$$K_{52}^{1} = \begin{bmatrix}
\frac{\mathbf{i}}{\sqrt{3}} & \frac{(11+\mathbf{i}\sqrt{3})U}{12t} & 0 & \mathbf{i}\sqrt{2}-\frac{1}{\sqrt{6}} & 0 & \frac{-(3\mathbf{i}+\sqrt{3})}{2\sqrt{2}} & 0 & \frac{-(3\mathbf{i}+\sqrt{3})}{6\sqrt{2}} & 0 & 0 & -\sqrt{\frac{2}{3}} & \frac{\mathbf{i}}{\sqrt{2}}+\frac{1}{\sqrt{6}} & -\left(\frac{1}{\sqrt{2}}\right)-\frac{\mathbf{i}}{\sqrt{6}} & \frac{\frac{\mathbf{i}}{3}(\mathbf{i}+\sqrt{3})U}{\sqrt{2}t} & \frac{\mathbf{i}}{2}-\frac{1}{\sqrt{3}} & \frac{-((-3\mathbf{i}+\sqrt{3})U)}{4t} \\
\frac{\mathbf{i}}{\frac{12}{t}(11\mathbf{i}+\sqrt{3})U} & \frac{\mathbf{i}}{\sqrt{3}} & 0 & 0 & 2\sqrt{\frac{2}{3}}-\frac{\mathbf{i}}{\sqrt{2}} & 0 & 0 & 0 & \frac{-(3\mathbf{i}+2\sqrt{3})}{3\sqrt{2}} & \frac{3\mathbf{i}-\sqrt{3}}{6} & \frac{(-9\mathbf{i}+\sqrt{3})U}{6\sqrt{2}t} & \frac{(-3\mathbf{i}+7\sqrt{3})U}{6\sqrt{2}t} & \frac{-(\sqrt{2}(1+\mathbf{i}\sqrt{3})U)}{3t} & \frac{1}{\sqrt{2}}-\frac{\mathbf{i}}{\sqrt{6}} & \frac{-((3\mathbf{i}+\sqrt{3})U)}{12t} & \frac{6\mathbf{i}+\sqrt{3}}{6} \\
0 & 0 & \mathbf{i}\sqrt{3} & \frac{U+\mathbf{i}\sqrt{3}U}{2t} & 0 & 0 & \frac{3+\mathbf{i}\sqrt{3}}{\sqrt{2}} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
\mathbf{i}\sqrt{2}+\frac{1}{\sqrt{6}} & 0 & \frac{\frac{\mathbf{i}}{2}(\mathbf{i}+\sqrt{3})U}{t} & 0 & 0 & \frac{-\mathbf{i}}{2}(-\mathbf{i}+\sqrt{3}) & 0 & \frac{-\mathbf{i}}{2}(-\mathbf{i}+\sqrt{3}) & 0 & 0 & 0 & 0 & \mathbf{i}-\frac{1}{\sqrt{3}} & 0 & -\left(\frac{1}{\sqrt{2}}\right) & 0 \\
0 & \frac{-(3\mathbf{i}+4\sqrt{3})}{3\sqrt{2}} & 0 & 0 & 0 & \frac{-(U+\mathbf{i}\sqrt{3}U)}{2t} & 0 & \frac{U}{t} & 1 & 0 & 0 & 0 & 0 & \mathbf{i}+\frac{1}{\sqrt{3}} & 0 & -\left(\frac{1}{\sqrt{2}}\right) \\
\frac{-3\mathbf{i}+\sqrt{3}}{2\sqrt{2}} & 0 & 0 & \frac{1-\mathbf{i}\sqrt{3}}{2} & \frac{U-\mathbf{i}\sqrt{3}U}{2t} & 0 & \frac{\sqrt{2}U}{t} & 1 & \frac{-(U+\mathbf{i}\sqrt{3}U)}{2t} & \frac{\sqrt{2}U}{t} & 1 & 1 & 0 & 0 & \frac{\frac{\mathbf{i}}{2}(\mathbf{i}+\sqrt{3})}{\sqrt{2}} & 0 \\
0 & 0 & \frac{\mathbf{i}(3\mathbf{i}+\sqrt{3})}{\sqrt{2}} & 0 & 0 & -\left(\frac{\sqrt{2}U}{t}\right) & 0 & \frac{\sqrt{2}U}{t} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
\frac{-3\mathbf{i}+\sqrt{3}}{6\sqrt{2}} & 0 & 0 & \frac{1-\mathbf{i}\sqrt{3}}{2} & -\left(\frac{U}{t}\right) & -1 & -\left(\frac{\sqrt{2}U}{t}\right) & 0 & \frac{U+\mathbf{i}\sqrt{3}U}{2t} & \frac{(-1-\mathbf{i}\sqrt{3})U}{\sqrt{2}t} & \frac{\mathbf{i}}{2}(\mathbf{i}+\sqrt{3}) & \frac{\mathbf{i}}{2}(\mathbf{i}+\sqrt{3}) & -\mathbf{i}+\frac{1}{\sqrt{3}} & 0 & \frac{\sqrt{2}-\mathbf{i}\sqrt{6}}{4} & 0 \\
0 & \sqrt{\frac{2}{3}}-\frac{\mathbf{i}}{\sqrt{2}} & 0 & 0 & -1 & \frac{U-\mathbf{i}\sqrt{3}U}{2t} & 0 & \frac{\frac{\mathbf{i}}{2}(\mathbf{i}+\sqrt{3})U}{t} & 0 & \frac{1+\mathbf{i}\sqrt{3}}{\sqrt{2}} & 0 & 0 & 0 & \mathbf{i}+\frac{1}{\sqrt{3}} & 0 & \frac{1}{\sqrt{2}} \\
