$$
\begin{aligned}
\Psi_{68} &= C_1\left(|0udd\rangle - |d0ud\rangle + |dd0u\rangle - |udd0\rangle\right) \\
&\quad + C_2\left(-|0ddu\rangle + |ddu0\rangle - |du0d\rangle + |u0dd\rangle\right) \\
&\quad + C_3\left(-|0dud\rangle + |d0du\rangle + |dud0\rangle - |ud0d\rangle\right) \\
&\quad + C_4\left(-|002d\rangle + |02d0\rangle - |2d00\rangle + |d002\rangle\right) \\
&\quad + C_5\left(|00d2\rangle - |0d20\rangle - |200d\rangle + |d200\rangle\right) \\
&\quad + C_6\left(-|020d\rangle - |0d02\rangle + |20d0\rangle + |d020\rangle\right)
\end{aligned}
$$

$$
C_1 = \frac{\frac{-i}{24}\left(-3\,i+\sqrt{3}\right)\,\left(-2\,t+U+\sqrt{16\,t^2-4\,t\,U+U^2}\right)}{\sqrt{3}\,t}
$$

$$
C_2 = \frac{\frac{i}{24}\left(3\,i+\sqrt{3}\right)\,\left(-2\,t+U+\sqrt{16\,t^2-4\,t\,U+U^2}\right)}{\sqrt{3}\,t}
$$

$$
C_3 = \frac{\frac{-i}{12}\left(-2\,t+U+\sqrt{16\,t^2-4\,t\,U+U^2}\right)}{t}
$$

$$
C_4 = \frac{-3\,i-\sqrt{3}}{12}
$$

$$
C_5 = \frac{3\,i-\sqrt{3}}{12}
$$

$$
C_6 = \frac{-1}{2\,\sqrt{3}}
$$