



MOTOROLA

MTTL Compatible Quad Line Driver

The MC3453 features four SN75110 type line drivers with a common inhibit input. When the inhibit input is high, a constant output current is switched between each pair of output terminals in response to the logic level at that channel's input. When the inhibit is low, all channel outputs are nonconductive (transistors biased to cut-off). This minimizes loading in party-line systems where a large number of drivers share the same line.

- Four Independent Drivers with Common Inhibit Input
- - 3.0 V Output Common-Mode Voltage Over Entire Operating Range
- Improved Driver Design Exceeds Performance of Popular SN75110

MC3453

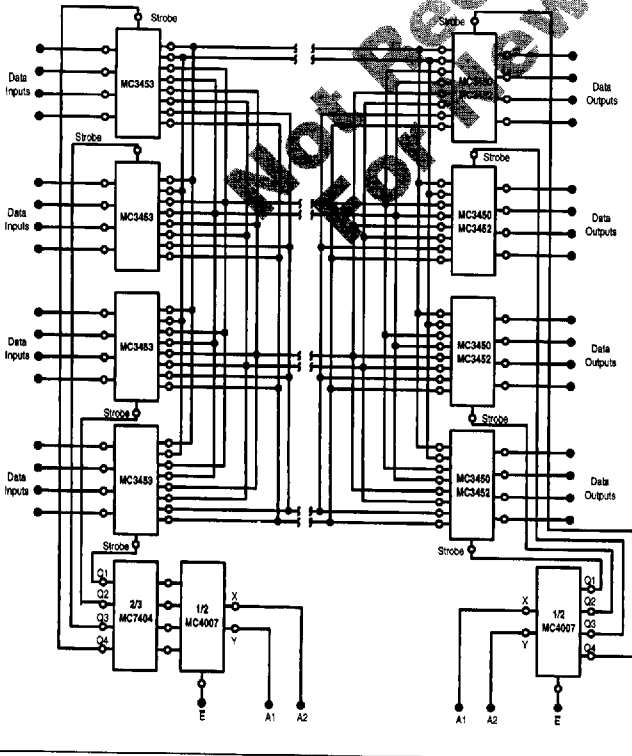
QUAD LINE DRIVER WITH COMMON INHIBIT INPUT

SEMICONDUCTOR TECHNICAL DATA

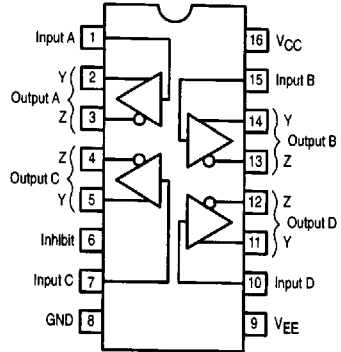


P SUFFIX PLASTIC PACKAGE CASE 648

Figure 1. Party-Line Data Transmission System with Multiplex Decoding



PIN CONNECTIONS



TRUTH TABLE (positive logic)

Logic Input	Inhibit Input	Output Current	
		Z	Y
H	H	On	Off
L	H	Off	On
H	L	Off	Off
L	L	Off	Off

L = Low Logic Level
H = High Logic Level

ORDERING INFORMATION

Device	Operating Temperature Range	Package
MC3453P	T _A = 0 to +70°C	Plastic DIP

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MAXIMUM RATINGS (T_A = 0 to +70°C, unless otherwise noted.)

	Symbol	Value	Unit
Power Supply Voltage	V _{CC}	+7.0	V
	V _{EE}	-7.0	
Logic and Inhibitor Input Voltages	V _{in}	5.5	V
Common-Mode Output Voltage Range	V _{OCR}	-5.0 to +12	V
Power Dissipation (Package Limitation)	P _D	1000	mW
Plastic Dual In-Line Package		6.6	mW/°C
Derate above T _A = 25°C			
Operating Ambient Temperature Range	T _A	0 to +70	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C
Plastic and Ceramic Dual In-Line Packages			

RECOMMENDED OPERATING CONDITIONS (See Notes 1 and 2.)

Characteristic	Symbol	Min	Nom	Max	Unit
Power Supply Voltages	V _{CC}	+4.75	+5.0	+5.25	V
	V _{EE}	-4.75	-5.0	-5.25	
Common-Mode Output Voltage Range	V _{OCR}				V
Positive		0	-	+10	
Negative		0		-3.0	

- NOTES: 1. These voltage values are in respect to the ground terminal.
2. When not using all four channels, unused outputs must be grounded.

