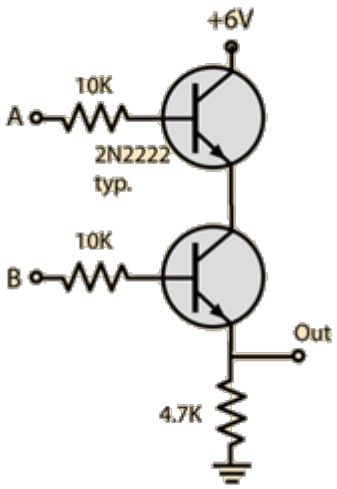
Transistor AND Gate

☑	**AND Gate**
☐	**OR Gate**
☐	**NAND Gate**
☐	**NOR Gate Double Transistor**
☐	**NOR Gate Single Transistor**



The use of transistors for the construction of logic gates depends upon their utility as fast switches. When the base-emitter diode is turned on enough to be driven into saturation, the collector voltage with respect to the emitter may be near zero and can be used to construct gates for the TTL logic family. For the AND logic, the transistors are in series and both transistors must be in the conducting state to drive the output high.

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- ☐ NAND Gate
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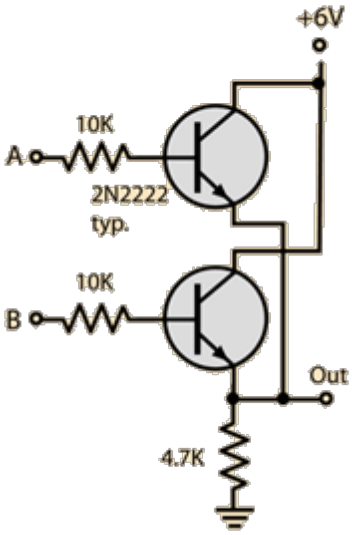

The use of transistors for the construction of logic gates depends upon their utility as fast switches. When the base-emitter diode is turned on enough to be driven into saturation, the collector voltage with respect to the emitter may be near zero and can be used to construct gates for the TTL logic family. For the OR logic, the transistors are in parallel and the output is driven

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high if either of the transistors is conducting.

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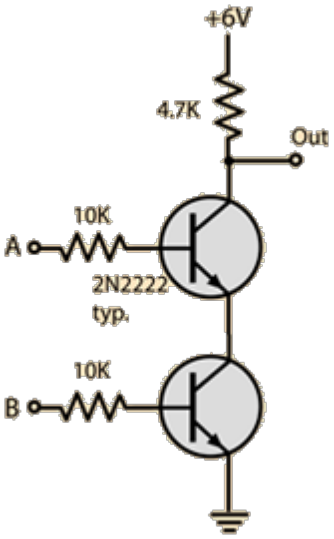

The use of transistors for the construction of logic gates depends upon their utility as fast switches. When the base-emitter diode is turned on enough to be driven into saturation, the collector voltage with respect to the emitter

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may be near zero and can be used to construct gates for the TTL logic family. For the NAND logic, the transistors are in series, but the output is above them. The output is high unless both A and B inputs are high, in which case the output is taken down close to ground potential.

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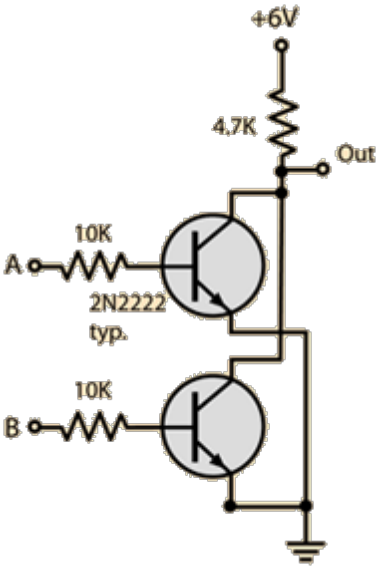
☐ **AND Gate** ☐ **OR Gate** ☐ **NAND Gate** ☑ **NOR Gate Double Transistor** ☐ **NOR Gate Single Transistor**		The use of transistors for the construction of logic gates depends upon their utility as fast switches. When the base-emitter diode is turned on enough to be driven into saturation, the collector voltage with respect to the emitter may be near zero and can be used to construct gates for the TTL logic family. For the NOR logic, the transistors are in parallel with the output above them so that if either or both of the inputs are high, the output is driven low.	Logic Circuits
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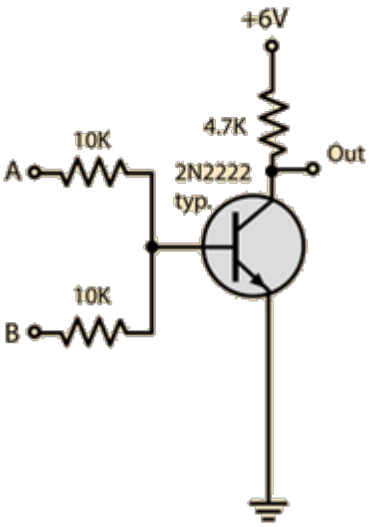

The use of transistors for the construction of logic gates depends upon their utility as fast switches. When the base-emitter diode is turned on enough to be driven into saturation, the collector voltage with respect to the emitter may be near zero and can be used to construct gates for the TTL logic family. In this alternative way to

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achieve NOR logic, only one transistor is used with the two inputs tied to its base through resistors. If either or both of the inputs is high, the output is driven low.

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