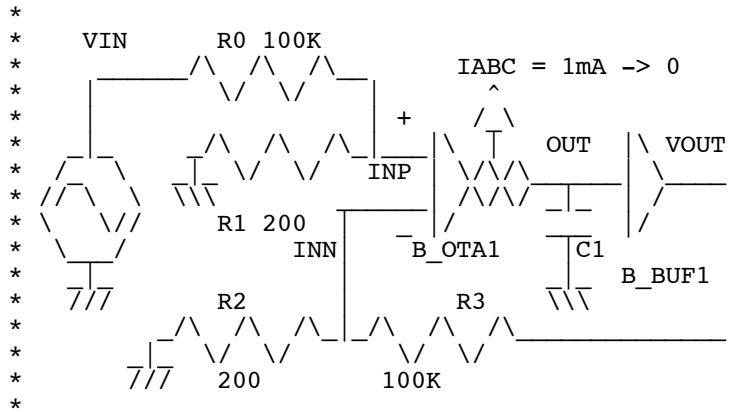


Simple_OTA_VCLP

* dsauersanjose@aol.com 10/07/08
 * www.idea2ic.com



```
VIN      VIN      0      PULSE( -1  1 1u 1u 1u  .2m .4m )  AC 1
R0       VIN      INP    100K
R1       INP      0      200
R2       INN      0      200
R3       VOUT     INN    100K
B_OTA1   OUT      0      I =  -1*v(VIABC)*tanh((v(INP)-v(INN))/0.052)
C1       OUT      0      150p
Rneed    OUT      0      10000k
B_BUF1   VOUT     0      V =  v(OUT) -1.2
V_Iabc   VIABC    0      PWL    ( 0 1m 2m 0 )
```

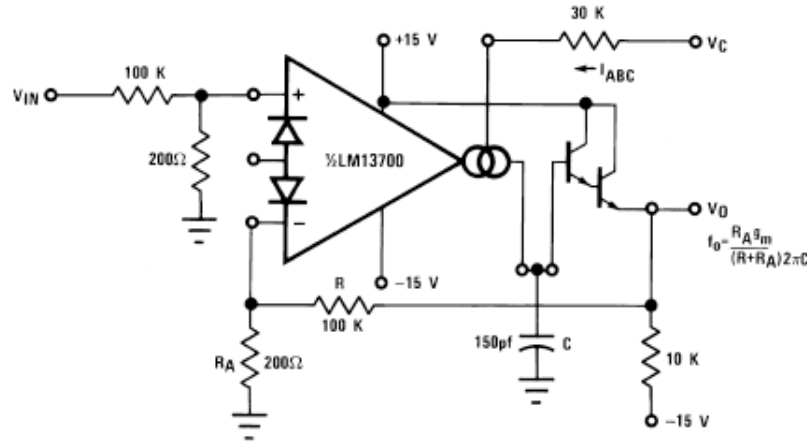
```
.control
tran      1u      2m  0      1u
set       pensize = 2
plot      v(vout) v(vin)
ac        dec     10  1      1000K
plot      db(out) title IABC1000uA
alter     V_Iabc  dc = 10u
ac        dec     10  1      1000K
plot      db(out) title IABC10uA
.endc
```

.end

=====END_OF_SPICE=====

To Covert PDF to plain text click below
<http://www.fileformat.info/convert/doc/pdf2txt.htm>
 This code works with winspice.

