It is known that Schrödinger operaotrs with sparse potentials have singular cotinuous spectrum. The graph Laplacian on a sparse tree is identified with one-dimensional discrete Schrödinger operators, and has singular continuous spectrum. The intermittency function describes the behavior of the time averaged momentum and gives the upper bound of the Hausdorff dimension of the spectral measure. We show the intermittency function explicitly and give the Hausdorff dimension of the spectral measure for the graph Laplacian on a sparse tree.