DEFINITIONS OF INPUT LOGIC LEVELS*

Characteristic	Symbol	Min	Max	Unit
High-Level Input Voltage (at any input)	V _{IH}	2.0	5.5	V
Low-Level Input Voltage (at any input)	V _{IL}	0	0.8	V

* The algebraic convention, where the most positive limit is designated maximum, is used with Logic Level Input Voltage Levels only.

ELECTRICAL CHARACTERISTICS (T_A = 0 to +70°C, unless otherwise noted.)

Characteristic#	Symbol	Min	Typ#	Max	Unit
High-Level Input Current (Logic Inputs) (V _{CC} = Max, V _{EE} = Max, V _{IH} = 2.4 V) (V _{CC} = Max, V _{EE} = Max, V _{IH} = V _{CC} Max)	I _{IHL}	-	-	40	μA
		-	-	1.0	mA
Low-Level Input Current (Logic Inputs) (V _{CC} = Max, V _{EE} = Max, V _{IL} = 0.4 V)	I _{ILL}	-	-	-1.6	mA
High-Level Input Current (Inhibit Input) (V _{CC} = Max, V _{EE} = Max, V _{IH} = 2.4 V) (V _{CC} = Max, V _{EE} = Max, V _{IH} = V _{CC} Max)	I _{IHI}	-	-	40	μA
Low-Level Input Current (Inhibit Input) (V _{CC} = Max, V _{EE} = Max, V _{IL} = 0.4 V)	I _{ILI}	-	-	-1.6	mA
Output Current ("ON" state) (V _{CC} = Max, V _{EE} = Max) (V _{CC} = Min, V _{EE} = Min)	I _{O(on)}	-	11	15	mA
		6.5	11	-	
Output Current ("OFF" state) (V _{CC} = Min, V _{EE} = Min)	I _{O(off)}	-	5.0	100	μA
Supply Current from V _{CC} (with driver enabled) (V _{IL} = 0.4 V, V _{IHI} = 2.0 V)	I _{CC(on)}	-	35	50	mA

#All typical values are at V_{CC} = 5.0 V, V_{EE} = -5.0 V, T_A = 25°C.

#For conditions shown as Min or Max, use the appropriate value specified under recommended operating conditions for the applicable device type.

Ground unused inputs and outputs.

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ELECTRICAL CHARACTERISTICS (T_A = 0 to +70°C, unless otherwise noted.)

Characteristic#	Symbol	Min	Typ#	Max	Unit
Supply Current from V _{EE} (with driver enabled) (V _{IL_L} = 0.4 V, V _{IH_I} = 2.0 V)	I _{EE(on)}	-	65	90	mA
Supply Current from V _{CC} (with driver inhibited) (V _{IL_L} = 0.4 V, V _{IH_I} = 0.4 V)	I _{CC(off)}	-	35	50	mA
Supply Current from V _{EE} (with driver inhibited) (V _{IL_L} = 0.4 V, V _{IH_I} = 0.4 V)	I _{EE(off)}	-	25	40	mA

#All typical values are at V_{CC} = 5.0 V, V_{EE} = -5.0 V, T_A = 25°C.

##For conditions shown as Min or Max, use the appropriate value specified under recommended operating conditions for the applicable device type.
Ground unused inputs and outputs.

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

Characteristic	Symbol	Min	Typ	Max	Unit
Propagation Delay Time from Logic Input to Output Y or Z (R _L = 50 ohms, C _L = 40 pF)	t _{PLH}	-	9.0	17	ns
	t _{PHL}	-	9.0	17	ns
Propagation Delay time from Inhibit Input to Output Y or Z (R _L = 50 ohms, C _L = 40 pF)	t _{PLH}	-	20	25	ns
	t _{PHL}	-	16	25	ns

Not Recommended
For New Design

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Figure 2. Logic Input to Outputs Propagation Delay Time Waveforms

