$v=(\sqrt{2}t, e^t, e^{-t})$

$v'=(\sqrt{2}, e^t, -e^{-t})$

$v''=(0, e^t, e^{-t})$

$v'''=(0, e^t, -e^{-t})$

$|v'|=\sqrt{2+e^{2t}+e^{-2t}}=e^t+e^{-t}$

$v'\times v''=(e^t\cdot e^{-t}-(-e^{-t})\cdot e^t, (-e^{-t})\cdot 0-\sqrt{2}\cdot e^{-t}, \sqrt{2}\cdot e^t-e^t\cdot 0)=\sqrt{2}(\sqrt{2}, -e^{-t}, e^t)$

$|v'\times v''|=\sqrt{2}(e^t+e^{-t})$

curvature $k=\dfrac{|v'\times v''|}{|v'|^3}=\dfrac{\sqrt{2}}{(e^t+e^{-t})^2}$

$(v'\times v'')\cdot v'''=\sqrt{2}(\sqrt{2}\cdot 0+(-e^{-t})\cdot e^t+e^t\cdot(-e^{-t}))=-2\sqrt{2}$

torsion $\dfrac{(v'\times v'')\cdot v'''}{|v'\times v''|^2}=\dfrac{-2\sqrt{2}}{2(e^t+e^{-t})^2}=\dfrac{-\sqrt{2}}{(e^t+e^{-t})^2}$