

$$K_{\text{eff}} \supset -\frac{\tilde{g}^2}{8M_V^2} \left\{ \left(H_u^\dagger e^{gV} H_u + H_d^\dagger e^{gV} H_d \right)^2 - 4 |H_u \epsilon H_d|^2 \right\}$$