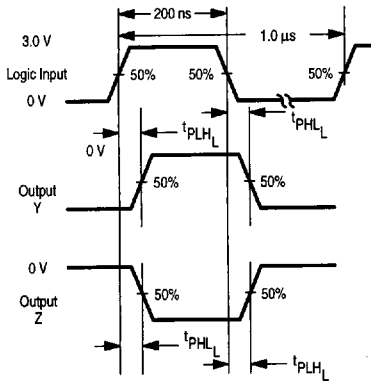
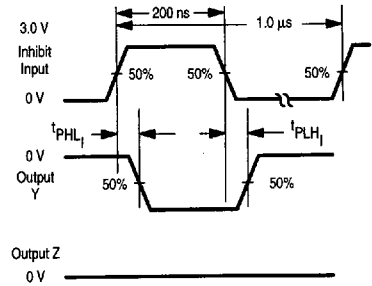
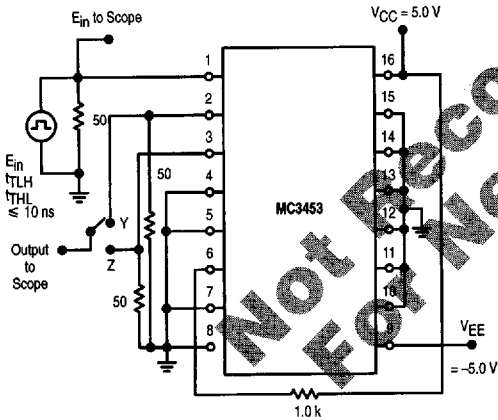


Figure 3. Inhibit Input to Outputs Propagation Delay Time Waveforms



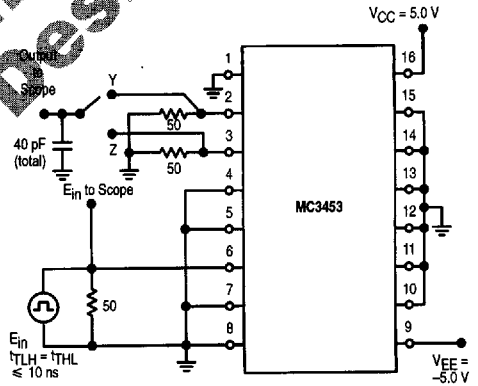
TEST CIRCUITS

Figure 4. Logic Input to Output Propagation Delay Time Test Circuit



Channel A shown under test, the other channels are tested similarly.

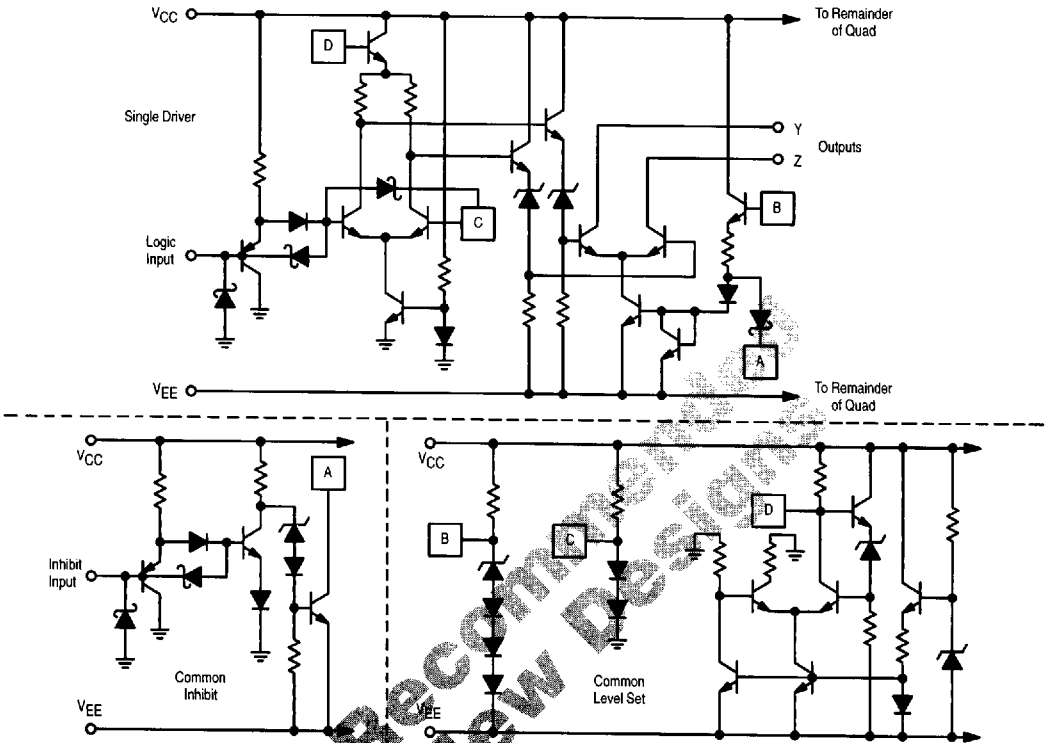
Figure 5. Inhibit Input to Output Propagation Delay Time Test Circuit



Channel A shown under test, the other channels are tested similarly.

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Figure 6. Circuit Schematic
(1/4 Circuit Shown)



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Not Recommended For New Design

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