

Forward Converter:

$$V_s = 24V$$

$$V_o = 12V$$

$$R = 3\Omega$$

$$L = 0.4mH$$

$$L_m = 0.66mH$$

$$f = 35kHz$$

$$D = 0.4$$

$$I_L = V_o / R = 4A$$

$$\Delta i_L = V_o * (1-D) * T_s / L = 12 * (1-0.4) / (0.4m * 35kHz) = 0.52A$$

$$i_{L(max)} = i_{L(ave)} + \Delta i_L / 2 = 4.26A$$

$$i_{L(min)} = i_{L(ave)} - \Delta i_L / 2 = 3.74A$$

$$i_{LM(max)} = V_s * D * T / L_m = 24 * 0.4 / (0.66mH * 35kHz) = 0.42A$$