

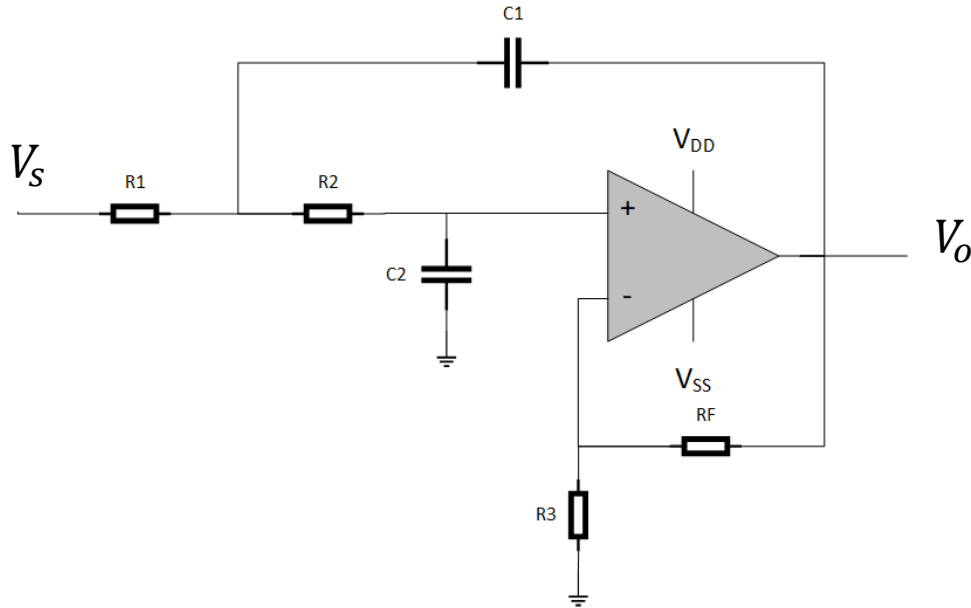
ELM320 ANALOG ELEKTRONİK

Ders Materyali

İŞLEMSEL YÜKSELTEÇ
UYGULAMALARI - SÜZGEÇLER

İŞLEMSEL YÜKSELTEÇ UYGULAMALARI - SÜZGEÇLER

Sallen-Key alçak geçirgen süzgeç:



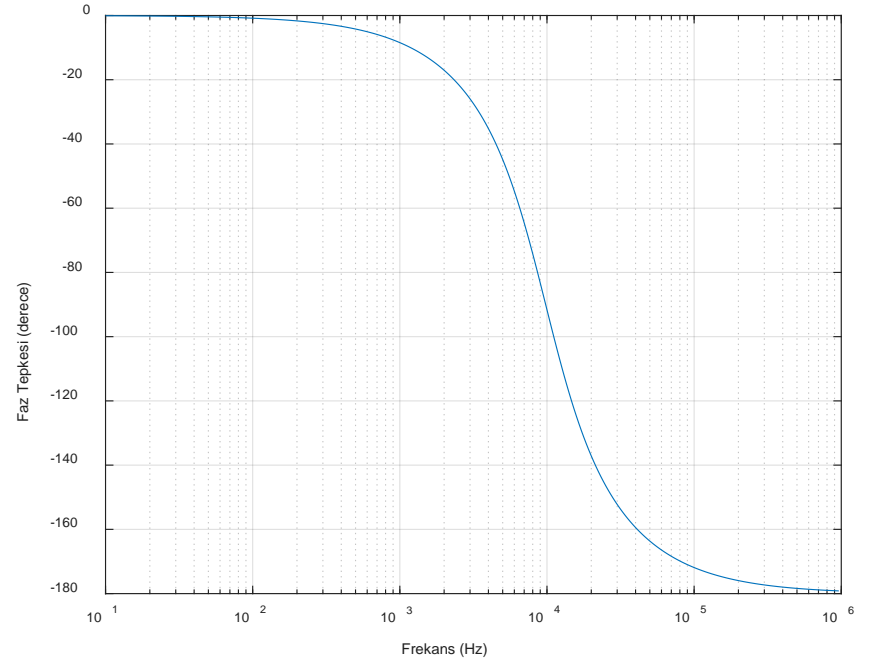
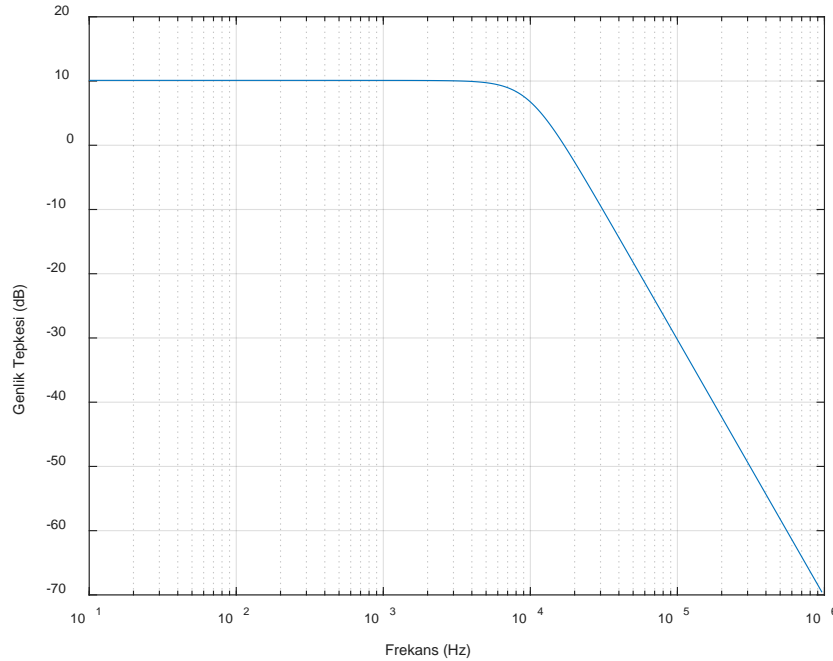
$$G = \left(1 + \frac{R_F}{R_3} \right)$$

