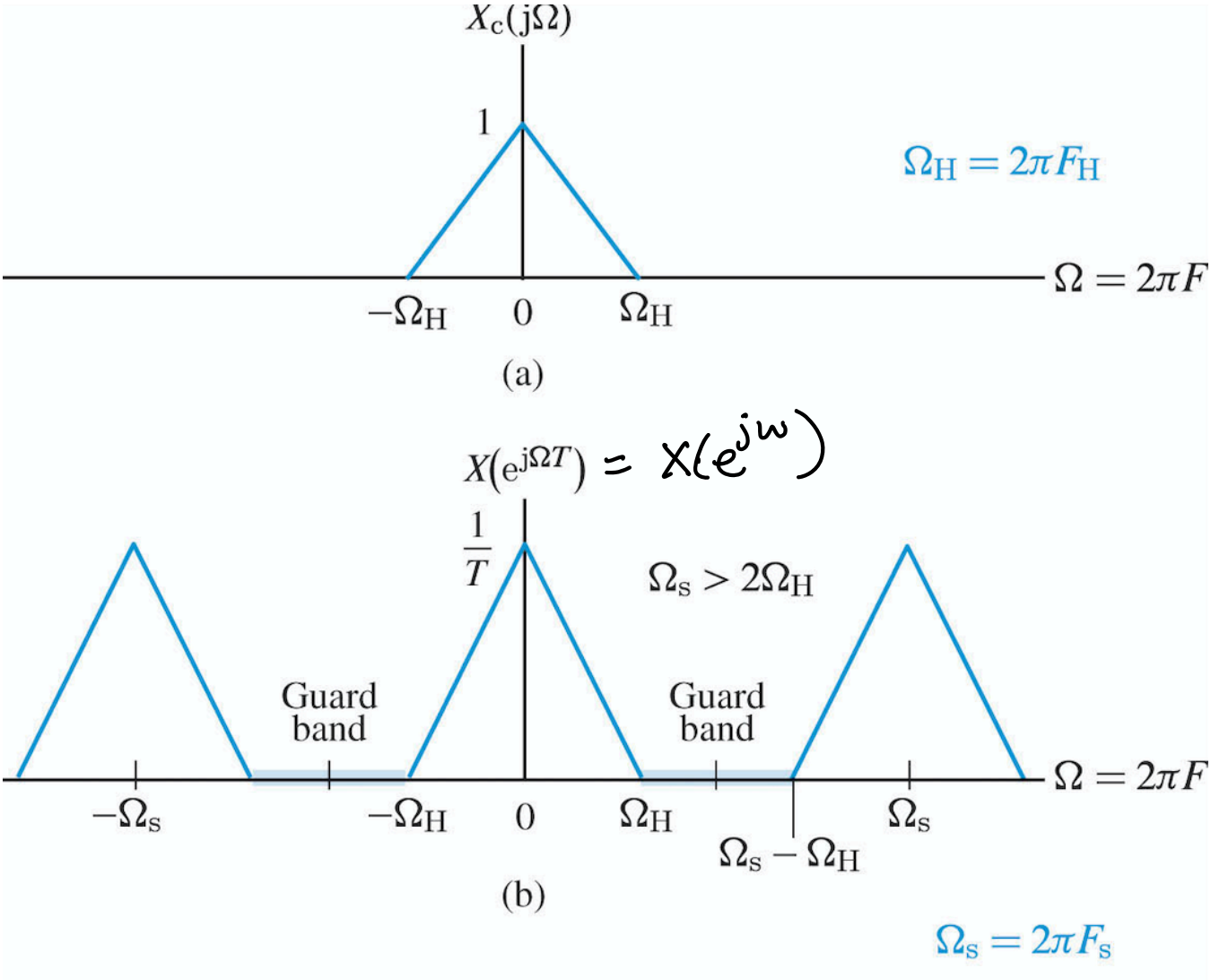
Chap 6.2

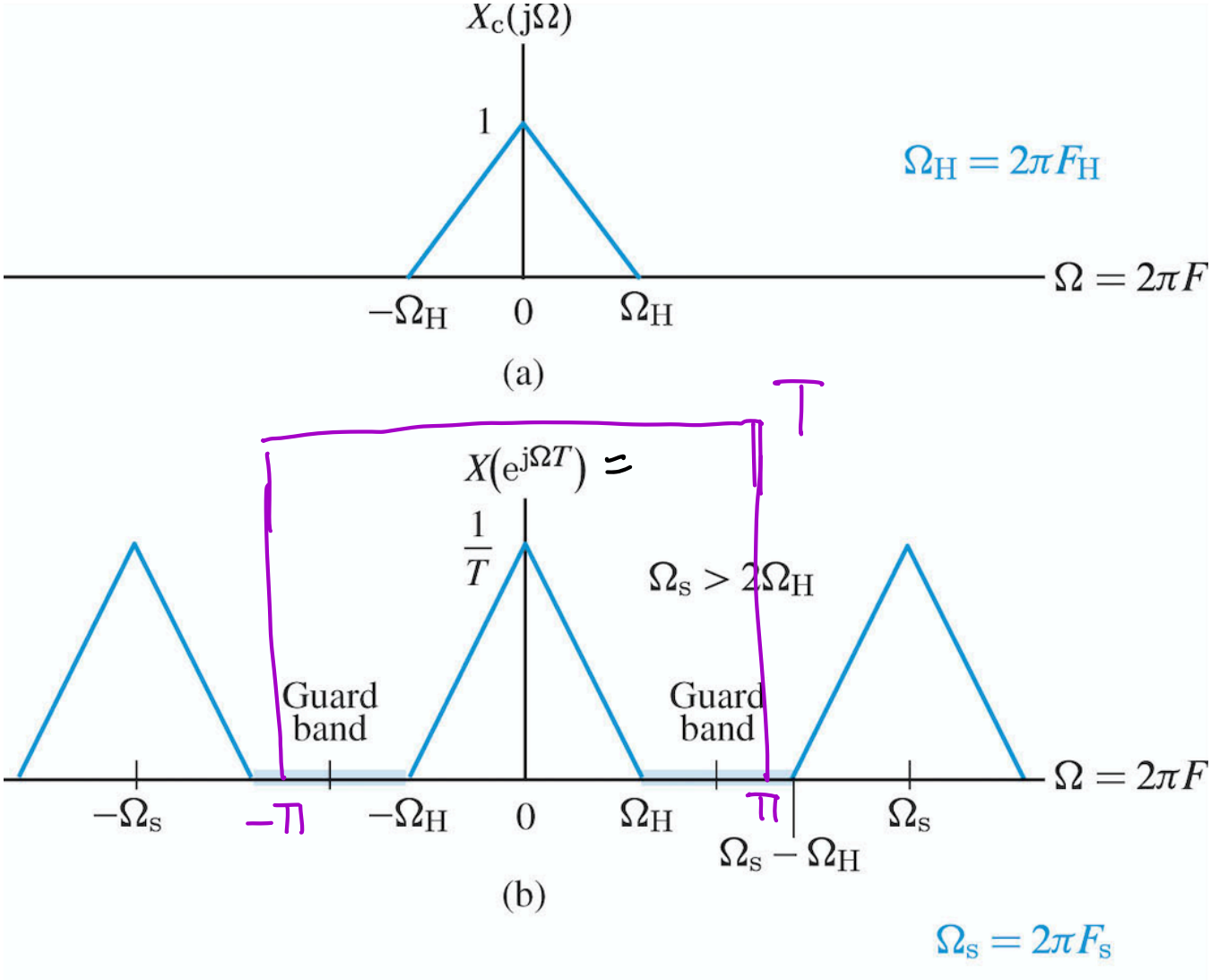
$X_c(j\Omega)$

We know the relationship between the CTFT of $x_c(t)$ and the DTFT $X(e^{j\omega})$ of $x[n]$, which is the discrete-time sample of $x_c(t)$ obtained every T time



If we are given $X(e^{j\omega})$, how can we recover $x_c(t)$?

