For the given specification
design an analog butterworth
filter

$$0.9 \leq |H(j\Omega)| \leq 1 \text{ for}$$
$$0 \leq \Omega \leq 0.2\pi$$

$$|H(j\Omega)| \leq 0.2 \quad \text{for}$$
$$0.4\pi \leq \Omega \leq \pi$$

$$\frac{1}{\sqrt{1+\varepsilon^2}}$$

$$\frac{1}{\sqrt{1+\lambda^2}}$$

allowable PB

$$\frac{1}{\sqrt{1+\varepsilon^2}}$$

allowable SB

$$\frac{1}{\sqrt{1+\lambda^2}}$$

magnitude response of butterworth LPF

$|H(j\Omega)|$

1.0

Ω_p Ω_s Ω

0.2π 0.4π