

MC1489/MC1489A

Quad Line Receivers

Product Specification

Linear Products

DESCRIPTION

The MC1489/MC1489A 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. RS-232C.

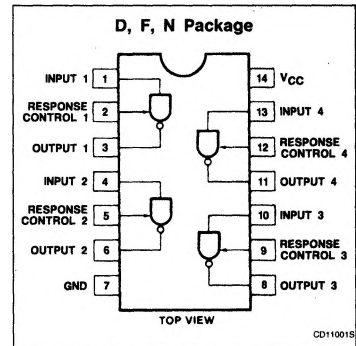
FEATURES

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

APPLICATIONS

- Computer port inputs
- Modems
- Eliminating noise in digital circuitry
- MOS-to-TTL/DTL translation

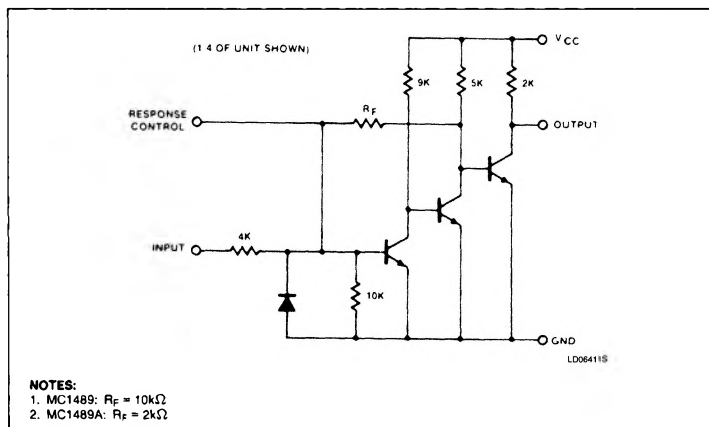
PIN CONFIGURATION



ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE
14-Pin Plastic DIP	0 to +70°C	MC1489N
14-Pin Plastic DIP	0 to +70°C	MC1489AN
14-Pin Cerdip	0 to +70°C	MC1489F
14-Pin Cerdip	0 to +70°C	MC1489AF
14-Pin Plastic SO	0 to +70°C	MC1489D
14-Pin Plastic SO	0 to +70°C	MC1489AD

EQUIVALENT SCHEMATIC



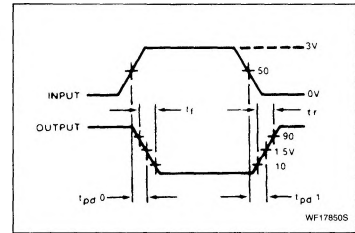
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ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V _{CC}	Power supply voltage	10	V
V _{IN}	Input voltage range	± 30	V
I _{OUT}	Output load current	20	mA
P _D	Maximum power dissipation, T _A = 25°C (still-air) ¹		
	F package	1190	mW
	N package	1420	mW
	D package	1040	mW
T _A	Operating temperature range	0 to +75	°C
T _{STG}	Storage temperature range	-65 to +150	°C

VOLTAGE WAVEFORMS



NOTE:

- Derate above 25°C, at the following rates:
 F package at 9.5mW/°C
 N package at 11.4mW/°C
 D package at 8.3mW/°C

DC ELECTRICAL CHARACTERISTICS V_{CC} = 5.0V ± 1%, 0°C ≤ T_A ≤ +75°C, unless otherwise specified.^{1, 2}

