Example

$$p^*(z_1, z_2) \approx q_1(z_1)q_2(z_2)$$

$$p^*(z_1, z_2) = \mathcal{N}(0, \Sigma)$$

$$q_1(z_1)q_2(z_2) = \mathcal{N}(0, \begin{pmatrix} \sigma_1^2 & 0 \\ 0 & \sigma_2^2 \end{pmatrix})$$