Formulario

$f(t)$	$F(s)$
k	$\frac{k}{s}$
kt	$\frac{k}{s^2}$
kt^n	$\frac{kn!}{s^{n+1}}$
$\delta(t)$	1
e^{-at}	$\frac{1}{s+a}$
te^{-at}	$\frac{1}{(s+a)^2}$
$\sin at$	$\frac{a}{s^2+a^2}$
$\cos at$	$\frac{s}{s^2+a^2}$
$e^{-at}\sin \omega t$	$\frac{\omega}{(s+a)^2+\omega^2)}$
$e^{-at}\cos \omega t$	$\frac{s+a}{(s+a)^2+\omega^2}$
$\sinh at$	$\frac{a}{s^2-a^2}$
$\cosh at$	$\frac{s}{s^2-a^2}$
$f(t-t_1)$	$e^{-t_1 s}F(s)$

Filtri: $\tau = RC$

$R_{in} \equiv \frac{v_i}{i_i}$ $\quad R_{out} \equiv \frac{v_u}{i_u}\Big|_{V_i=0}$

$I_C = \beta_F I_B$

$V_T \approx 25\ mV$ a T=300 K

$A_V = \frac{V_o}{V_i} = -h_{fe} \cdot \frac{R_C}{h_{ie}}$

$A_V = -\frac{R_C}{R_E}$

$h_{ie} \approx k\Omega \quad h_{oe}^{-1} \approx 100\ k\Omega$

$h_{fe} \approx 50 \div 300$

Miller

$k = V_2/V_1$

$Z_1 = \frac{Z'}{1-k}$

$Z_2 = \frac{Z'}{1-\frac{1}{k}}$

Parametri del modello π in funzione delle correnti statiche

$g_m = \frac{I_C}{V_T}$ $\quad r_e = \frac{V_T}{I_E} = \alpha_F \frac{V_T}{I_C}$ $\quad r_\pi = \frac{V_T}{I_B} = \beta_F \frac{V_T}{I_C}$ $\quad r_o = \frac{|V_A|}{I_C}$

Relazioni tra i parametri del modello π

$r_e = \frac{\alpha_F}{g_m} \simeq \frac{1}{g_m}$ $\quad r_\pi = \frac{\beta_F}{g_m}$ $\quad r_\pi = (1+\beta_F) r_e$

Relazioni tra modello π e modello h

$h_{ie} = r_\pi$ $\quad h_{fe} = g_m r_\pi$ $\quad h_{oe} = \frac{1}{r_o}$

Relazioni tra le correnti

$i_c = h_{fe} i_b$ $\quad i_e = -(1+h_{fe}) i_b$ $\quad i_e = -\frac{1+h_{fe}}{h_{fe}} i_c$