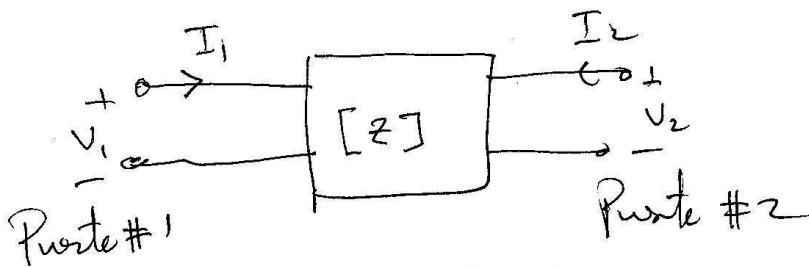


Parámetros - S

- Describen circuito o red
Relaciona onda incidente y reflejada en los puertos del componente observado.
¡ Son # complejos !!
- Se representan en forma de matrices
matriz - $[S]$



$$V_1 = z_{11} I_1 + z_{12} I_2$$

$$V_2 = z_{21} I_1 + z_{22} I_2$$

donde $z_{11} = \frac{V_1}{I_1} \Big|_{I_2=0}$

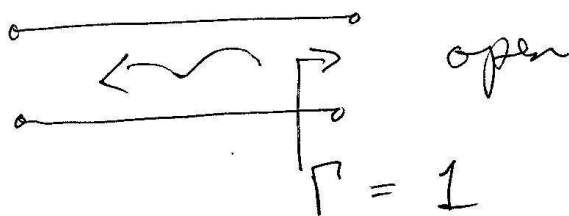
← ~~costo~~
open circuit

$$\begin{bmatrix} V_1 \\ V_2 \end{bmatrix} = \begin{bmatrix} z_{11} & z_{12} \\ z_{21} & z_{22} \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \end{bmatrix}$$

3 - ports $[z]$ → 9 elements ...

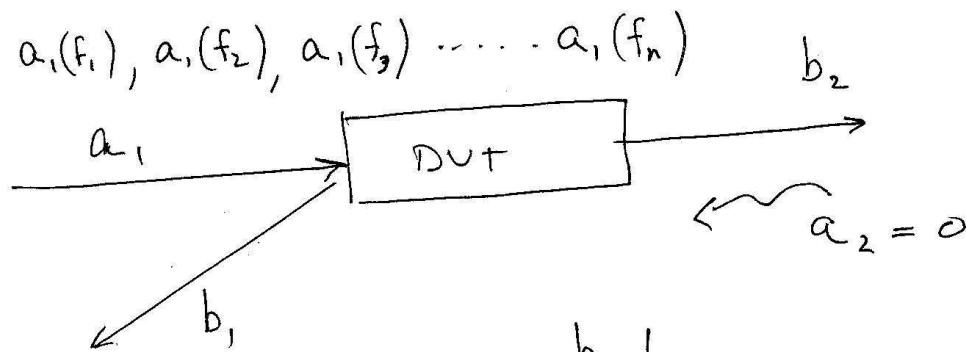
Tambien tenga $[Y]$, $[ABCD]$

Condiciones de corte circuito ó short
no son apropiadas para ondas viajeras



Uso $[S]$:

Concepto básico:



$$S_{11} = \frac{b_1}{a_1} \Big|_{a_2=0}$$

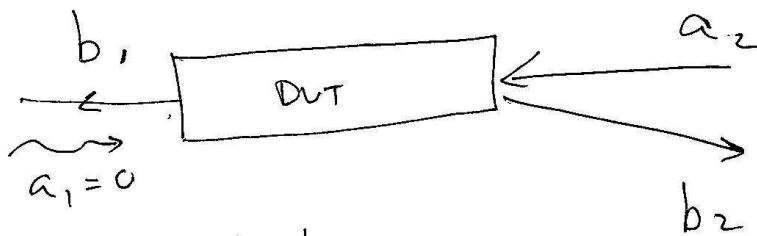
inadante

$$S_{21} = \frac{b_2}{a_1} \Big|_{a_2=0}$$

llegada

$S_{11} \Rightarrow$ reflexión (cuando punto está acoplado)
 \downarrow
 Impedancia, SWR,
 Reten fms

