Line Drivers /Receivers

DM7822/DM8822 dual line receiver

general description

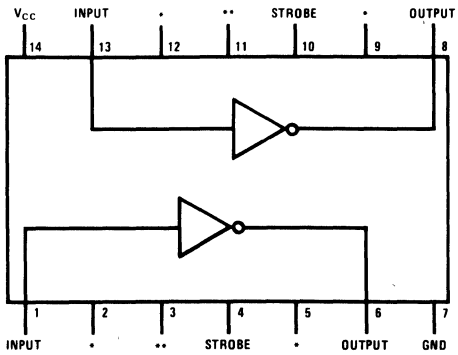
The DM7822/DM8822 is a dual inverting line receiver which meets the requirements of EIA specification RS232 Revision B. The device contains both receivers on a single monolithic silicon chip. The receivers share common power supply and ground connections, otherwise their operation is fully independent.

In addition to meeting the requirements of RS232, the DM7822/DM8822 also has independent strobe inputs which allow the receiver to be placed in the high state independent of the information being received at the input.

The output of the DM7822/DM8822 is completely compatible with five volt DTL and TTL logic families

The DM7822 is specified for operation over the −55°C to +125°C military temperature range. The DM8822 is specified for operation over the 0°C to +70°C temperature range.

connection diagram



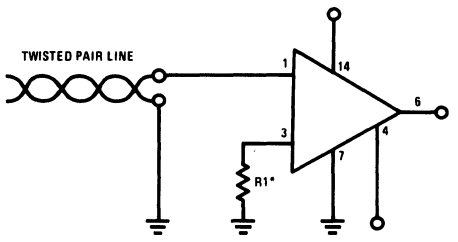
*Make no connection to these pins

**For operation requiring "Mark Hold" with the input open connect a 470Ω resistors from each of these pins to ground

Order Number DM7822J
See Package 16

Order Number DM8822N
See Package 22

typical connection



*For Mark Hold R1 = 470Ω, otherwise connect pin 3 to ground

absolute maximum ratings

Supply Voltage		8.0V
Input Voltage		±30V
Strobe Voltage		8.0V
Output Sink Current		25 mA
Power Dissipation (Note 1)		600 mW
Operating Temperature Range	DM7822	−55°C to +125°C
	DM8822	0°C to 70°C
Storage Temperature Range		−65°C to +150°C
Lead Temperature (Soldering, 10 sec)		300°C

electrical characteristics (Note 2)

PARAMETER	PARAGRAPH IN RS-232	CONDITIONS	MIN	TYP	MAX	UNITS
Negative Input Threshold Voltage	4.8 (8)	$V_{OUT} \geq 2.5V$	−2.0			V
Positive Input Threshold Voltage (Note 3)		$V_{OUT} \leq 0.4V$			2.0	V
Input Resistance	4.5 and 4.8 (5)		3.0	5.0	7.0	kΩ
Input Current		$V_{IN} = 25V$ $V_{IN} = 0V$ $V_{IN} = -25V$	3.57 −8.33	5 0 −5	8.33 −3.57	mA mA mA
Open Circuit Input Voltage	4.5 and 4.8 (4)	$V_{IN} = 0V$		.03	0.5	V
Logical "1" Output Voltage		$I_{OUT} \leq -0.2$ mA	2.5			V
Logical "0" Output Voltage		$I_{OUT} = 3.5$ mA			0.4	V
Strobe Current		$V_{STROBE} = 0.4V$ $V_{STROBE} = 5.5V$		1.0 −5.0 μA	1.4 −1.0 mA	mA
Power Supply Current (Both Receivers)		$-25V \leq V_{IN} \leq 25V$			24.0	mA
Response Time, t_1 or t_2		$T_A = 25°C$ $V_{CC} = 5.0V$ Input Ramp Rate $\leq$ 10 ns		65	125	ns

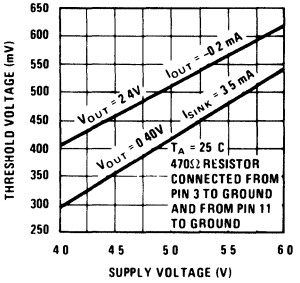
Note 1. For operating at elevated temperatures, the device must be derated in accordance with the "Maximum Power Dissipation" curve

Note 2. Min/Max limits apply across the guaranteed temperature range of −55°C to +125°C for the DM7822 and 0°C to 70°C for the DM8822 unless otherwise specified Likewise the limits apply across the guaranteed V_{CC} range of 4.5V to 5.5V for the DM7822 and 4.75V to 5.25V for the DM8822 unless otherwise specified. Typical values are given for $V_{CC} = 5.0V$ and $T_A = 25°C$

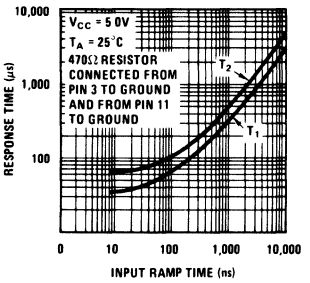
Note 3. Since the EIA RS-232 specification requires the threshold to be between −3V and +3V, the immunity limits shown here guarantee 1 volt additional noise immunity

typical performance characteristics

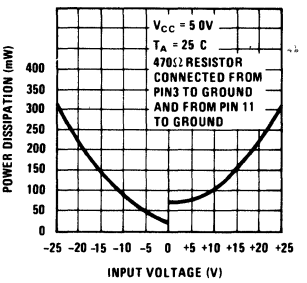
Threshold Voltage vs Supply Voltage



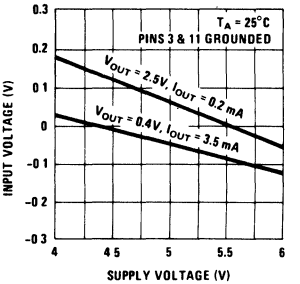
Response Time vs Input Ramp Time



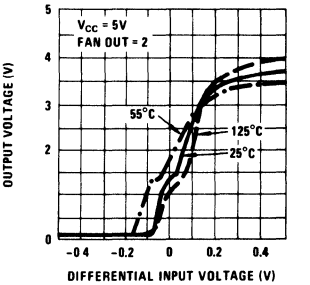
Internal Power Dissipation



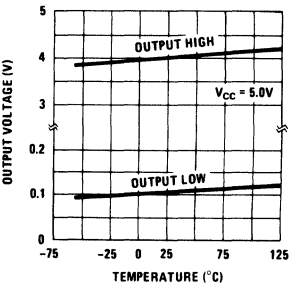
Threshold Voltage vs Supply Voltage



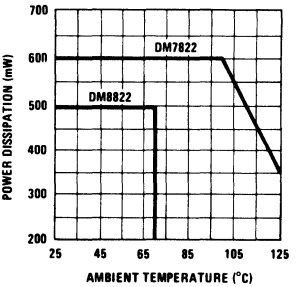
Transfer Function



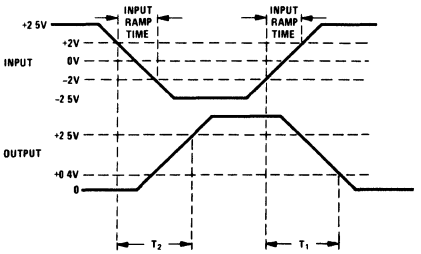
Output Voltage Levels



Maximum Power Dissipation



switching time waveforms



ac test circuit