Problem 5.4. Prove (5.26), that is, that

$$(\dot{W})^{\diamond 2}(t) \in (\mathcal{S})^*, \qquad t \in \mathbb{R}.$$

Since $\dot{W} \in (S)^*$ (Example 5.7.b) and the fact that the product of elements of $(S)^*$ is in $(S)^*$, the result follows.