ti.com/webenchfilters

- **WEBENCH® Filter Designer**
- **Active filter designs within minutes!**
- Active filters are vital in modern electronics; every data acquisition systems need them for bandwidth-limiting signals before ADCs as anti-aliasing filters, or after DACs as anti-imaging filters. Instrumentation also relies on them for accurate signal measurements. Active filters are used for cutoff frequencies that range from sub -1 Hz to 10 MHz, where passive filter designs would require prohibitively large component values and sizes. Their design and verification can be
  tedious and time consuming.

- WEBENCH® Filter Designer lets you design, optimize, and simulate complete multi-stage active filter solutions within minutes. Create optimized filter designs using a selection of TI operational amplifiers and passive components from TI's vendor partners.

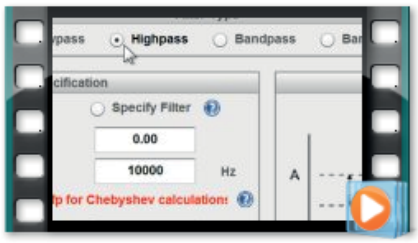
go to the movies

1_Filter Designs in Minutes with Filter Designer WEBENCH® Tool.mp4

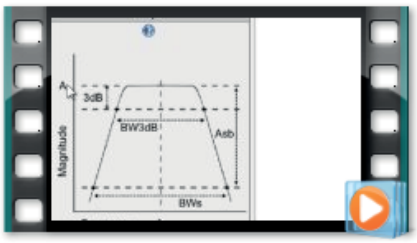
2_Filter Designs in Minutes - Lowpass filter selection.mp4

3_Filter Designs in Minutes - filter designer visualizer.mp4

4_Filter Designs in Minutes - filter designer design summary.mp4



5_Filter Designs in Minutes - Highpass filter selection.mp4

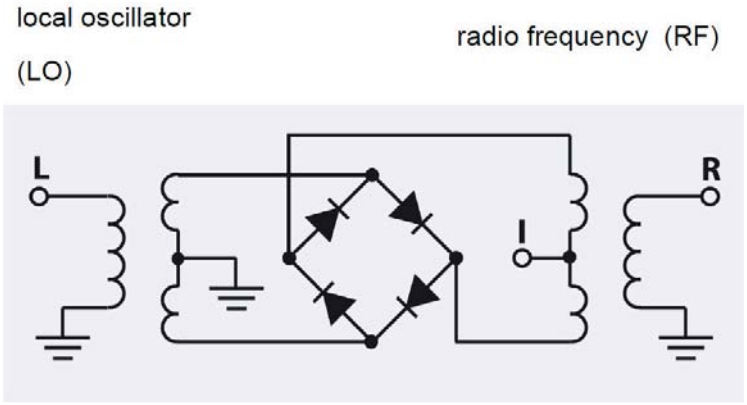


6_Filter Designs in Minutes - Bandpass filter selection.mp4

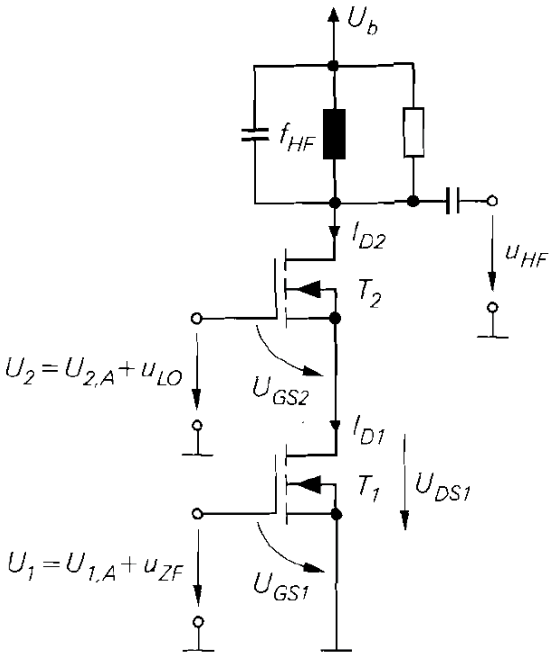
Weitere wichtige / interessante analoge Schaltungen

Mischer / double balanced mixer

- Mischer sind Bauteile, die aus **zwei verschiedenen Frequenzen** die **Differenz** und die **Summe** dieser beiden Frequenzen erzeugen.
- Diese Mischung entsteht entweder an einer **nichtlinearen** Kennlinie, beispielsweise einer Diode, einem **Ringmischer** oder **mehreren Transistoren** einer integrierten Schaltung, die als Mischer für zwei Frequenzen arbeiten.
- Für gleiche Frequenzen liefert der Mischer die **Phasenlage**.



