Given
$\lambda = 30.0 \ \mu m$
$h = 6.63 \times 10^{-34} \ J \cdot s$
$c = 3.0 \times 10^8 \ m/s$
$P = 2.0 \ mW$

Solution
Find the number of transitions made in the laser every second.

Since power is energy per time, the energy released by the laser each second is $2.0 \ mJ$.
The energy in each transition is given by the relationship

$$E = \frac{hc}{\lambda}$$

Substituting in the the appropriate values gives

$$E = \frac{(6.63 \times 10^{-34} \ J \cdot s)(3.0 \times 10^8 \ m/s)}{30.0 \times 10^{-6} \ m} = 6.63 \times 10^{-21} \ J$$

Therefore, the number of transitions is given by

$$transitions = (2.0 \times 10^{-3} \ J) \left(\frac{1 \ trans}{6.63 \times 10^{-21} \ J} \right)$$

$$transitions = 3.02 \times 10^{17} \ trans$$

† Problem from Essential University Physics, Wolfson