Useful information:

$m = 1.672 \times 10^{-27}$ kg $e = 1.602 \times 10^{-19}$ C $a = 0.237$ $q = 0.706$

$$\lambda = \frac{2d\,n}{n} \qquad A = \varepsilon bc \qquad n_i = \frac{c}{u_i} \qquad Z = \sqrt{R^2 + X^2}$$

$$\frac{I_R}{I_o} = \frac{(n_2 - n_1)^2}{(n_2 + n_1)^2} \qquad V_{out} = \left(\frac{1}{\sqrt{1 + (2\pi f\, CR)^2}}\right) V_{in} \qquad V_{out} = \left(\frac{2\pi f\, CR}{\sqrt{1 + (2\pi f\, CR)^2}}\right) V_{in}$$

$$\Delta f = \frac{1}{3\,\tau} \qquad X_c = \frac{1}{2\pi fC} \qquad V_{out} = V_{max}\, e^{-t/\tau} \qquad f_{mod} = \frac{2V_m}{\lambda}$$

$$n_2 = n_1 + 1 \qquad F_M = BzeV \qquad V(t) = L\frac{di(t)}{dt} \qquad f_o = \frac{1}{2\pi RC}$$

$$m/z_1 = \frac{M_R + n_1 m_H}{n_1}$$

$$m/z_2 = \frac{M_R + n_2 m_H}{n_2} = \frac{M_R + (n_1 + 1)m_H}{n_1 + 1} \qquad V_j = V_T\left[\frac{\sum_{j \neq i} R_j}{\sum_i R_i}\right] \qquad V_{out} = V_{max}\left(1 - e^{-t/\tau}\right)$$

$$n_1 = \frac{m/z_2 - m_H}{m/z_1 - m/z_2} \qquad N = L/H$$

$$M_R = n_1\left(m/z_1 - m_H\right) \qquad P(t) = \sum_i k\cos\left(2\pi \nu_i t\right) \qquad D_a = \frac{n}{d}$$

$$F_C = \frac{mv^2}{r}$$

$$D_l = F \times D_a \qquad V_{noise,\,rms} = \sqrt{4\,k_B\,T\,R\,\Delta f} \qquad V_{out} = V_{max}\left(e^{-t/\tau}\right)$$

$$d_p = \frac{\lambda_c}{2\pi\sqrt{\sin^2\theta - \left(\frac{n_2}{n_1}\right)^2}} \qquad \bar{\nu}\,(cm^{-1}) = \frac{1}{\delta\,(cm)} \qquad i_{noise,\,rms} = \sqrt{2\,q\,i_{dc}\,\Delta f}$$

$$a = \frac{4U}{w_o^2 r_o^2 m/e}$$

$$n\lambda = d\left[\sin(i) \pm \sin(r)\right] \qquad \bar{\nu} = \frac{1}{2\pi c}\sqrt{\frac{k}{\mu}} \qquad N = \frac{16\left(t_R'\right)^2}{W^2}$$