$$H(s) = \frac{G}{C_1 C_2 R_1 R_2} \frac{1}{s^2 + \left(\frac{1}{C_1 R_2} + \frac{1}{C_1 R_1} + \frac{1}{C_2 R_2} (1 - G) \right) s + \frac{1}{C_1 C_2 R_1 R_2}}$$

İŞLEMSEL YÜKSELTEÇ UYGULAMALARI - SÜZGEÇLER

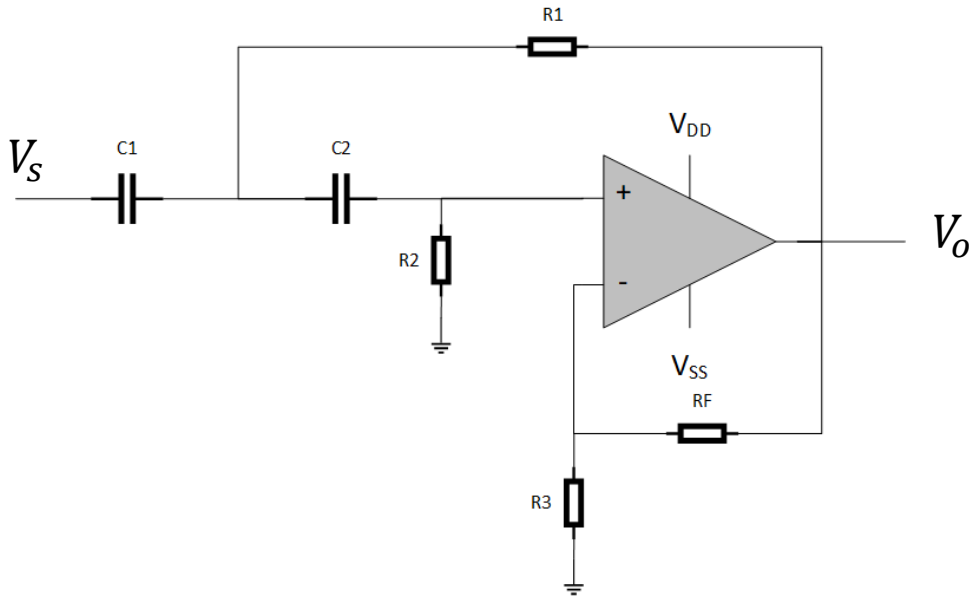
Sallen-Key alçak geçirgen süzgeç:

$$R1 = 8k\Omega, \quad R2 = 33k\Omega, \quad C1 = 1nF, \quad C2 = 1nF$$
$$R3 = 10k\Omega, \quad R_F = 22k\Omega$$



İŞLEMSEL YÜKSELTEÇ UYGULAMALARI - SÜZGEÇLER

Sallen-Key yüksek geçirgen süzgeç:



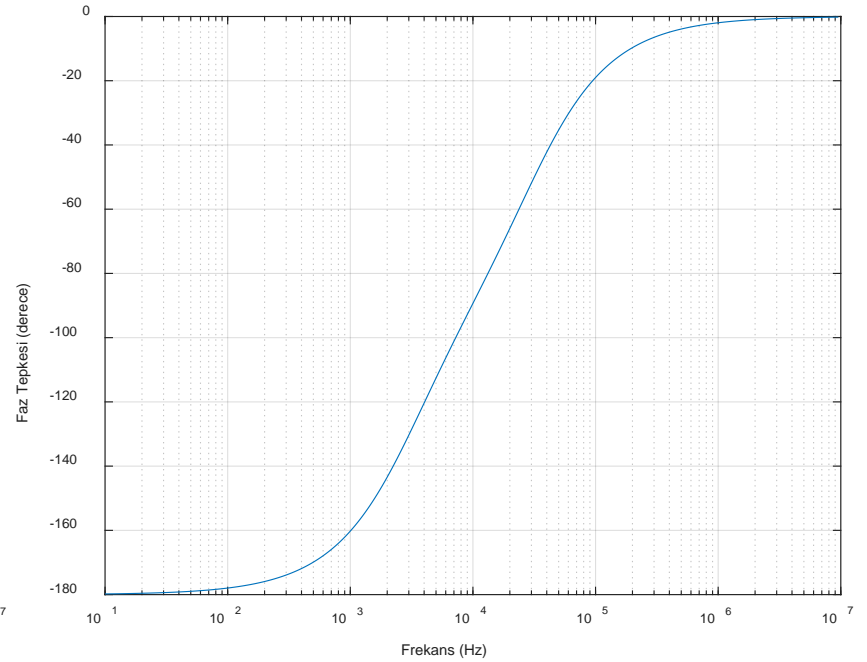
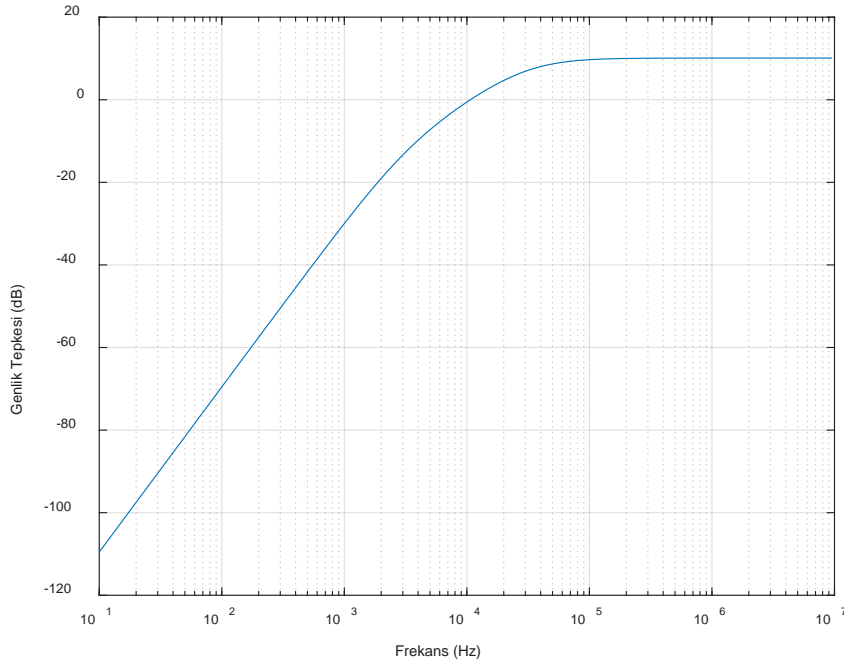
$$G = \left(1 + \frac{R_F}{R_3} \right)$$

$$H(s) = \frac{Gs^2}{s^2 + \left(\frac{1}{C_1R_2} + \frac{1}{C_2R_2} + \frac{1}{C_1R_1} (1 - G) \right) s + \frac{1}{C_1C_2R_1R_2}}$$

