$$f_3^{\mathbb{R}} = \begin{array}{c|c} f_3 & 0 \\ \hline 0 & f_3^{\sim} \end{array}$$

$$f_3 = \begin{array}{c|c|c} f\boldsymbol{\Xi}\begin{array}{c|c} 1 & 0 \\ \hline 0 & 1 \end{array} & 0 & 0 \\ \hline 0 & \bar{f}\boldsymbol{\Xi}1 & 0 \\ \hline 0 & 0 & F\boldsymbol{\Xi}\begin{array}{c|c} 1 & 0 \\ \hline 0 & 1 \end{array} \end{array}$$

$$f \in {}^{\mathsf{T}\!\mathsf{h}}\!\!\!