

MC3453, MC3553 QUAD LINE DRIVERS WITH COMMON ENABLE

SLLS119A – D3000, FEBRUARY 1986 – REVISED FEBRUARY 1993

- Similar to a Dual Version of SN55/75110A Line Driver
- Improved Stability Over Supply Voltage and Temperature Ranges
- Constant-Current Outputs
- High Output Impedance
- High Common-Mode Output Voltage Range –3 V to 10 V
- Glitch-Free Power-Up/Power-Down Operation
- TTL-Input Compatibility
- Common-Enable Circuit
- Designed to Be Interchangeable With Motorola MC3453 and Military-Temperature-Range Version of MC3553

description

The MC3453 and MC3553 feature four line drivers with a common-enable input. When the ENABLE input is high, a constant output current is switched between each pair of output terminals in response to the logic level at that channel input. When the ENABLE is low, all channel outputs are nonconductive (transistors biased to cutoff). This minimizes loading in party-line systems where a large number of drivers share the same line.

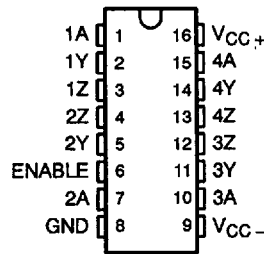
The driver outputs have a common-mode voltage range of –3 V to 10 V, allowing common-mode voltages on the line without affecting driver performance.

All outputs should be maintained within the recommended common-mode output voltage range to ensure that the channels do not interact with each other. To minimize power dissipation, all unused outputs should be grounded.

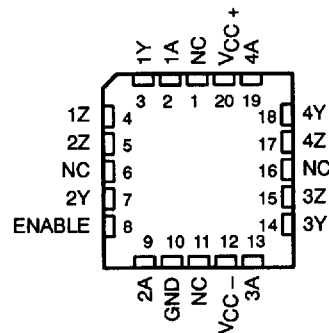
All inputs are diode clamped and are designed to satisfy TTL-system requirements. The inputs are tested at 2 V for high-logic-level input conditions and 0.8 V for low-logic-level input conditions. These tests ensure 400 mV of noise margin when interfaced with Series 54/74 TTL.

The MC3453 is characterized for operation from 0°C to 70°C. The MC3553 is characterized for operation over the full military temperature range of –55°C to 125°C.

D, J, OR N . . . PACKAGE
(TOP VIEW)



FK PACKAGE
(TOP VIEW)



NC—No internal connection

FUNCTION TABLE

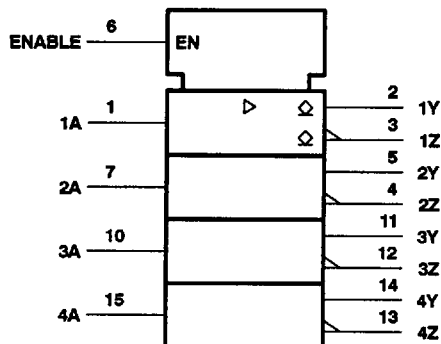
LOGIC INPUT	ENABLE INPUT	OUTPUT CURRENT	
		Z	Y
H	H	On	Off
L	H	Off	On
H	L	Off	Off
L	L	Off	Off

L = low logic level, H = high logic level

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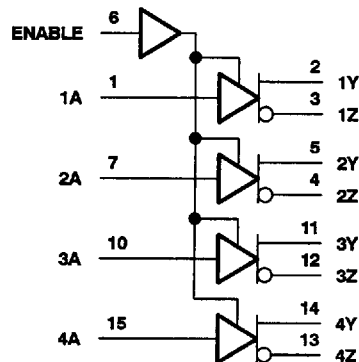
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logic symbol†

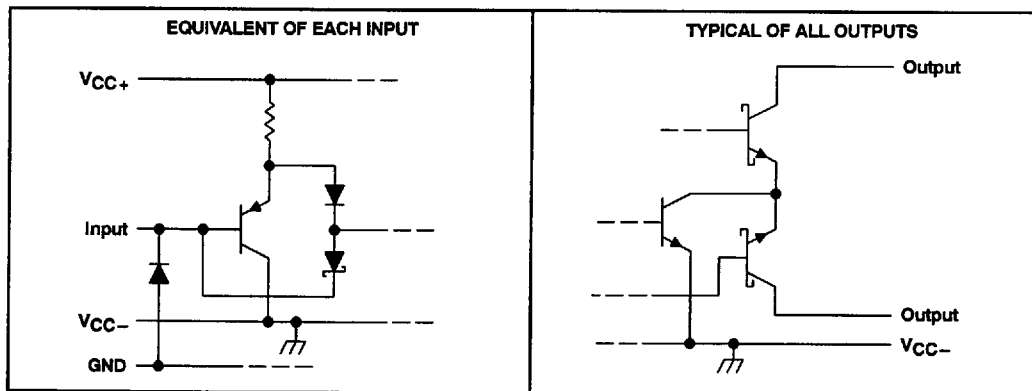


† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagram (positive logic)