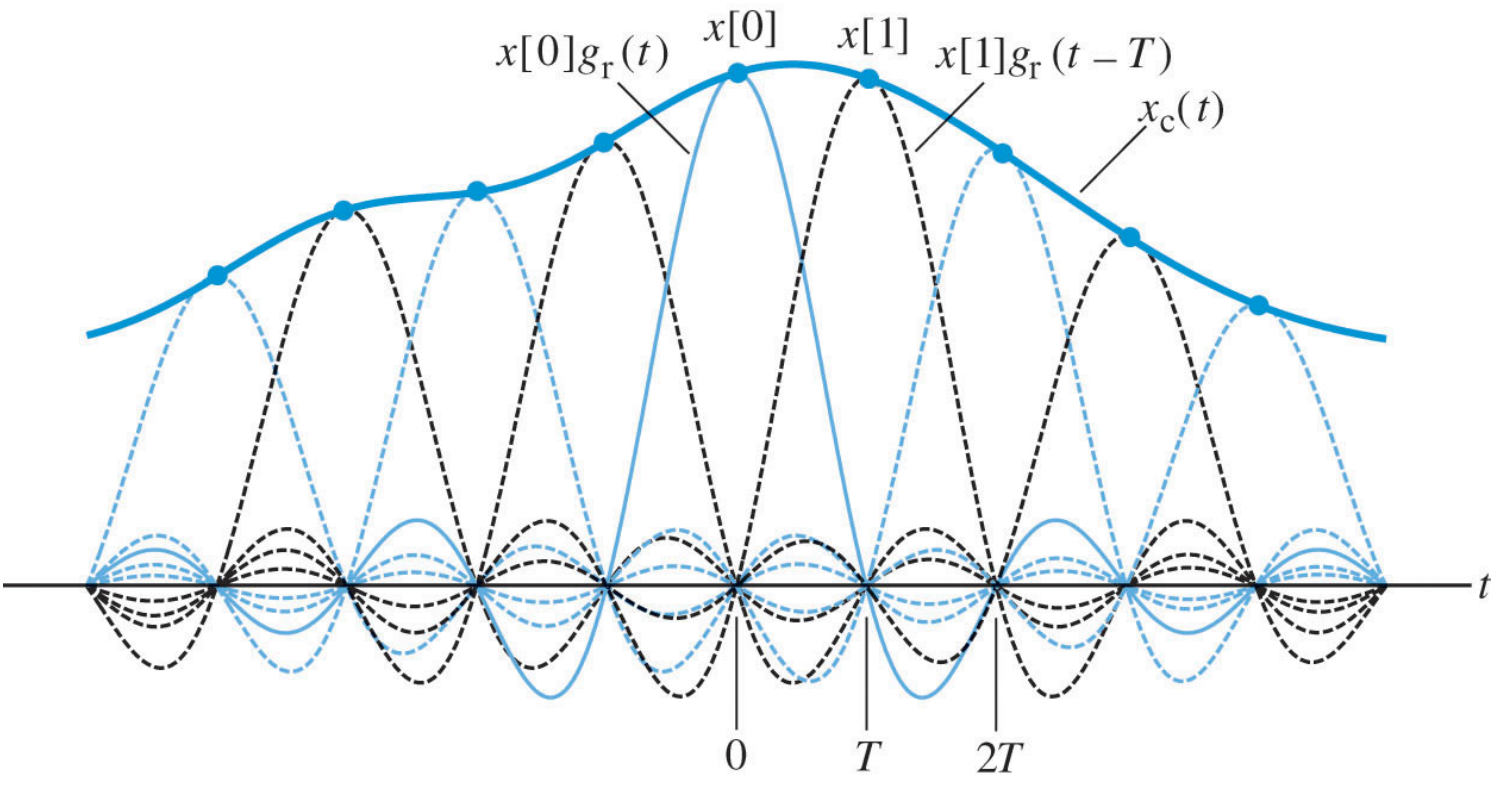
We can see that in the frequency domain, to recover the CTFT, $X_c(j\Omega)$



Ideal digital to analog converter is an ideal lowpass filter with magnitude response = T in the passband

Recall that in the time domain, the ideal low pass filter is the sinc function.

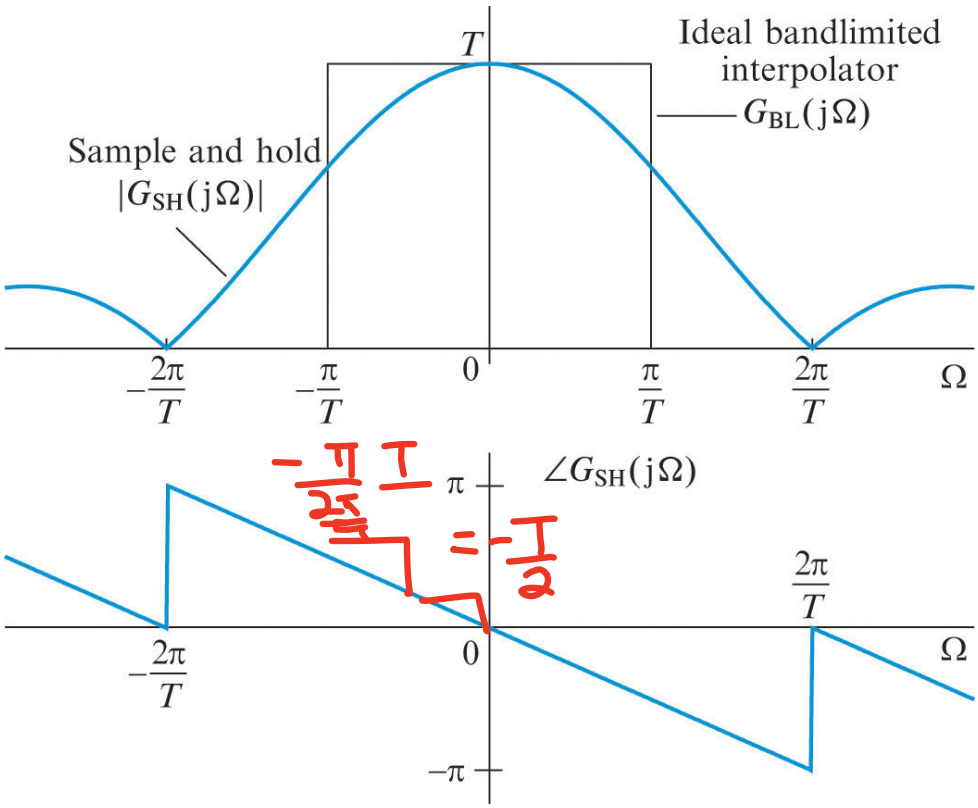
In the time domain, we are interpolating $x[n]$ by the sinc function to exactly obtain $x_c(t)$