IF = Differenzfrequenz oder Phase



- **Oszillatoren**

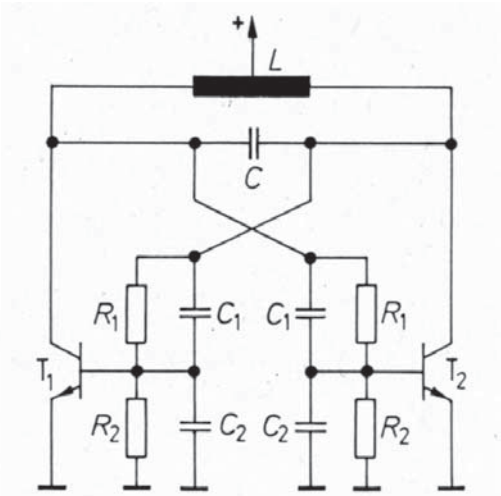


Fig. 15.12 Push-pull oscillator with capacitive feedback

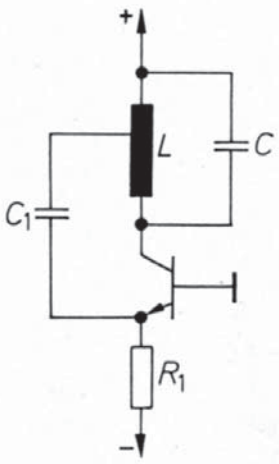


Fig. 15.7 Hartley oscillator in common-base connection

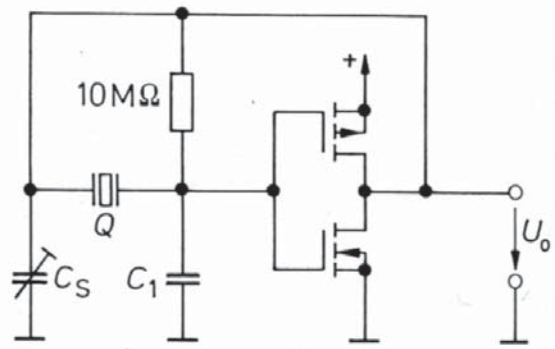


Fig. 15.17 Pierce oscillator with CMOS inverter as amplifier

Phase locked loop (PLL)

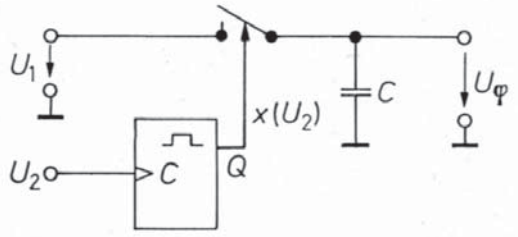


Fig. 27.21 Sample-and-hold circuit as a phase detector

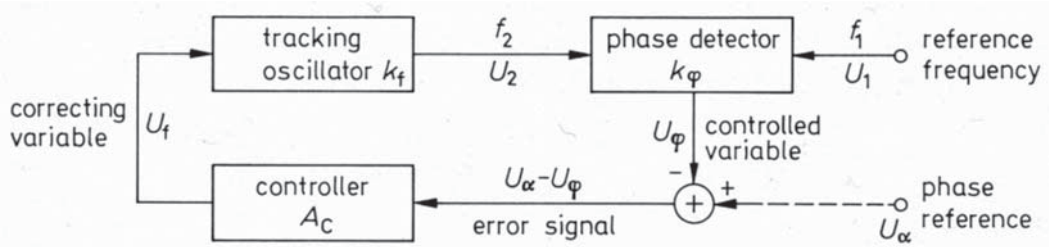


Fig. 27.20 Principle of the phase-locked loop (PLL)

Voltage controlled Oszillator (VCO)

Schaltung eines einfachen Oszillators mit zwei Operationsverstärkern. Falls $R_2 \ll R_1$, ist die Frequenz von U_a recht genau proportional zu U_e.