

Supplied in separate documents are modeled S-parameters for various 50 ohm IMS chip resistors of termination design ("SG style").

Please keep in mind the following assumptions that must be accounted for when creating or using s-parameters for a given device, whether modeled or tested:

- 1] chip is mounted in a 50 ohm system
- 2] 50 ohm system is matched
- 3] output (baseplate) of chip is assumed to be a matched ground (for S11 data), so that the model represents a 50 ohm chip **at the end** of a 50 ohm system.

This specific data assumes that the chip is mounted **on top** (i.e.; "surface mount") of another substrate of the same thickness as the chip and of the same material (ALN and alumina are quite close in impedance so it is not expected that the data would change very much between the use of these two substrates). We therefore assumed a particular customer specified inductive connection when composing this data.

True S-parameters can not account for changes in mode from the device under test and the connecting transmission line, which is the inherent characterization of any surface mount device mounted on a board. (a chip mounted on top of a substrate is not a microstrip-to-microstrip connection; there is a discontinuity or *transition*, a specific example of which is provided in this data set)

As with any model, or even with real tests, the resulting data is always particular to the fixture and/or system into which the chip is mounted (or particular to the **assumptions** about that fixture mounting, when modeled). Therefore, the data will likely not reflect the actual performance of the device when physically mounted into the customer's circuit, as there are many variables that are beyond the control of anyone other than the actual user.

In addition, since there are many different implementations of a 50 ohm system (into which the chip will presumably be mounted), the resulting performance will really depend on the nature of that system and the user's ability to "tune" the chip into it. (for instance, a 50 ohm system on FR4, or Rogers Duroid or alumina will have different geometries depending on the system, which will cause different reactances to manifest themselves once the chip is mounted in the system)

please contact IMS with any questions.