

Electronics

Electronics Units

| | |
|-----|-----------------------------|
| C | capacitance in Farads |
| e | 2.718281828 (approximately) |
| I | current in Amperes |
| P | power in Watts |
| q | charge in Coulombs |
| R | resistance in Ohms |
| t | time in seconds |
| V | voltage in Volts |

Electronics Formulae

| | |
|-------------------------|-----------------------|
| $I = \frac{V}{R}$ | Ohm's Law |
| $P = IV$ | power |
| $q = CV$ | charge on a capacitor |
| $q = q_0 e^{-t/RC}$ | discharging capacitor |
| $q = CV(1 - e^{-t/RC})$ | charging capacitor |

Decibels

$$\begin{aligned}\text{Voltage ratio dB} &= 20 \log_{10}(V_1/V_2) \\ \text{Voltage level dBu} &= 20 \log_{10}(V/0.775) \\ \text{Voltage level dBV} &= 20 \log_{10}(V)\end{aligned}$$

$$\begin{aligned}\text{Power dB} &= 10 \log_{10}(P_1/P_2) \\ \text{Power level dBm} &= 10 \log_{10}(P/0.001)\end{aligned}$$