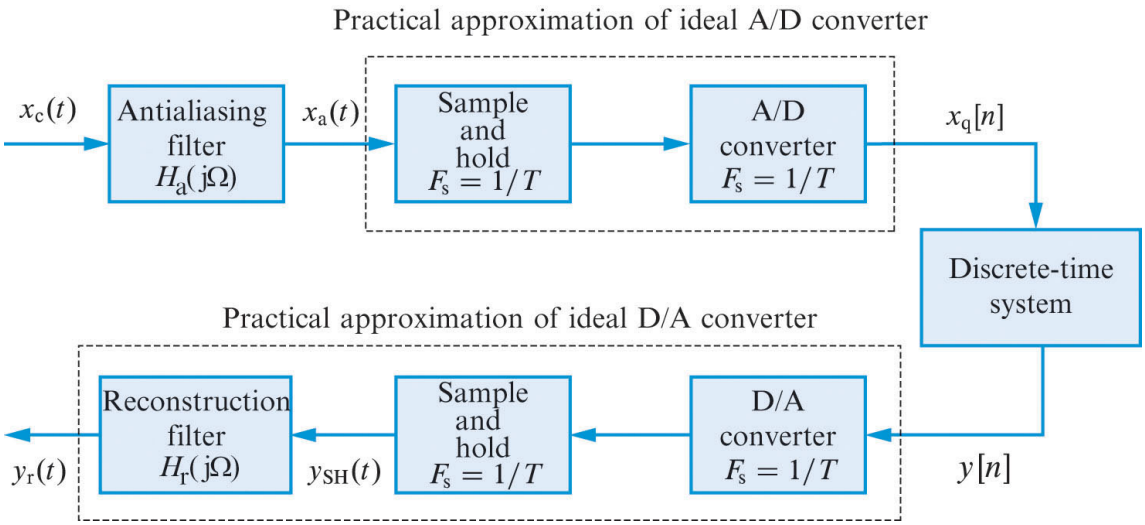


Reality alert! No such as ideal lowpass filter

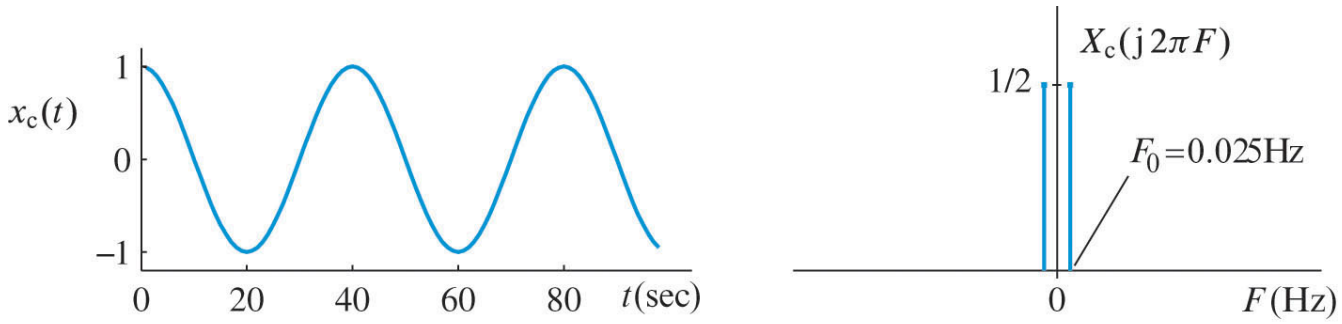
Chap 6.5

Practical D to A filter is a sample and hold filter