0 & \frac{3\mathbf{i}+\sqrt{3}}{6} & 0 & 0 & 0 & -\left(\frac{\sqrt{2}U}{t}\right) & 0 & \frac{(1-\mathbf{i}\sqrt{3})U}{\sqrt{2}t} & \frac{\mathbf{i}(\mathbf{i}+\sqrt{3})}{\sqrt{2}} & 0 & 0 & 0 & 0 & \sqrt{\frac{2}{3}}+\mathbf{i}\sqrt{2} & 0 & \frac{1+\mathbf{i}\sqrt{3}}{2} \\
\sqrt{\frac{2}{3}} & \frac{-((9\mathbf{i}+\sqrt{3})U)}{6\sqrt{2}t} & 0 & 0 & 0 & -1 & 0 & \frac{1+\mathbf{i}\sqrt{3}}{2} & 0 & 0 & 0 & 0 & \frac{-2}{\sqrt{3}} & \frac{2U}{\sqrt{3}t} & \frac{1-\mathbf{i}\sqrt{3}}{\sqrt{2}} & \frac{(3+\mathbf{i}\sqrt{3})U}{2\sqrt{2}t} \\
\frac{\mathbf{i}}{\sqrt{2}}-\frac{1}{\sqrt{6}} & \frac{-((3\mathbf{i}+7\sqrt{3})U)}{6\sqrt{2}t} & 0 & 0 & 0 & -1 & 0 & \frac{1+\mathbf{i}\sqrt{3}}{2} & 0 & 0 & 0 & 0 & -\mathbf{i}+\frac{1}{\sqrt{3}} & \frac{-((3\mathbf{i}+\sqrt{3})U)}{3t} & -\sqrt{2} & \frac{\sqrt{2}U-\mathbf{i}\sqrt{6}U}{4t} \\
\frac{1}{\sqrt{2}}-\frac{\mathbf{i}}{\sqrt{6}} & \frac{\sqrt{2}(1-\mathbf{i}\sqrt{3})U}{3t} & 0 & \mathbf{i}+\frac{1}{\sqrt{3}} & 0 & 0 & 0 & -\mathbf{i}-\frac{1}{\sqrt{3}} & 0 & 0 & \frac{2}{\sqrt{3}} & -\mathbf{i}-\frac{1}{\sqrt{3}} & \frac{\mathbf{i}}{\sqrt{3}} & \frac{(5+\mathbf{i}\sqrt{3})U}{6t} & \frac{-(3\mathbf{i}+\sqrt{3})}{3\sqrt{2}} & 0 \\
\frac{\sqrt{2}U+\mathbf{i}\sqrt{6}U}{6t} & -\left(\frac{1}{\sqrt{2}}\right)-\frac{\mathbf{i}}{\sqrt{6}} & 0 & 0 & \mathbf{i}-\frac{1}{\sqrt{3}} & 0 & 0 & 0 & \mathbf{i}-\frac{1}{\sqrt{3}} & \frac{-(\sqrt{2}(-3\mathbf{i}+\sqrt{3}))}{3} & \frac{-2U}{\sqrt{3}t} & \frac{(-3\mathbf{i}+\sqrt{3})U}{3t} & \frac{\frac{\mathbf{i}}{6}(5\mathbf{i}+\sqrt{3})U}{t} & \frac{\mathbf{i}}{\sqrt{3}} & \frac{-((3\mathbf{i}+\sqrt{3})U)}{3\sqrt{2}t} & \frac{\mathbf{i}}{\sqrt{2}}-\frac{1}{\sqrt{6}} \\
\frac{\mathbf{i}}{2}+\frac{1}{\sqrt{3}} & \frac{(-3\mathbf{i}+\sqrt{3})U}{12t} & 0 & \frac{1}{\sqrt{2}} & 0 & \frac{\sqrt{2}+\mathbf{i}\sqrt{6}}{4} & 0 & \frac{\frac{-\mathbf{i}}{2}(-\mathbf{i}+\sqrt{3})}{\sqrt{2}} & 0 & 0 & \frac{-1-\mathbf{i}\sqrt{3}}{\sqrt{2}} & \sqrt{2} & \frac{-\mathbf{i}}{\sqrt{2}}+\frac{1}{\sqrt{6}} & \frac{(-3\mathbf{i}+\sqrt{3})U}{3\sqrt{2}t} & \frac{\mathbf{i}}{2}\sqrt{3} & \frac{(3+\mathbf{i}\sqrt{3})U}{4t} \\
\frac{(3\mathbf{i}+\sqrt{3})U}{4t} & \mathbf{i}-\frac{1}{2\sqrt{3}} & 0 & 0 & \frac{1}{\sqrt{2}} & 0 & 0 & 0 & -\left(\frac{1}{\sqrt{2}}\right) & \frac{\mathbf{i}}{2}(\mathbf{i}+\sqrt{3}) & \frac{\frac{\mathbf{i}}{2}(3\mathbf{i}+\sqrt{3})U}{\sqrt{2}t} & \frac{\frac{-\mathbf{i}}{2}(-\mathbf{i}+\sqrt{3})U}{\sqrt{2}t} & 0 & \frac{\mathbf{i}}{\sqrt{2}}+\frac{1}{\sqrt{6}} & \frac{\frac{\mathbf{i}}{4}(3\mathbf{i}+\sqrt{3})U}{t} & \frac{-\mathbf{i}}{2}\sqrt{3} \end{bmatrix}$$