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Logical "1" Input Voltage		2.0			V
Logical "0" Input Voltage				0.8	V
Logical "1" Output Voltage	$V_{IN} = 0.8V$ $I_{OUT} = -0.8$ mA	2.4			V
Logical "1" Output Voltage	$V_{IN} = 0.8V$ $I_{OUT} = 40$ mA	1.8	3.3		V
Logical "0" Output Voltage	$V_{IN} = 2.0V$ $I_{OUT} = +32$ mA		0.2	0.4	V
Logical "0" Output Voltage	$V_{IN} = 2.0V$ $I_{OUT} = +40$ mA		0.22	0.5	V
Logical "1" Input Current	$V_{IN} = +2.4V$			120	μ A
Logical "1" Input Current	$V_{IN} = 5.5V$			2	mA
Logical "0" Input Current	$V_{IN} = 0.4V$			4.8	mA
Output Short Circuit Current	$V_{CC} = 5.0V$	Note 2 40	100	Note 2 120	mA
Supply Current	$V_{CC} = 5.0V$ $V_{IN} = 5.0V$ (Each Driver)		11	18	mA
Propagation Delay AND Gate t_{pd1}	$T_A = 25^\circ C$ $V_{CC} = 5.0V$ $C_L = 15$ pF See Figure 1		8	12	ns
t_{pd0}			11	18	ns
Propagation Delay NAND Gate t_{pd1}			8	12	ns
t_{pd0}			5	8	ns
Differential Delay t_1	$\left. \begin{array}{l} \text{Load, } 100\Omega \text{ and } 5000 \text{ pF} \\ \text{See Figure 2} \end{array} \right\}$		12	16	ns
Differential Delay t_2			12	16	ns

Note 1: Specifications apply for DM7830 $-55^\circ C \leq T_A \leq +125^\circ C$, $V_{CC} = +5V \pm 10\%$, DM8830 $0^\circ C \leq T_A \leq 70^\circ C$, $V_{CC} = +5V \pm 5\%$ unless otherwise stated. Typical values given are for $T_A = 25^\circ C$, $V_{CC} = 5.0V$.

Note 2: Applies for $T_A = +125^\circ C$ only.

typical performance characteristics



switching time waveforms

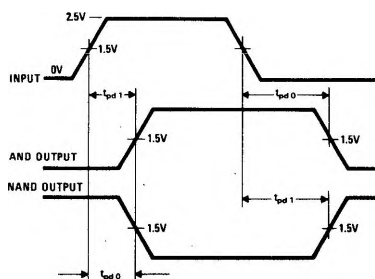


FIGURE 1

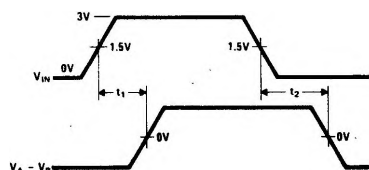


FIGURE 2