

Option with Dp and Qp as input where Qp = const

Groups:

{A, Q}  
{Dp, Qp}  
{sf, sr, tr}  
{tc, hc, tf, M, V, ...}

We have 2 variants:

1. Dp inputed. Then calculations are the same as in option "Plain,Qp=const".
2. Qp inputed. Then we need to implement only the calculation of Qp and use this function in bisection method to get correspond Dp. After this we can use previous step but without calculating of Qp to get all other parameters.

$$t_f = \frac{\eta_f h_c (h_c + h_{ce})}{p_c \kappa \Delta_p} \quad (1)$$

$$h_c = \frac{1}{2} \sqrt{h_{ce}^2 + \frac{4 p_c \kappa \Delta_p t_f}{\eta_f}} - \frac{1}{2} h_{ce} \quad (2)$$

$$Q_p = \frac{A \Delta_p p_c}{\eta_f \left( 1 - \frac{c_v}{1 - eps} \right) (h_c + h_{ce})} \quad (3)$$