

ORDERING INFORMATION

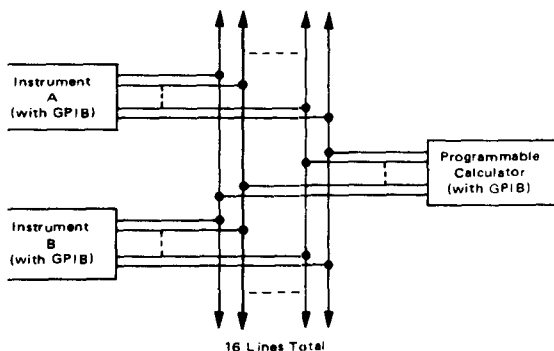
Device	Temperature Range	Package
MC3446	0°C to +70°C	Plastic DIP

QUAD GENERAL PURPOSE INTERFACE BUS (G.P.I.B.) TRANSCEIVER

The MC3446 is a quad bus transceiver intended for usage in instruments and programmable calculators equipped for inter-connection into complete measurement systems. This transceiver allows the bidirectional flow of digital data and commands between the various instruments. The transceiver provides four open-collector drivers and four receivers featuring hysteresis.

- Tailored to Meet the IEEE Standard 488-1975 (Digital Interface for Programmable Instrumentation) and the Proposed IEC Standard on Instrument Interface
- Provides Electrical Compatibility with Hewlett Packard Interface Bus. (HP-IB)
- MOS Compatible with High Impedance Inputs
- Driver Output Guaranteed Off During Power Up/Power Down
- Low Power — Average Power Supply Current = 12 mA
- Termination Resistors Provided

TYPICAL MEASUREMENT SYSTEM APPLICATION



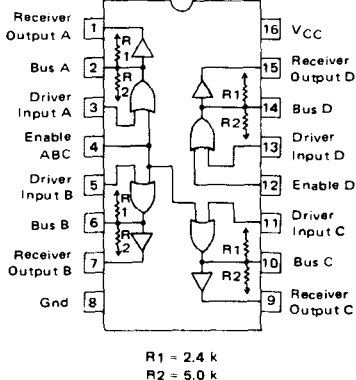
MC3446

QUAD INTERFACE BUS TRANSCEIVER SILICON MONOLITHIC INTEGRATED CIRCUIT



P SUFFIX
PLASTIC PACKAGE
CASE 648

PIN CONNECTIONS



MAXIMUM RATINGS (T_A = 25°C unless otherwise noted.)

Rating	Symbol	Value	Unit
Power Supply Voltage	V _{CC}	7.0	V _{dc}
Input Voltage	V _I	5.5	V _{dc}
Driver Output Current	I _{O(D)}	150	mA
Junction Temperature	T _J	150	°C
Operating Ambient Temperature Range	T _A	0 to +70	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C

ELECTRICAL CHARACTERISTICS (Unless otherwise noted, 4.75 V ≤ V_{CC} ≤ 5.25 V and 0 ≤ T_A ≤ 70°C, typical values are at T_A = 25°C, V_{CC} = 5.0 V)

Characteristic	Symbol	Min	Typ	Max	Unit
DRIVER PORTION					
Input Voltage – High Logic State	V _{IH(D)}	2.0	–	–	V
Input Voltage – Low Logic State	V _{IL(D)}	–	–	0.8	V
Input Current – High Logic State (V _{IH} = 2.4 V)	I _{IH(D)}	–	5.0	20	μA
Input Current – Low Logic State (V _{IL} = 0.4 V, V _{CC} = 5.0 V, T _A = 25°C)	I _{IL(D)}	–	0.2	0.36	mA
Input Clamp Voltage (I _{IC} = -12 mA)	V _{IC(D)}	–	–	-1.5	V
Output Voltage – High Logic State (1) (V _{IH(S)} = 2.4 V or V _{IH(D)} = 2.0 V)	V _{OH(D)}	2.5	3.3	3.7	V
Output Voltage – Low Logic State (V _{IL(S)} = 0.8 V, V _{IL(D)} = 0.8 V, I _{OL(D)} = 48 mA)	V _{OL(D)}	–	–	0.4	V
Input Breakdown Current (V _{I(D)} = 5.5 V)	I _{IB(D)}	–	–	1.0	mA

RECEIVER PORTION					
Input Hysteresis	–	400	900	–	mV
Input Threshold Voltage – Low to High Output Logic State	V _{ILH(R)}	–	1.78	2.0	V
Input Threshold Voltage – High to Low Output Logic State	V _{IHL(R)}	0.6	0.88	–	V
Output Voltage – High Logic State (V _{IH(R)} = 2.0 V, I _{OH(R)} = -400 μA)	V _{OH(R)}	2.4	–	–	V
Output Voltage – Low Logic State (V _{IL(R)} = 0.8 V, I _{OL(R)} = 8.0 mA)	V _{OL(R)}	–	–	0.4	V
Output Short-Circuit Current (V _{IH(R)} = 2.0 V) (Only one output may be shorted at a time)	I _{OS(R)}	4.0	–	14	mA

