**QUAD PREDRIVER** **DUAL LINE SELECTOR**

# MC4342 MC4343
# MC4042 MC4043

The MC4042 and MC4043 are designed for magnetic memory driver/selector applications.

The MC4042 monolithic quad predriver consists of four high-speed switching transistors, each driven by an MTTL compatible NOR gate. Each NOR gate has an individual address input and a common timing input. The inputs of the MC4042 can be driven directly with standard MTTL decoders such as the MC4006 binary to one-of-eight decoder or the MC4007 dual binary to one-of-four decoder. The open-collector output transistor of the MC4042 will sink 50 mA.

The MC4043 monolithic dual line selector consists of two high-speed 400 mA switches driven by MTTL compatible NOR gates. Each NOR gate has an individual address input and a common timing input. The address and timing inputs of the MC4043 can also be driven directly with standard MTTL decoders such as the MC4006 and MC4007.

The MC4042 and MC4043 input circuits are the same, but the output circuitry is different as shown in the device schematics. The output transistors of both devices have a minimum $BV_{CEX}$ of 15 volts, and are gold doped to increase switching speeds.

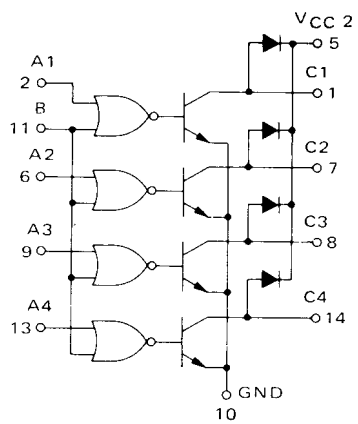
Many memory predriver applications employ transformer coupling between the predriver and driver stages. In such designs, large voltage overshoots occur due to the transformer inductance and high-speed switching currents. The collector of the MC4042 is internally clamped to prevent the collector from exceeding the maximum rated voltage during the switching transitions. The voltage applied to the diode clamp, pin 5, should be the same or greater than the collector voltages at pins 1, 7, 8, and 14, to prevent the diode clamp from being forward biased during nonswitching periods. The output transistor is driven with a conventional totem pole arrangement to provide active pullup and pulldown.

The collectors of the pullup transistors of the MC4043 are available at pins 1 and 7. An external load resistor to $V_{CC}$ must be provided. This reduces power dissipation of the package and provides a means by which the speed of the device can be varied by changing the value of the pullup resistance.

The internal decoding circuitry of the MC4043 is such that both switches can be turned on at one time. However, due to power limitations, care must be taken to ensure that only one switch is turned on at any one time.

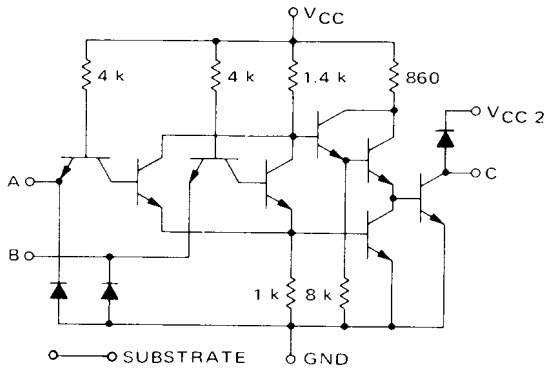
The MC4042 and MC4043 can provide a memory system with an inexpensive, reliable, fast drive system. They are also useful as relay or lamp drivers, high fan-out gates, and MOS drivers.

**MC4042**




Input Loading Factors:
A = 1, B = 4
Total Power Dissipation = 120 mW typ/pkg
Propagation Delay Time = 15 ns typ

**SCHEMATIC (¼ OF DEVICE SHOWN)**



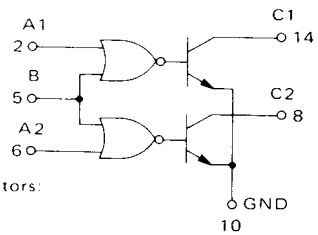

**MC4042 AND MC4043**

$V_{CC}$ = PIN 4
GND = PIN 10
SUBSTRATE = PIN 3

**TRUTH TABLE**
**(One gate only)**

| A1 | B | C1 |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

**MC4043**




Collectors of Output Transistors:
Gate 1 = Pin 1
Gate 2 = Pin 7

Input Loading Factors: A = 1, B = 2
Total Power Dissipation = 70 mW typ/pkg
Propagation Delay Time = 20 ns typ

**SCHEMATIC (½ OF DEVICE SHOWN)**