SYMBOL	PARAMETER	TEST CONDITIONS	MC1489			MC1489A			UNIT
			Min	Typ	Max	Min	Typ	Max	
V _{IH}	Input high threshold voltage	T _A = 25°C, V _{OUT} ≤ 0.45V, I _{OUT} = 10mA	1.0		1.5	1.75		2.25	V
V _{IL}	Input low threshold voltage	T _A = 25°C, V _{OUT} ≥ 2.5V, I _{OUT} = -0.5mA	0.75		1.25	0.75		1.25	V
I _{IN}	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		
		V _{IN} = -3V	-0.43	-0.53		-0.43	-0.53		
V _{OH}	Output high voltage	V _{IN} = 0.75V, I _{OUT} = -0.5mA	2.6	3.8	5.0	2.6	3.8	5.0	V
V _{OL}	Output low voltage	Input = Open, I _{OUT} = -0.5mA	2.6	3.8	5.0	2.6	3.8	5.0	V
		V _{IN} = 3.0V, I _{OUT} = 10mA		0.33	0.45		0.33	0.45	
I _{SC}	Output short-circuit current	V _{IN} = 0.75V		3.0			3.0		mA
I _{CC}	Supply current	V _{IN} = 5.0V		20	26		20	26	mA
P _D	Power dissipation	V _{IN} = 5.0V		100	130		100	130	mW

NOTES:

- Voltage values shown are with respect to network ground terminal. Positive current is defined as current into the referenced pin.
- These specifications apply for response control pin = open.

AC ELECTRICAL CHARACTERISTICS V_{CC} = 5.0V ± 1%, T_A = 25°C, unless otherwise specified.^{1, 2}

SYMBOL	PARAMETER	TEST CONDITIONS	MC1489			MC1489A			UNIT
			Min	Typ	Max	Min	Typ	Max	
t _{PD1}	Input to output "high" Propagation delay	R _L = 3.9kΩ (AC test circuit)		25	85		25	85	ns
t _{PD0}	Input to output "low" Propagation delay	R _L = 390Ω (AC test circuit)		20	50		20	50	ns
t _R	Output rise time	R _L = 3.9kΩ (AC test circuit)		110	175		110	175	ns
t _F	Output fall time	R _L = 390Ω (AC test circuit)		9	20		9	20	ns

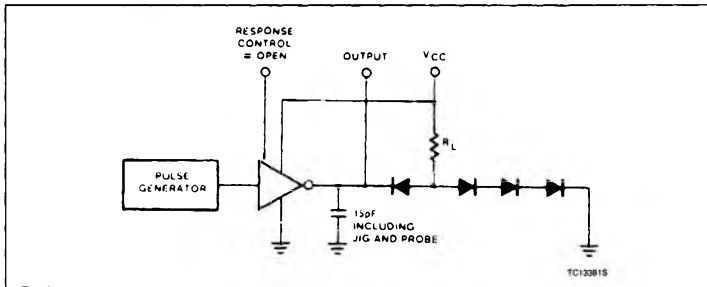
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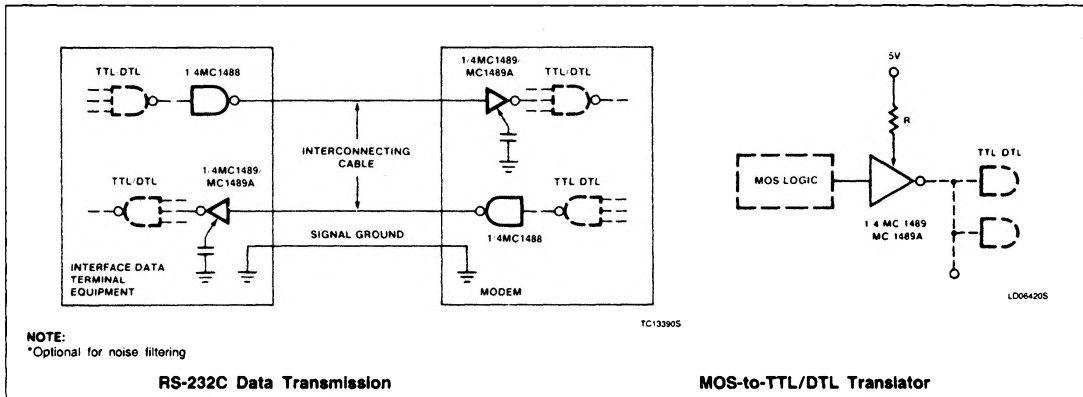
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AC TEST CIRCUIT



TYPICAL APPLICATIONS



NOTE:
*Optional for noise filtering

RS-232C Data Transmission

MOS-to-TTL/DTL Translator