Back to search page

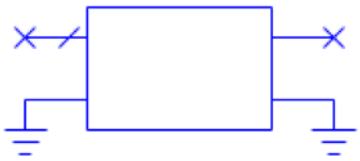
Click to download printable version of this guide.

AWR Microwave Office Element Catalog > General > Two-Port S-Parameter Block: S2P_BLK

Prev Next

Two-Port S-Parameter Block: S2P_BLK

Symbol



Summary

S2P_BLK models a generalized two-port, S-parameter network. The full two-port S-parameters are specified. Noise is also included.

Parameters

Name	Description	Unit Type	Default
ID	Element ID	Text	X1
S11	S(1,1)	Scalar (Complex)	0.0 + j*0.0
S21	S(2,1)	Scalar (Complex)	0.0 + j*0.0
S12	S(1,2)	Scalar (Complex)	0.0 + j*0.0
S22	S(2,2)	Scalar (Complex)	0.0 + j*0.0
*Z1	Port 1 impedance	Scalar (Complex)	50.0 ohm
*Z2	Port 2 impedance	Scalar (Complex)	50.0 ohm
*NFMIN	Minimum noise figure in dB	dB	0.0
*GOPT	Optimum noise match	Scalar (Complex)	0.0 + j*0.0

Name	Description	Unit Type	Default
*RN	Noise resistance	Resistance	0.0 ohm
*ChkPassv	Switch "Do not Check passivity/Check passivity"		No

** indicates a secondary parameter*

Parameter Details

ChkPassv. If set to Yes, tests S2P_BLK for passivity and displays a warning if there is a passivity violation. The default setting is No (Do not check passivity).

Parameter Restrictions and Recommendations

1. Z1 and Z2 must be greater than zero.
2. RN must be greater than the minimum noise resistance, which is calculated from the NFMIN and GOPT parameters using the following formula:

$$RN_{min} = \frac{10^{NF_{min}/10} - 1}{4.0 * Re(Y_{OPT})}$$

where YOPT is the optimum noise match admittance calculated from GOPT. If RN is less than RNmin, RN is set equal to RNmin and a warning message is displayed to the user.

Layout

This element does not have an assigned layout cell. You can assign artwork cells to any element. See "Assigning Artwork Cells to Layout of Schematic Elements" for details.

Recommendations for Use

The S2P_BLK model can be used to model any general two-port network (passive or active) by specifying the S-parameters and the noise parameters.

Prev Up Next
Home