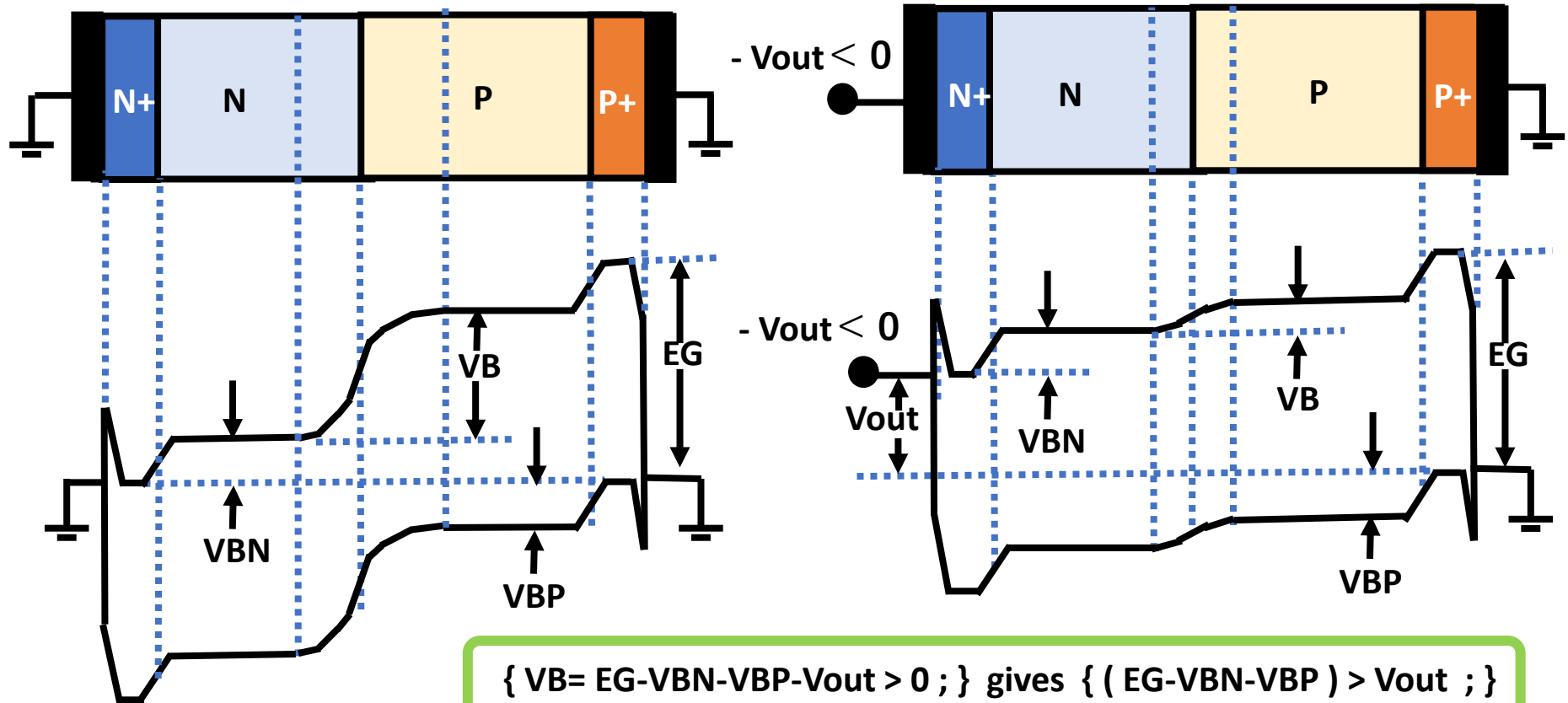


$$E_G = 1.11 \text{ volt} ; V_{BN} = (kT) \ln (D_{NN}/D_N); V_{BP} = (kT) \ln (D_{PP}/D_P);$$



$$V_{out} = 0 ; E_G = V_B + V_{BN} + V_{BP};$$

$$(E_G - V_{BN} - V_{BP}) \sim 0.5 \text{ volt} ;$$

なぜ順方向で $V_{out} = 0.5 \text{ volt}$ 迄順方向電流が流れないのか？