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We study the density $\rho(t, x; y)$ of the law of the solution $u(t, x)$ to a stochastic partial differential equation $\frac{\partial}{\partial t}u(t, x) = \frac{1}{2}\Delta u(t, x) + u \diamond \dot{W}(t, x)$, where \dot{W} is a general Gaussian noise. We mainly concern with the asymptotic behavior of $\rho(t, x; y)$ when $y \rightarrow \infty$. Both upper and lower bounds are obtained and these two bounds match each other in exponential scale. If the initial data is positive, then $\rho(t, x; y)$ is supported on $y \in [0, \infty)$ and in this case we also study the asymptotic behavior of $\rho(t, x; y)$ when $y \rightarrow 0+$. (Received July 30, 2017)