$$S\mathbb{D}\$g =$$

$$\sqrt{\frac{\cosh\left[\frac{\hbar}{2}\sqrt{t^2 + \gamma^2\,\epsilon^2 + 4\,\epsilon\,\varpi}\,\right] - \cosh\left[\frac{\hbar}{2}\,(t - (2\,a + \gamma)\,\epsilon)\right]}{\sinh\left[\frac{\gamma\,\epsilon\,\hbar}{2}\right]\,(t\,(2\,a + \gamma) - 2\,a\,(a + \gamma)\,\epsilon + 2\,\varpi)\,\hbar / (2\,\gamma)}}\;;$$