You can’t even treat resistors as lumped components at high frequencies because the current density varies widely within their bulk. At 100 MHz, a 2-cm-long resistor has the same current throughout the resistor. At 1 GHz, the resistor has slightly different current at each end. You can’t even define the current in the lumped-component resistor at 10 GHz, however: At one end, the current is positive; at the other end, it is negative.