Let $1, 2, \ldots, 100$ be the passengers in boarding order, and let $1_s, 2_s, \ldots 100_s$ be their assigned seats.

Then we can see that for passenger 1, there are three options. Sitting in 1_s guarantees a success; sitting in 100_s guarantees a failure; sitting in any other seat leaves it up to later passengers. Then there is a 1/100 chance of failure, and a 1/100 chance of success at this point.

Suppose they do not sit in 1_s or 100_s, instead sitting down in seat n_s. Then all passengers will find their assigned seats properly, until passenger n. Passenger n is now like passenger 1, but on a smaller airplane. They have the instant failure seat, 100_s, and the instant success seat, 1_s, both with equal odds of being chosen. If they instead end up in seat m_s, then as before, person m becomes the new "passenger 1".

Then as people make their way in, we have a series of "passenger 1's", who all have equal probability of success or failure, and if no passenger sits in either 1_s or 100_s, then we will get down to passenger 99, who must choose between the two. So at any point, the odds of success or failure are equal, and choosing another seat simple shifts the person who makes the decision. So the probability is $\frac{1}{2}$!