

Monolithic Multi-Throw Driver Chips

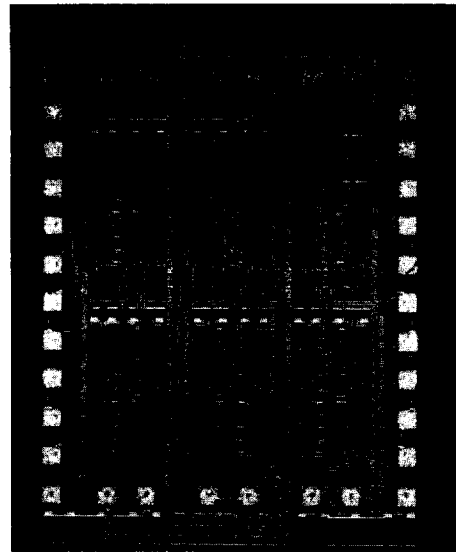
T-52.17

Features:

- 4 nanosec video switching time
- Low In Band Noise: -50dBm at 1GHz
- True differential inputs
- Compatible with TTL, ECL, and CMOS to 5.0 volts
- Internal references for TTL, ECL
- Inverting, non-inverting
- ± 3.5 volt, ± 120 mA output per driver
- Low internal current
- Multiple outputs from each driver
- Scratch protected

Types

- MPD 1750-04, Four Independent Drivers
- MPD 1750-02, Two Independent Drivers

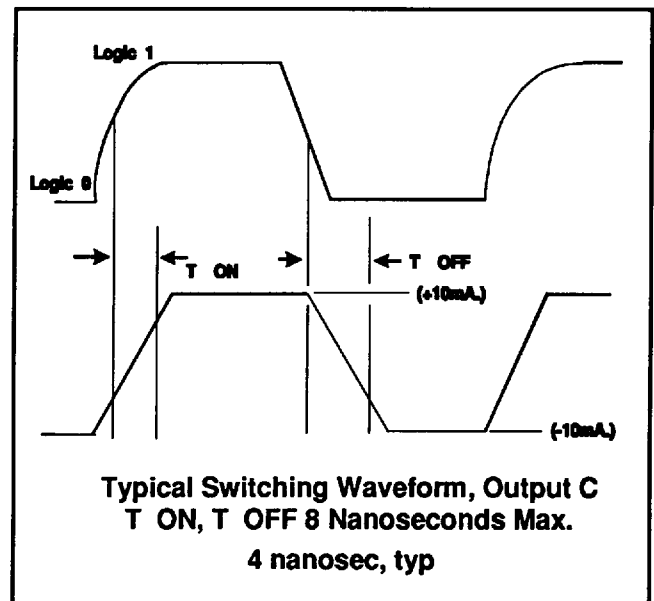


Description

Alpha's Silicon Monolithic PIN/FET Driver Chips offer new low cost driver options for low power multi-throw switches. Versatile logic modes, multiple outputs, and provision for trade-off between switching speed and in band noise make these drivers suitable for a wide range of applications, both PIN and FET switches. Also, the differential input permits use in RF controlled limiter or receiver protector circuits.

Guaranteed Specifications: (-50 °C to + 85 °C)

Output Current:	± 120 mA, min, per driver
Peak Output Current:	± 300 mA, min, per driver
Open Circuit Output Voltage:	± 3.5 volts, min
Switching Time: ①	8 nanosec, max, T_{ON} and T_{OFF}
Internal Current:	+ 15 mA, max per driver - 10 mA, max per driver
Operating Voltage:	+ 4.9 / + 5.50 volts and - 4.9 / - 5.50 volts
Internal TTL References:	+ 1.45 \pm .05 volts @ 8 mA
Internal ECL Reference:	-1.21 \pm .02 volts @ 8 mA
TTL, ECL, Logic Inputs: ②	Approx. 4k Ω to V_{CC} ; sink up to 2mA
Chip Dimensions:	.087 \pm .003 by .119 \pm .003 by .017 \pm .001
Bonding Pads:	3 mils, min, square, gold metallization
Reliability:	All units are designed to meet the environmental and screening requirements of MIL-STD-883.



1. Driving opposed polarity pair 1N4148; 50% to 90% and 50% to 10%.
2. Each logic input has a 4K Ω pull-up to V_{CC}

Specifications subject to change without notice.

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Logic Example: Driver NBR 4.