İŞLEMSEL YÜKSELTEÇ UYGULAMALARI - SÜZGEÇLER

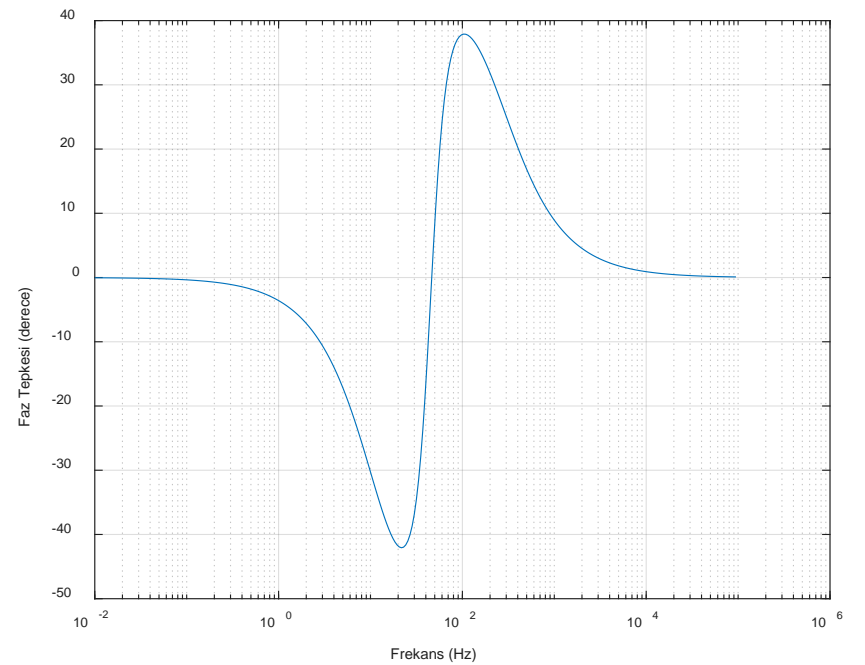
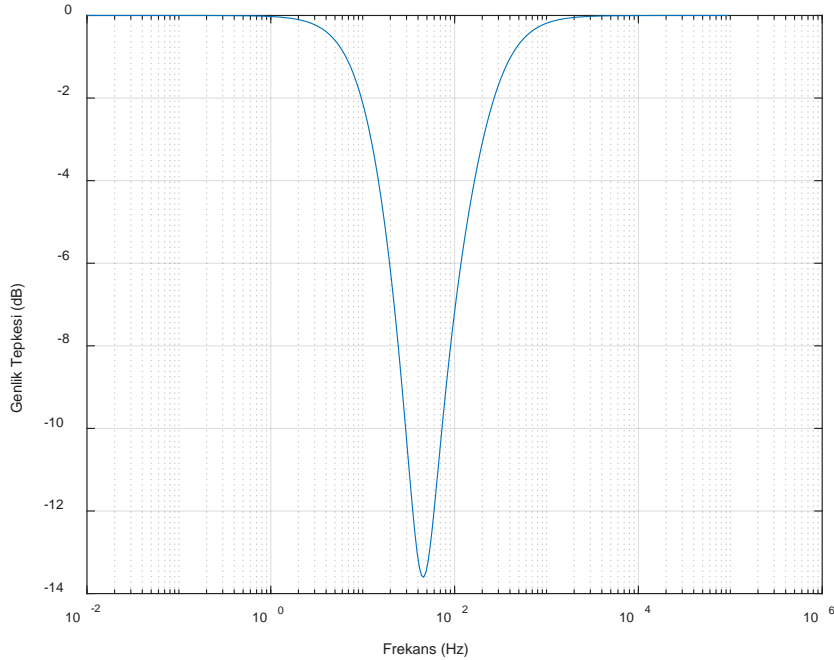
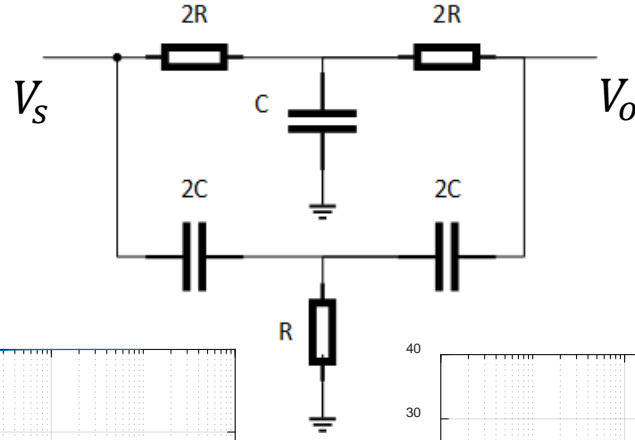
Sallen-Key yüksek geçirgen süzgeç:

$$R1 = 8k\Omega, \quad R2 = 33k\Omega, \quad C1 = 1nF, \quad C2 = 1nF$$
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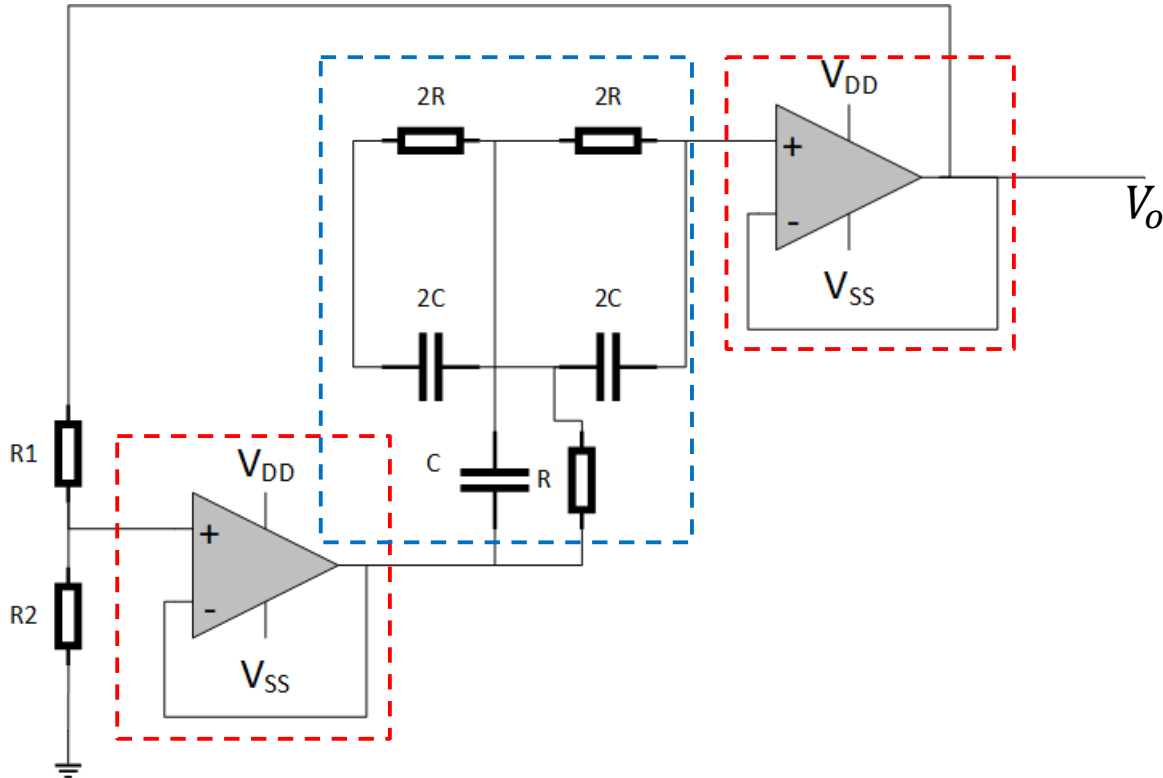
İŞLEMSEL YÜKSELTEÇ UYGULAMALARI - SÜZGEÇLER

İkiz T çentik süzgeç:



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İşlemsel yükselteç ile yapılan ikiz T aktif çentik süzgeci:



KAYNAKLAR

- Robert Boylestad, Louis Nashelsky, Electronic Devices and Circuit Theory, Prentice Hall, 1998.
- Art Kay, Timothy Claycomb, TI Designs –Precision: VerifiedDesignComparator with HysteresisReference Design, Texas Instruments Application Note, TIDU020A, 2013.
- Electronics tutorials website: <https://www.electronics-tutorials.ws>
- Tim Regan, Jon MunsonGreg Zimmer, Michael Stokowski, Current Sense Circuit Collection, Linear Technology Application Note 105 (an105fa), 2005.
- Neil Zhao, Wenshuai Liao, and Henri Sino, High-Side Current Sensing with Wide Dynamic Range: Three Solutions, Analog Dialogue 44-12, December 2010.
- CircuitsToday website: <http://www.circuitstoday.com/log-amplifier>
- Learning about Electronics website: <http://www.learningaboutelectronics.com/Articles/Difference-between-a-single-and-dual-supply-op-amp.php>
- OKAWA Electric Design website: <http://sim.okawa-denshi.jp/en/>
- Analog Devices website: <https://www.analog.com/designtools/en/filterwizard/>
- Hank Zumbahlen, Multiple Feedback Filters, Analog Devices Mini Tutorial (MT-220), 2012.
- Website: <http://www.righto.com/2015/10/inside-ubiquitous-741-op-amp-circuits.html>
- Ron Mancini and Richard Palmer, Sine-Wave Oscillator, Texas Instruments Application Report, SLOA060, 2001.