schematics of inputs and outputs



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC+} (see Note 1)	7 V
Supply voltage, V_{CC-}	-7 V
Input voltage (any input)	5.5 V
Output voltage range (any output)	-5 V to 12 V
Continuous total dissipation	See Dissipation Rating Table
Operating free-air temperature range:	
MC3453	0°C to 70°C
MC3553	-55°C to 125°C
Storage temperature range	-65°C to 150°C
Case temperature for 60 seconds: FK package	260°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds: D or N package	260°C
Lead temperature 1,6 mm (1/16 inch) from case for 60 seconds: J package	300°C

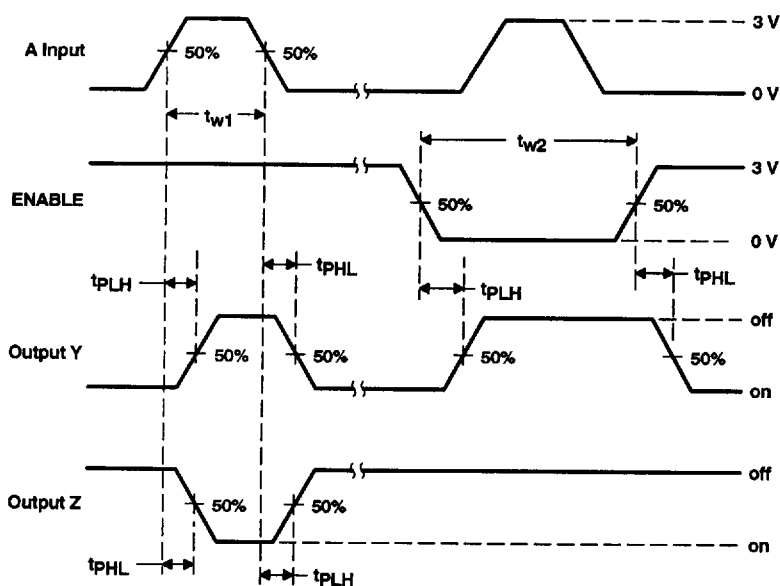
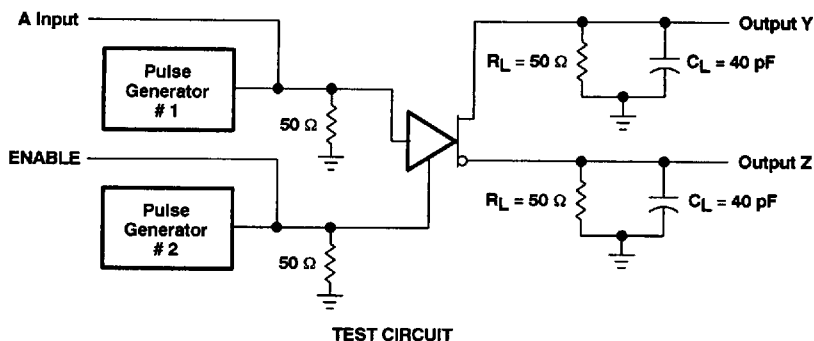
NOTE 1: All voltage values are with respect to network ground terminal.



MC3453 QUADRUPLE LINE DRIVER WITH COMMON ENABLE

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PARAMETER MEASUREMENT INFORMATION



- NOTES: A. The pulse generators have the following characteristics: $Z_0 = 50 \Omega$, $t_r = t_f = 10 \pm 5 \text{ ns}$, $t_{w1} = 200 \text{ ns}$, $\text{PRR} \leq 1 \text{ MHz}$, $t_{w2} = 1 \mu\text{s}$, $\text{PRR} \leq 500 \text{ kHz}$.
 B. C_L includes probe and jig capacitance.

Figure 1. Test Circuit and Voltage Waveforms