For the driver circuit with only one Rg gate resistor (see front-page figure), both turn-on and turn-off current flow through the same Rg resistor. The power dissipation on Rg is the sum of the turn-on and turn off power.

$$P_{Rg} = \frac{1}{2} f C_g VDDB^2 \left\{ \frac{Rg}{R_{OH} + Rg} \right\} + \frac{1}{2} f C_g VDDB^2 \left\{ \frac{Rg}{R_{OL} + Rg} \right\}$$

The above equation can be simplified as follows:

$$P_{Rg} = \frac{1}{2} f C_g VDDB^2 \left\{ \frac{Rg}{R_{OH} + R_g} + \frac{Rg}{R_{OL} + R_g} \right\}$$

where $C_g = Q_{total}/V_{DDB}$

**Equation 8. Rg Power Dissipation**