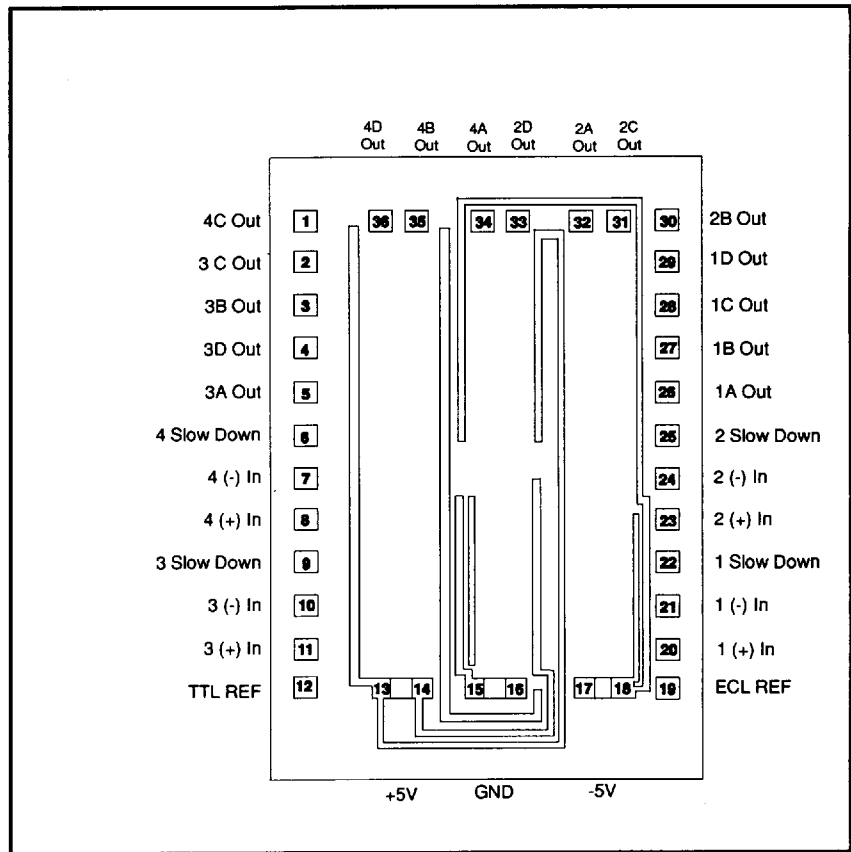
- A. Pad 7 connected to Pad 12; Logic input to Pad 8: TTL - non-inverting
- B. Pad 8 connected to Pad 19; Logic input to Pad 7: ECL - inverting

Outputs:

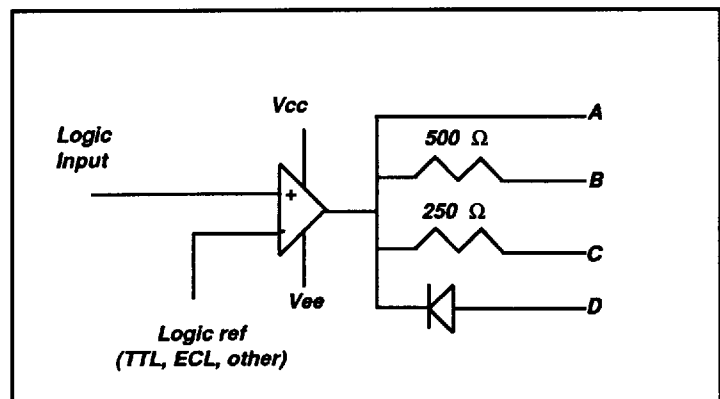
- A. Direct; 3.5 volts @ 120mA; 300mA peak. Not short circuit protected.
- B. 500 ohm series resistor, for 5mA output
- C. 250 ohm series resistor, for 10mA output
- D. Series diode for driving series shunt configurations

Comments:

1. Approximately 0.1 volt differential is enough to control outputs.
2. Slow down capacitor, approx. 10 - 20 pf, will reduce in band RF noise substantially with minor degradation of switching speed. Connect to either -5 volts or to ground.
[Alpha SC9103-07, -09]
3. Mount capacitors to ground from each power supply; minimal lead length.
Approx. 0.1 microfarad to -Vee
Approx. 0.2 microfarad to +Vcc
4. The bottom of the chip should be either floating or connected to -5 volts.
5. For type MPD 1750-02, drivers NBR 1 and 3 are internally powered. NBR 2 and 4 are not connected.
6. Because of the logic pull-ups, one of the logic ports should be grounded on any unused active drivers.
7. Effective source (output) impedance approximately 25 ohms.



Slow down pads are for use when switching speeds are not critical but in band RF noise is. Capacitor installed from slow down pad to -Vee or ground.



With the (-) input tied to the desired logic, the driver will be non-inverting, with the (+) input tied to desired logic driver will be inverting.