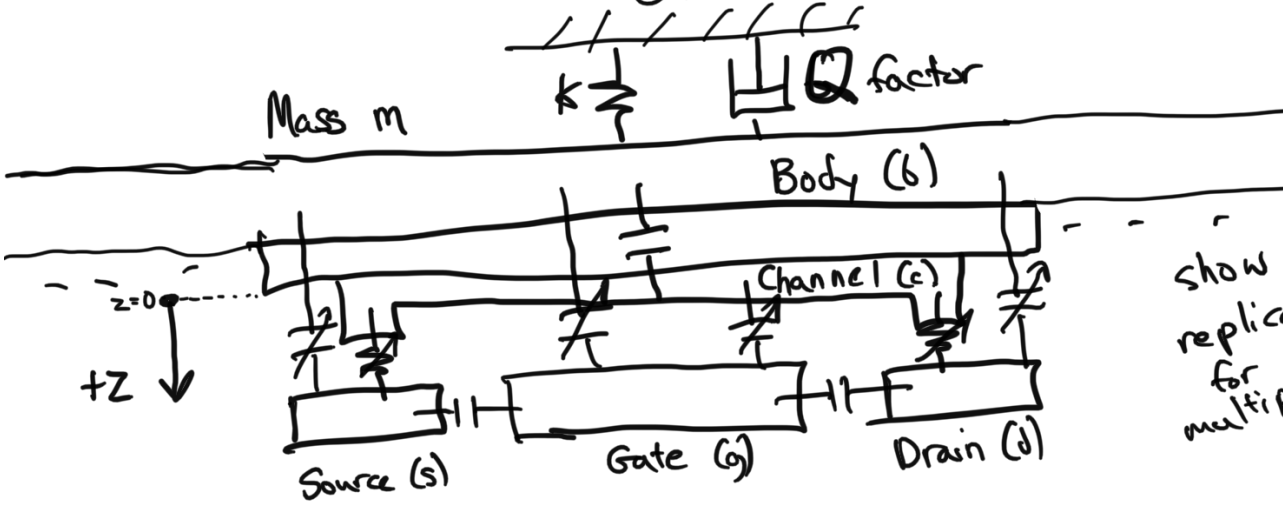
NEM Relay SPICE Model Draft

nfk = position (k)

$$-a/(k/m)\,(\cdot k) = -ma$$

$$-\frac{\dot{x}}{QF}\,/\sqrt{k/m}\,(\cdot k) \approx \frac{\dot{x}\sqrt{km}}{QF}$$

$$= \frac{-\dot{x}}{QF}\sqrt{\frac{k}{Q}\cdot m}$$



Stiction not modeled
Air not modeled
Bounce not modeled
Resistance not modeled

$$m\ddot{z} + \frac{\sqrt{km}}{Q}\dot{z} + kz = F_e$$

$$\ddot{z} + \frac{\sqrt{k/m}}{Q}\dot{z} + \underbrace{\frac{k}{m}}_{\omega_0^2} z = \frac{F_e}{m}$$

$$\ddot{z} + \omega_0/Q\,\dot{z} + \omega_0^2 z = \boxed{F_e/m}$$

$Q = 0.5 \Rightarrow$ critical damping

ω_0/Q

CV. $\frac{1}{1-x}$

gear