Capacitor Equations

For Sine, or Near Sine, Wave Calculations

$$\text{ESR (ohms)} = \frac{\text{D.F.}}{2*\pi*f*C*100}$$

$$\text{I RMS (amps)} = 2*\pi*f*C*V(\text{RMS})$$

$$\text{Reactance (ohms)} \cong \frac{1}{2*\pi*f*C}$$

For Pulse Applications

$$\text{I Peak (amps)} \cong 1.5\ C * \frac{dV}{dt}$$

$$\text{Pulse Frequency} \cong \frac{1}{2 * (\text{rise time})}$$

f = operating frequency in Hz.
C = capacitance in Farads
D.F.= dissipation factor expressed as % [Refer to tabulated data]
dV/dt = maximum allowable slew rate expressed in Volts/µsec