

RESPUESTA EN FRECUENCIA

CIRCUITOS ANÁLOGOS DIGITALES

SENOIDES Y

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FASORES

FASORES



SENOIDES

Señal que viene en forma de seno y coseno.

Donde:

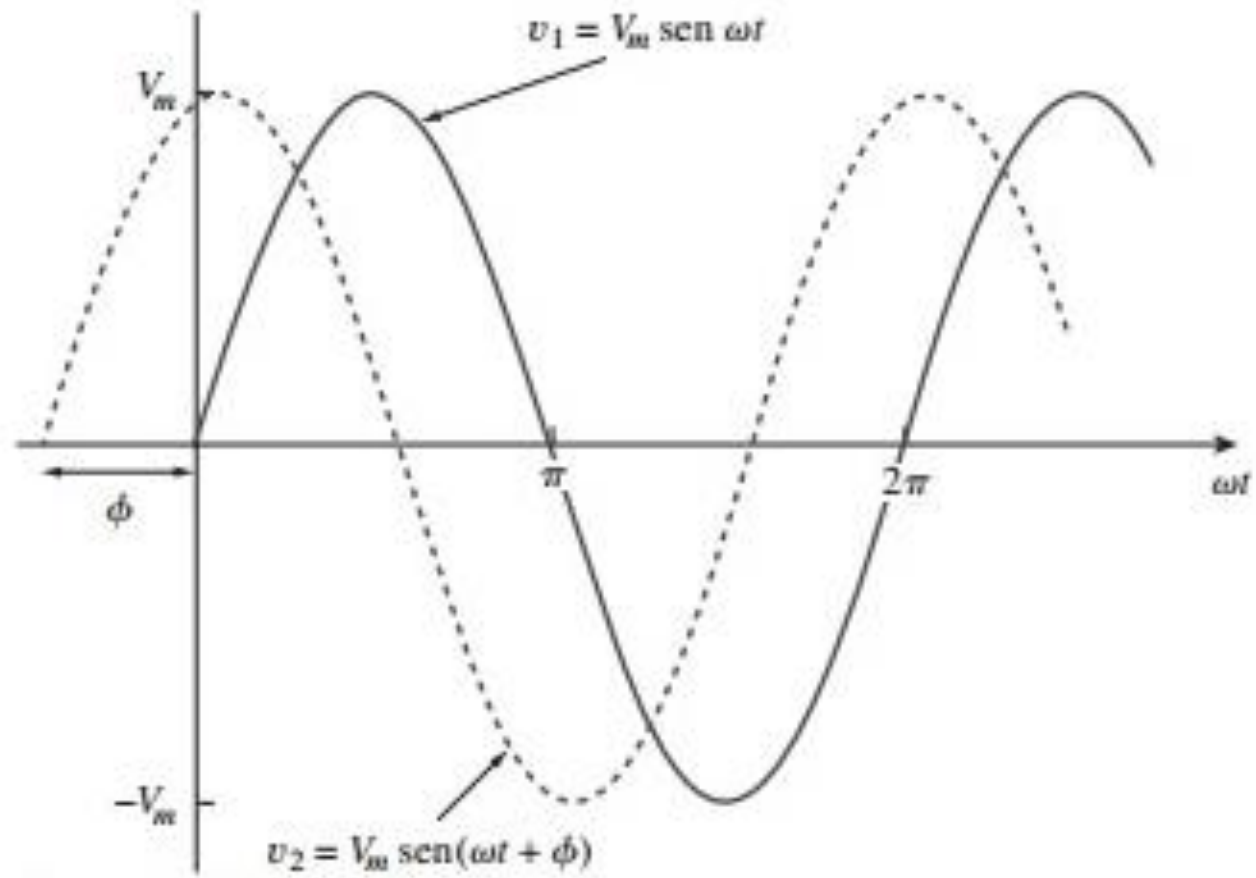
$$V(t) = V_m \text{ Sen}(wt + \emptyset)$$

$$V_m = \textit{Amplitud del Senoide}$$

$$w = \textit{Frecuencia Angular}$$

$$wt = \textit{Argumento}$$

$$\emptyset = \textit{Fase}$$



$$T = \frac{2\pi}{\omega}$$

Formulas importantes de transformación:

$$- \text{sen } \omega t = \text{sen}(\omega t \pm 180)$$

$$- \text{cos } \omega t = \text{cos}(\omega t \pm 180)$$

$$\mp \text{sen } \omega t = \text{cos}(\omega t \pm 90)$$

$$\pm \text{cos } \omega t = \text{sen}(\omega t \pm 90)$$

FASORES

Es un vector que se mueve rotacionalmente en la circunferencia de radianes, en la frecuencia angular.

Números complejos:

$$z = x + jy$$

$$j = \sqrt{-1}$$

$$r / \emptyset$$

$$r = \sqrt{x^2 + y^2}$$

$$\emptyset = \tan^{-1} \frac{y}{x}$$

$$z = r \cos \emptyset + jr \sin \emptyset$$

r = magnitud

\emptyset = fase

Operaciones:

$$Z1 = X1 + jY1$$

$$Z2 = X2 + jY2$$

suma: $(X1 + X2) + j(Y1 + Y2)$

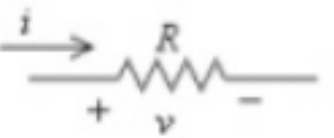
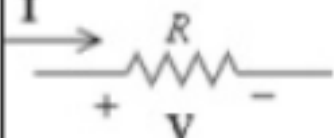
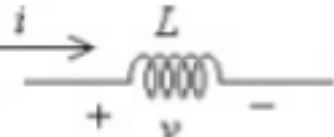
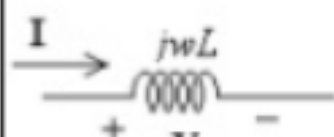
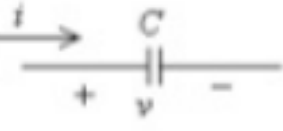
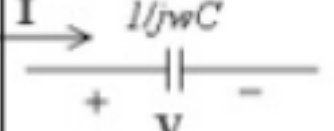
resta: $(X1 - X2) + j(Y1 - Y2)$

multiplicacion: $r1 \cdot r2 / \phi1 + \phi2$

division: $\frac{r1}{r2} / \phi1 - \phi2$

raiz: $\sqrt{r1} / \phi \div 2$

IMPEDANCIAS

Dominio del tiempo		Dominio de la frecuencia	
	$v = Ri$	$\mathbf{V} = R\mathbf{I}$	
	$v = L \frac{di}{dt}$	$\mathbf{V} = j\omega L \mathbf{I}$	
	$v = \frac{1}{C} \int i dt$	$\mathbf{V} = \mathbf{I} / j\omega C$	

$$\mathbf{V} = \mathbf{I}Z$$