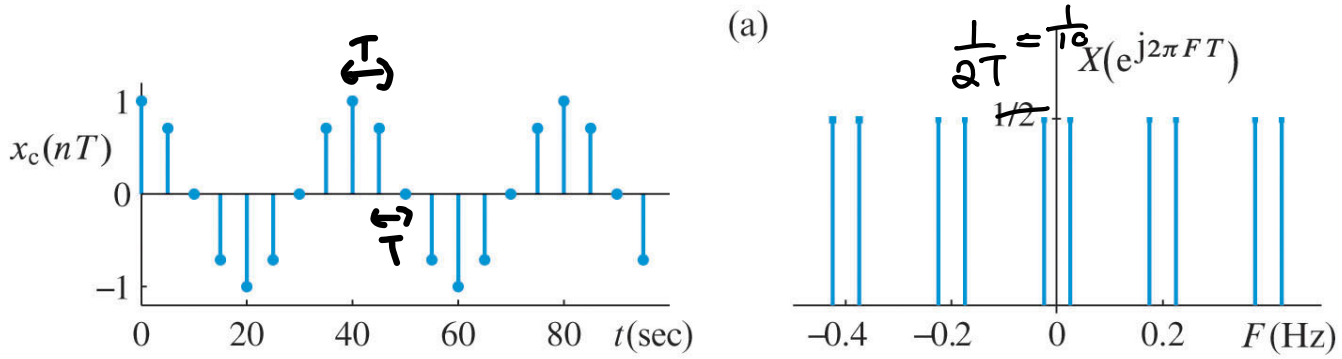




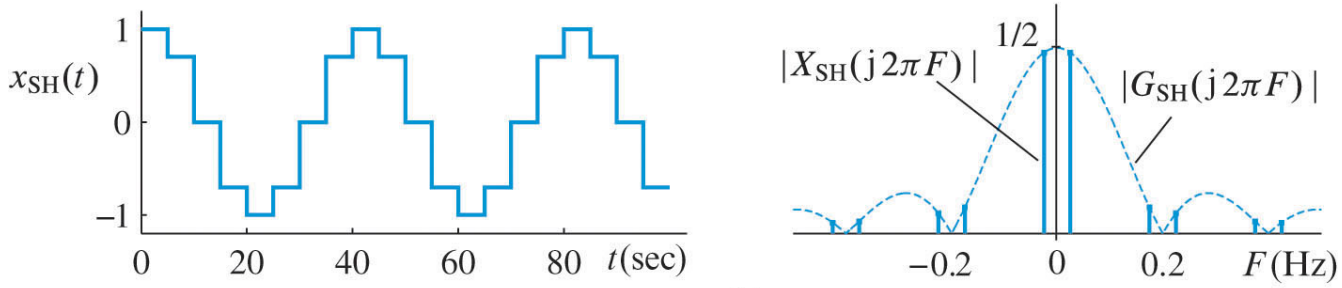
Ex $\cos(2\pi(0.025)t)$ $F_s = \frac{1}{T} = 0.2\,Hz$ $T = 5$



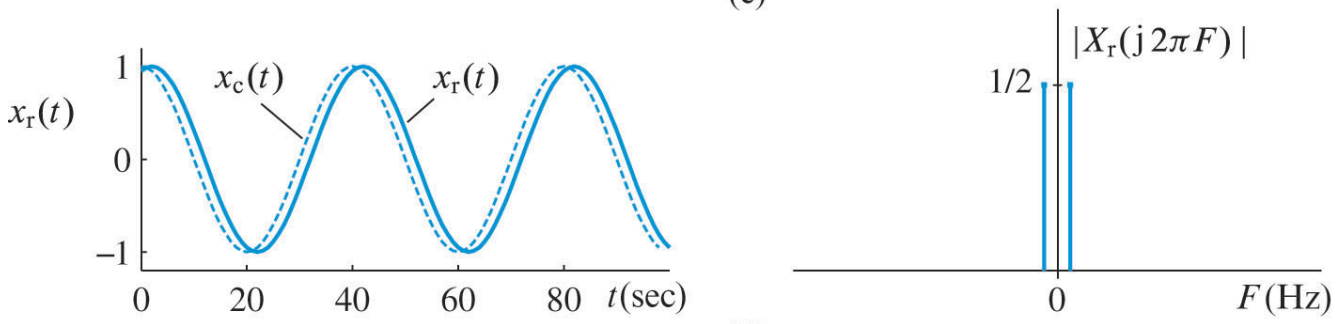
(a)



(b)



(c)



(d)