$S_{21} \Rightarrow$ ganancia, pérdidas
 \uparrow
 Transmisión



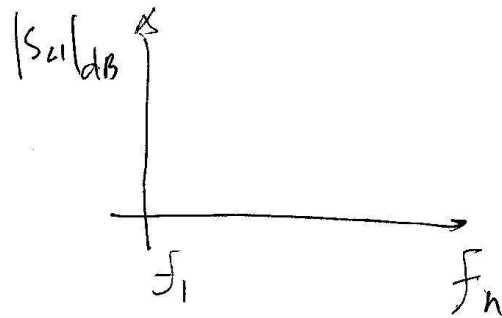
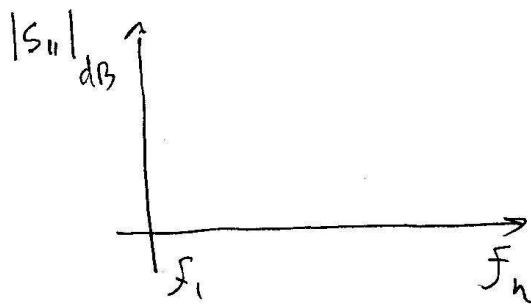
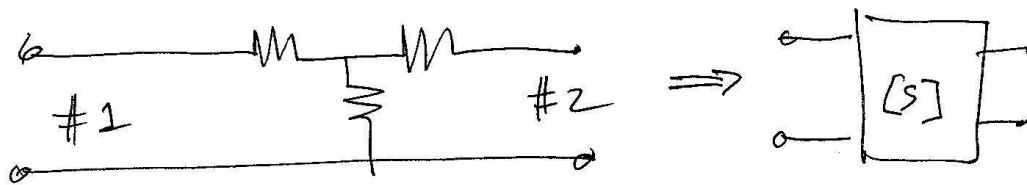
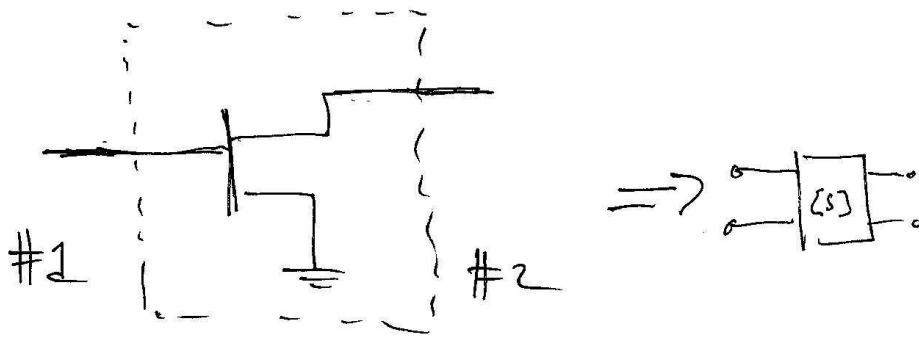
$$S_{22} = \left. \frac{b_2}{a_2} \right|_{a_1=0}$$

$$S_{12} = \left. \frac{b_1}{a_2} \right|_{a_1=0}$$

$$b_1 = S_{11} a_1 + S_{12} a_2$$

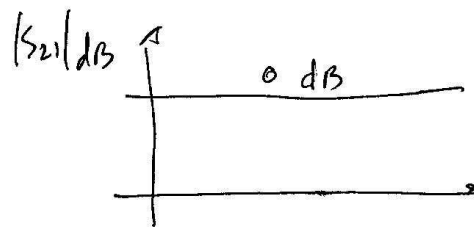
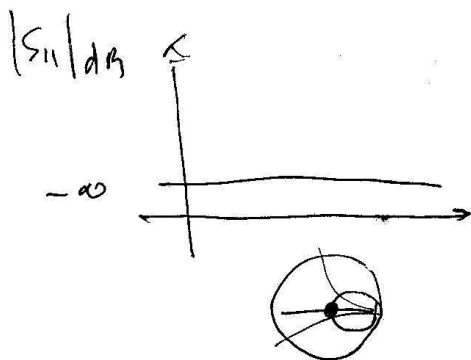
$$b_2 = S_{21} a_1 + S_{22} a_2$$

$$\begin{bmatrix} b_1 \\ b_2 \end{bmatrix} = \begin{bmatrix} S_{11} & S_{12} \\ S_{21} & S_{22} \end{bmatrix} \begin{bmatrix} a_1 \\ a_2 \end{bmatrix}$$

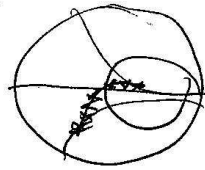
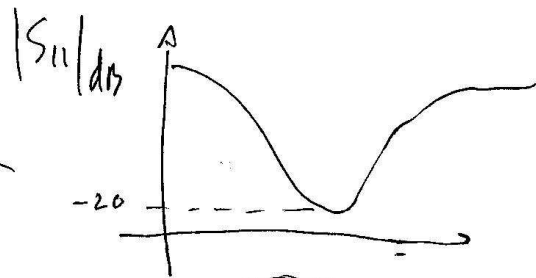
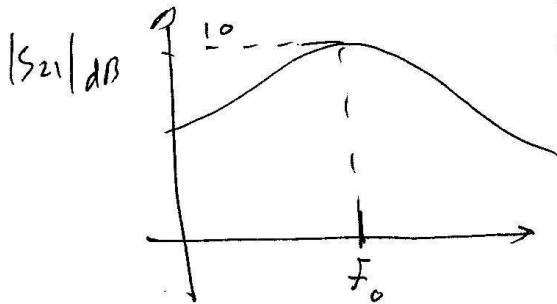


Linear Ideal: $|S_{11}| = 0$

$|S_{21}| = 1$



Amplifreeds:



Filtre