BUS LOAD CHARACTERISTICS					
Bus Voltage (V _{IH(E)} = 2.4 V, I _{IBUS} = -12 mA)	V _(BUS)	2.5	3.3	3.7	V
Bus Current (V _{IH(D)} = 2.4 V, V _{BUS} = 5.0 V)	I _(BUS)	0.7	–	–	mA
(V _{IH(D)} = 2.4 V, V _{BUS} = 0.4 V)		-1.3	–	-3.2	
(V _{BUS} ≤ 5.5 V)		–	–	2.5	

TOTAL DEVICE POWER CONSUMPTION					
Power Supply Current (All Drivers OFF)	I _{CC}	–	12	19	mA
(All Drivers ON)		–	32	39	

SWITCHING CHARACTERISTICS (V_{CC} = 5.0 V, T_A = 25°C)

Characteristic	Symbol	Min	Typ	Max	Unit
DRIVER PORTION					
Propagation Delay Time from Driver Input to Low Logic State Bus Output	t _{PHL(D)}	–	34	50	ns
Propagation Delay Time from Driver Input to High Logic State Bus Output	t _{PLH(D)}	–	17	40	ns
Propagation Delay Time from Enable Input to Low Logic State Bus Output	t _{PHL(E)}	–	39	50	ns
Propagation Delay Time from Enable Input to High Logic State Bus Output	t _{PLH(E)}	–	32	50	ns
RECEIVER PORTION					
Propagation Delay Time from Bus Input to High Logic State Receiver Output	t _{PLH(R)}	–	37	50	ns
Propagation Delay Time from Bus Input to Low Logic State Receiver Output	t _{PHL(R)}	–	22	40	ns



FIGURE 1 – TEST CIRCUIT AND WAVEFORMS FOR PROPAGATION DELAY TIME FROM RECEIVER INPUT (BUS) TO OUTPUT

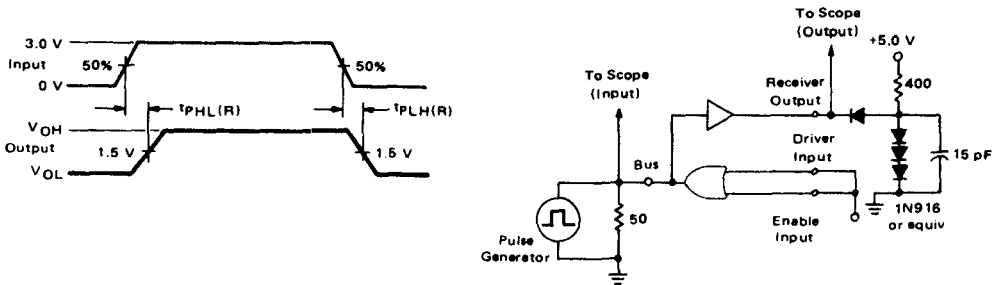


FIGURE 2 – TEST CIRCUIT AND WAVEFORMS FOR PROPAGATION DELAY TIME FROM DRIVER AND COMMON ENABLE INPUTS TO OUTPUT (BUS)

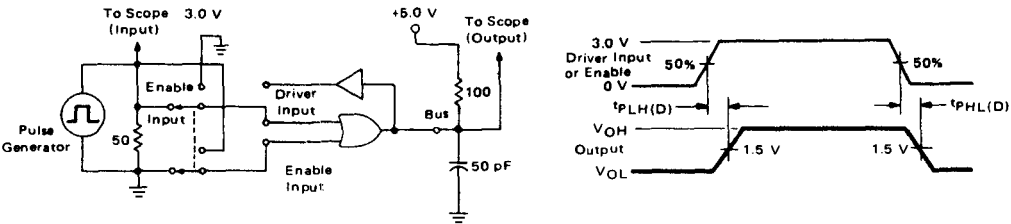


FIGURE 3 – TYPICAL RECEIVER HYSTERESIS CHARACTERISTICS

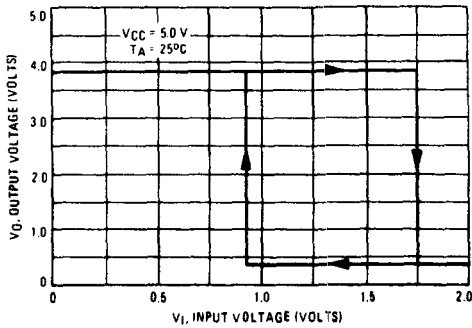


FIGURE 4 – TYPICAL BUS LOAD LINE

