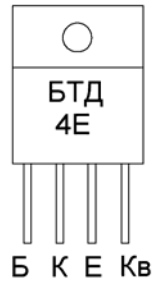
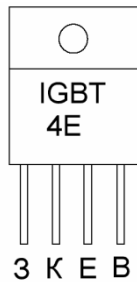
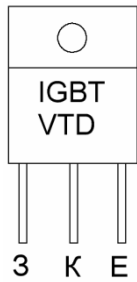


5.14. TRANSISTOR SWITCHES WITH LOW VOLTAGE DROP

They are designed for the use as power switches in the devices of power converter equipment and electronics.



The following modified macromodels are developed on discrete elements:

- IGBT transistors and Darlington bipolar component transistors with series-connected diode - respectively: IGBT-VTD and BTD-VTD (БТД-VTD);
- IGBT transistors and Darlington bipolar component transistors with fourth separated leakage electrode and collector - respectively: IGBT-4E and BTD-4E (БТД-4E), where: 3 - shutter, K - collector, E - emitter, B - leak, Кв - separated collector.

Advantages:

- reduction of the voltage drop on the switch in comparison with analogues - up to 30...50%;
- the use of IGBT-VTD and BTD-VTD (БТД-VTD) switches in AC circuits does not require the power diodes to be connected in series with them;
- reduction of dynamic energy losses up to 25 ... 30% when applying external saturation choke connected in series with IGBT-4E and BTD-VTD (БТД-VTD).

It is recommended for the integral execution of these switches with their subsequent application in the devices of power electronics with increased efficiency.