Таблица НЧ-прототипов

Баттерворт

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| 1 порядка | $$T\left(s\right)=\frac{1}{s+1}$$ |
| 2 порядка | $$T\left(s\right)=\frac{1}{s^{2}+1,414s+1}$$ |
| 3 порядка | $$T\left(s\right)=\frac{1}{s^{2}+s+1}\*\frac{1}{s+1}$$ |
| 4 порядка | $$T\left(s\right)=\frac{1}{s^{2}+0.7654s+1}\*\frac{1}{s^{2}+1.8478s+1}$$ |
| 5 порядка | $$T\left(s\right)=\frac{1}{s^{2}+0.6180s+1}\*\frac{1}{s^{2}+1.6180s+1}\*\frac{1}{s+1}$$ |
| 6 порядка | $$T\left(s\right)=\frac{1}{s^{2}+0.5176s+1}\*\frac{1}{s^{2}+1.4142s+1}\*\frac{1}{s^{2}+1.9318s+1}$$ |

Чебышев 3дБ

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| 1 порядка | $$T\left(s\right)=\frac{3,739}{s+3,739}$$ |
| 2 порядка | $$T\left(s\right)=\frac{1,935}{s^{2}+1,694s+1,935}$$ |
| 3 порядка | $$T\left(s\right)=\frac{0,8392}{s^{2}+0,2986s+0,8392}\*\frac{0,2986}{s+0,2986}$$ |
| 4 порядка | $$T\left(s\right)=\frac{0,9031}{s^{2}+1,703s+0,9031}\*\frac{0,1960}{s^{2}+0,4112s+0,1960}$$ |
| 5 порядка | $$T\left(s\right)=\frac{0,9360}{s^{2}+1,097s+0,9360}\*\frac{0,3770}{s^{2}+0,2873s+0,3770}\*\frac{0,1775}{s+0,1775}$$ |
| 6 порядка | $$T\left(s\right)=\frac{0,9548}{s^{2}+0.0765s+0,9548}\*\frac{0,5218}{s^{2}+0,2089s+0,5218}\*\frac{0,0888}{s^{2}+0,2853s+0,0888}$$ |

Чебышев 0,3дБ

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| 1 порядка | $$T\left(s\right)=\frac{1,002}{s+1,002}$$ |
| 2 порядка | $$T\left(s\right)=\frac{0,708}{s^{2}+0,645s+0,708}$$ |
| 3 порядка | $$T\left(s\right)=\frac{1,2818}{s^{2}+0,7293s+1,2818}\*\frac{0,7293}{s+0,7293}$$ |
| 4 порядка | $$T\left(s\right)=\frac{1,1338}{s^{2}+0.4052s+1,1338}\*\frac{0,4267}{s^{2}+0,9872s+0,4267}$$ |
| 5 порядка | $$T\left(s\right)=\frac{1,0785}{s^{2}+0,2578s+1,0785}\*\frac{0,5195}{s^{2}+0,6749s+0,5195}\*\frac{0,4171}{s+0,4171}$$ |
| 6 порядка | $$T\left(s\right)=\frac{1,0519}{s^{2}+0.1784s+1,0519}\*\frac{0,6188}{s^{2}+0,4875s+0,6188}\*\frac{0,1858}{s^{2}+0,6660s+0,1858}$$ |

Таблица замен переменных

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| Фильтр | Гр. частоты | s | γ | α |
| ФНЧ | $$W\_{п}$$ | $$s=γ\*\frac{1-z^{-1}}{1+z^{-1}}$$ | $$γ=сtg(πW\_{п})$$ |  |
| ФВЧ | $$W\_{п}$$ | $$s=γ\*\frac{1+z^{-1}}{1-z^{-1}}$$ | $$γ=tg(πW\_{п})$$ |  |
| ППФ | $$W\_{п1},W\_{п2}$$ | $$s=γ\*\frac{1-2αz^{-1}+z^{-2}}{1-z^{-2}}$$ | $$γ=сtg(π(W\_{п2}-W\_{п1}))$$ | $$α=\frac{cosπ(W\_{п2}+W\_{п1})}{cosπ(W\_{п2}-W\_{п1})}$$ |
| ПЗФ | $$W\_{п1},W\_{п2}$$ | $$s=γ\*\frac{1-z^{-2}}{1-2αz^{-1}+z^{-2}}$$ | $$γ=tg(π(W\_{п2}-W\_{п1}))$$ | $$α=\frac{cosπ(W\_{п2}+W\_{п1})}{cosπ(W\_{п2}-W\_{п1})}$$ |