see paper: Review and Evaluation of the Approximations to the Temperature Integral (2007)

$$u = \frac{E}{RT}$$

$$\int_{T_0}^{T} \exp(-u)\, dT \approx \int_{0}^{T} \exp(-u)\, dT = \frac{E}{R}\frac{\exp(-u)}{u^2} Q(u)$$

where

$$Q(u) = \frac{0.9999936 * \mathrm{u}^4 + 7.5739391 * \mathrm{u}^3 + 12.4648922 * \mathrm{u}^2 + 3.6907232 * \mathrm{u}}{\mathrm{u}^4 + 9.5733223 * \mathrm{u}^3 + 25.6329561 * \mathrm{u}^2 + 21.0996531 * \mathrm{u} + 3.9584969}$$

Very precise as long as $1 \leq \frac{E}{RT} \leq 250$