Line Drivers/Receivers

LM1489/LM1489A quad line receiver

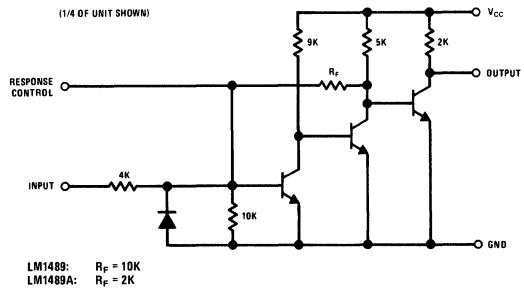
general description

The LM1489/LM1489A are quad line receivers designed to interface data terminal equipment with data communications equipment. They are constructed on a single monolithic silicon chip. These devices satisfy the specifications of EIA standard No. RS232C. The LM1489/LM1489A meet and exceed the specifications of MC1489/MC1489A and are pin-for-pin replacements. The LM1489/LM1489A are available in 14 lead ceramic dual-in-line package.

features

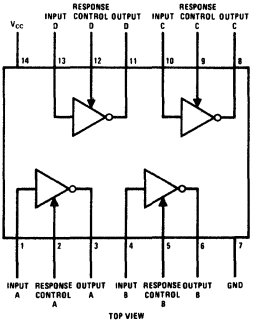
- Four totally separate receivers per package
- Programmable threshold
- Built-in input threshold hysteresis
- "Fail safe" operating mode
- Inputs withstand ±30V

schematic and connection diagrams



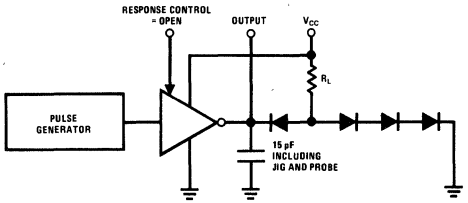
LM1489: R_F = 10K
LM1489A: R_F = 2K

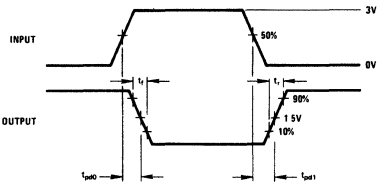
Dual-In-Line Package



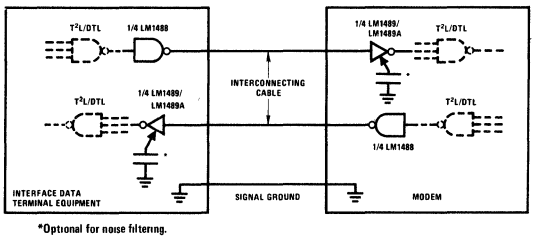
Order Number LM1489J or LM1489AJ
See Package 16

ac test circuit and voltage waveforms



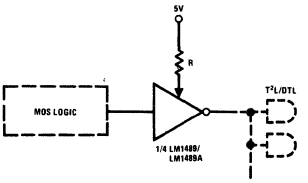


typical applications



*Optional for noise filtering.

RS232C Data Transmission



MOS to T^2L/DTL Translator

absolute maximum ratings (Note 1)

The following apply for $T_A = 25°C$ unless otherwise specified.

Power Supply Voltage	10V	Power Dissipation (Note 2)	1W
Input Voltage Range	±30V	Operating Temperature Range	0°C to +75°C
Output Load Current	20 mA	Storage Temperature Range	-65°C to +175°C

electrical characteristics (Note 3)

LM1489/LM1489A The following apply for $V_{CC} = 5.0V \pm 1\%$, $0°C \leq T_A \leq +75°C$ unless otherwise specified

PARAMETER	CONDITIONS	LM1489			LM1489A			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Input High Threshold Voltage	$T_A = 25°C$, $V_{OUT} \leq 0.45V$, $I_{OUT} = 10$ mA	1.0		1.5	1.75		2.25	V
Input Low Threshold Voltage	$T_A = 25°C$, $V_{OUT} \geq 2.5V$, $I_{OUT} = -0.5$ mA	0.75		1.25	0.75		1.25	V
Input Current	$V_{IN} = +25V$	+3.6	+5.6	+8.3	+3.6	+5.6	+8.3	mA
	$V_{IN} = -25V$	-3.6	-5.6	-8.3	-3.6	-5.6	-8.3	
	$V_{IN} = +3V$	+0.43	+0.53		+0.43	+0.53		mA
	$V_{IN} = -3V$	-0.43	-0.53		-0.43	-0.53		
Output High Voltage	$V_{IN} = 0.75V$, $I_{OUT} = -0.5$ mA	2.6	3.8	5.0	2.6	3.8	5.0	V
	Input = Open, $I_{OUT} = -0.5$ mA	2.6	3.8	5.0	2.6	3.8	5.0	V
Output Low Voltage	$V_{IN} = 3.0V$, $I_{OUT} = 10$ mA		0.33	0.45		0.33	0.45	V
Output Short Circuit Current	$V_{IN} = 0.75V$		3.0			3.0		mA
Supply Current	$V_{IN} = 5.0V$		14	26		14	26	mA
Power Dissipation	$V_{IN} = 5.0V$		70	130		70	130	mW
LM1489/LM1489A: The following apply for $V_{CC} = 5.0V \pm 1\%$, $T_A = 25°C$								
Input to Output "High" Propagation Delay (t_{pd1})	$R_L = 3.9k$ (Figure 1) (AC Test Circuit)		28	85		28	85	ns
Input to Output "Low" Propagation Delay (t_{pd0})	$R_L = 390\Omega$ (Figure 1) (AC Test Circuit)		20	50		20	50	ns
Output Rise Time	$R_L = 3.9k$ (Figure 1) (AC Test Circuit)		110	175		110	175	ns
Output Fall Time	$R_L = 390\Omega$ (Figure 1) (AC Test Circuit)		9	20		9	20	ns

Note 1: Voltage values shown are with respect to network ground terminal. Positive current is defined as current into the referenced pin.

Note 2: For operation at elevated temperatures, the device must be derated based on a 125°C maximum junction temperature and a thermal resistance of 85°C/W junction to case.

Note 3: These specifications apply for response control pin = open.