

QUAD LINE RECEIVERS

MC1489/MC1489A

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. RS232C.

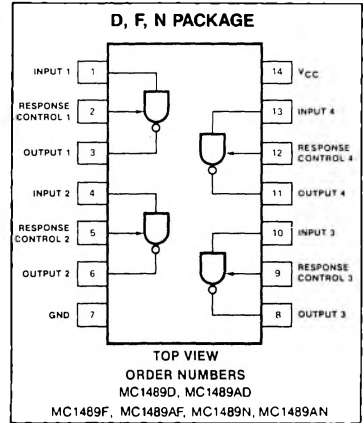
FEATURES

- 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

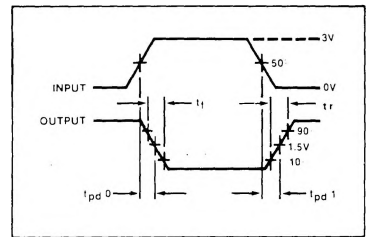
PIN CONFIGURATION



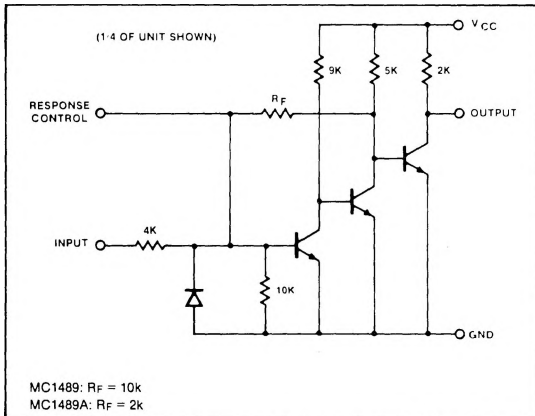
ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Power supply voltage	10	V
Input voltage range	± 30	V
Output load current	20	mA
Power dissipation:		
F package	1	W
N package	800	mW
Operating temperature range	0 to +75	$^{\circ}C$
Storage temperature range	-65 to +150	$^{\circ}C$

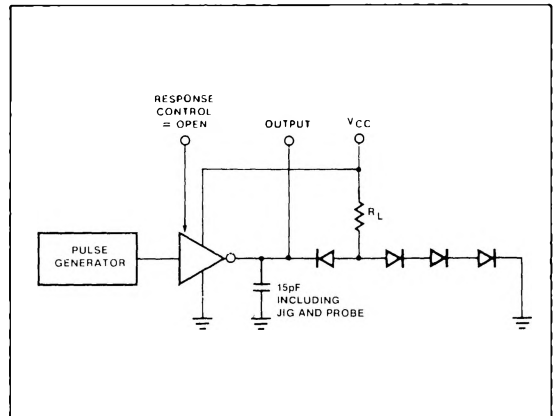
VOLTAGE WAVEFORMS



EQUIVALENT SCHEMATIC



AC TEST CIRCUIT



QUAD LINE RECEIVERS

MC1489/MC1489A

DC ELECTRICAL CHARACTERISTICS $V_{CC} = 5.0V \pm 1\%$, $0^\circ C \leq T_A \leq +75^\circ C$ unless otherwise specified.^{1,2}

PARAMETER	TEST CONDITIONS	MC1489			MC1489A			UNIT
		Min	Typ	Max	Min	Typ	Max	
Input high threshold voltage	$T_A = 25^\circ C$, $V_{OUT} \leq 0.45V$, $I_{OUT} = 10mA$	1.0		1.5	1.75		2.25	V
Input low threshold voltage	$T_A = 25^\circ C$, $V_{OUT} \leq 2.5V$, $I_{OUT} = -0.5mA$	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	
Input current	$V_{IN} = +3V$	+0.43	+0.53		+0.43	+0.53		mA
	$V_{IN} = -3V$	-0.43	-0.53		-0.43	-0.53		
Output high voltage	$V_{IN} = 0.75V$, $I_{OUT} = -0.5mA$	2.6	3.8	5.0	2.6	3.8	5.0	V
Output low voltage	Input = Open, $I_{OUT} = -0.5mA$	2.6	3.8	5.0	2.6	3.8	5.0	V
Output short circuit current	$V_{IN} = 3.0V$, $I_{OUT} = 10mA$		0.33	0.45		0.33	0.45	V
Output short circuit current	$V_{IN} = 0.75V$		3.0			3.0		mA
Supply current	$V_{IN} = 5.0V$		20	26		20	26	mA
Power dissipation	$V_{IN} = 5.0V$		100	130		100	130	mW

NOTES

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

AC ELECTRICAL CHARACTERISTICS $V_{CC} = 5.0V \pm 1\%$, $T_A = 25^\circ C$ unless otherwise specified.^{1,2}

PARAMETER	TEST CONDITIONS	MC1489			MC1489A			UNIT
		Min	Typ	Max	Min	Typ	Max	
Input to output "high" Propagation delay (t_{pd1})	$R_L = 3.9k\Omega$ (AC test circuit)		25	85		25	85	ns
Input to output "low" Propagation delay (t_{pd0})	$R_L = 390\Omega$ (AC test circuit)		20	50		20	50	
Output rise time	$R_L = 3.9k\Omega$ (AC test circuit)		110	175		110	175	ns
Output fall time	$R_L = 390\Omega$ (AC test circuit)		9	20		9	20	ns

NOTES

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

TYPICAL APPLICATIONS

