

Re: Why Collector ??

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Jiks wrote:

i think, i will express my problem exactly :

WHY DOES THE ELECTRONS EMITTED TO THE BASE "JUST" SIMPLY LEAVE THE
BASE
THROUGH THE BASE LEAD RATHER THAN GOING INTO THE HUGE RESISTIVE
COLLECTOR REVERSE BIAS DIRECTION ??????????

The reason this happens is the reason you can't very well roll marbles down the length of a slightly tilted yard stick. The base path is very long and thin. Once an electron falls off on the collector side, it encounters an electric field that sweeps it away to the collector terminal. It can't fall off the emitter side, because it feel down (potential energetically speaking) from the emitter to appear in the base, to begin with. That direction is uphill.

Transistors have power gain, because a small voltage (a diode forward bias drop times a small base current) controls a much larger power (a much larger collector current times a much larger collector voltage). How this happens, is what I described earlier. It is all about drift (movement caused by voltage) and diffusion) random motion caused by heat). A junction transistor is a heat operated device. They don't work near absolute zero temperature.

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