

Plasma Energy

The global plasma energy content W_p can be simply calculated from the temperature estimation $T_e(0, t)$, average density n_e and plasma volume V_p , based on the ideal gas law, taking into account the assumed

$T_e(r, t) = T_e(0, t) \left(1 - \frac{r^2}{a^2}\right)^2$ temperature profile:

$$W_p(t) = V_p \frac{n_e k_B T_e(0, t)}{3}.$$

The information that the magnetic field reduces the degrees of freedom of the particles to two has been used to derive this formula.

- $V_p \approx 80 \text{ l}$