Typical Application



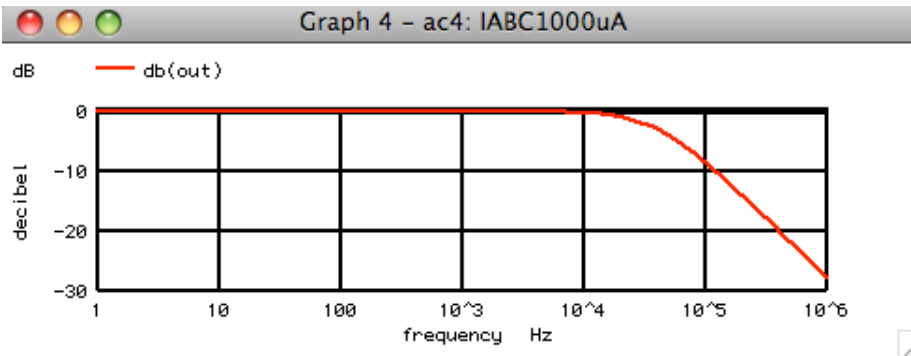
Voltage Controlled Low-Pass Filter

00798118

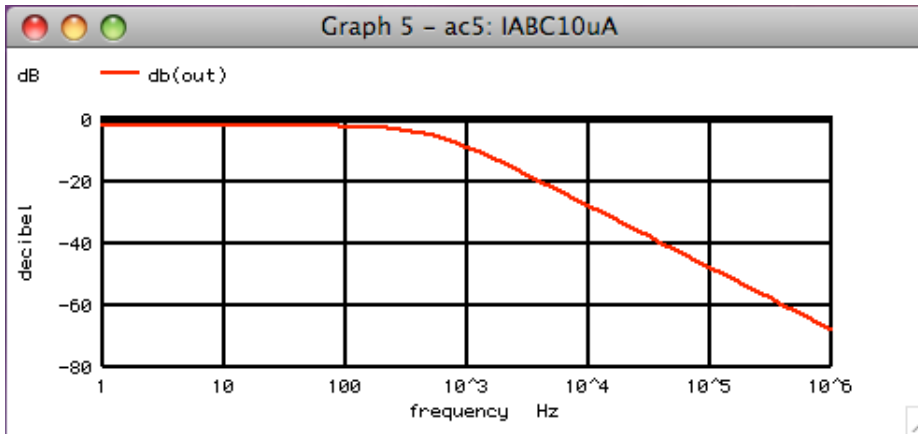
A voltage control Low pass filter is a the typical application given in the data sheet. At one time this actual filter was being used as an automotive alternative to the dolby noise reduction circuitry applied to cassette tapes. A home project using the LM13700 actually led to the development of "DNR".

http://en.wikipedia.org/wiki/Dynamic_Noise_Reduction

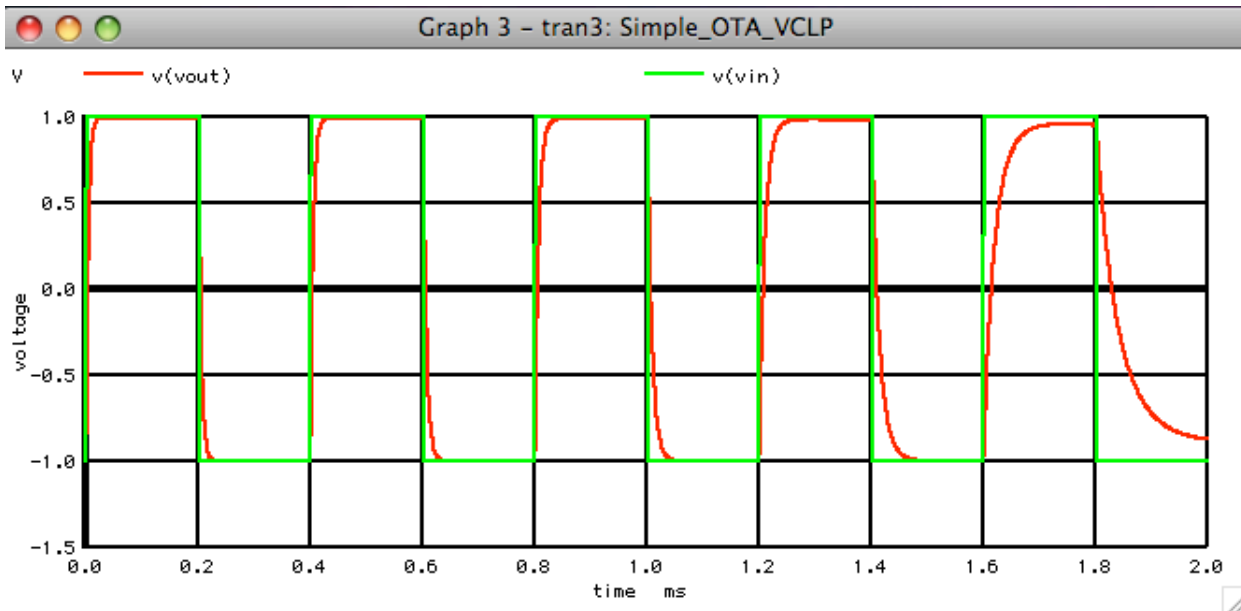
The concept is when music has a high frequency content, set the bandwidth to be high..



But when the bandwidth of the music content is low, the bandwidth can be reduced as well. The noise of the music off the cassette will appear to be much lower.



Since the LM13700 is stereo, this was a natural for a home HIFI project. The total circuit only needed one LM13700 and one LM324.



But there may be another application for this voltage controlled low pass filter. This circuit is also a voltage follower with adjustable settling time. The waveform above shows how the low pass follows a square wave as the IABC level moves from 1mA to zero over 2msec. The time constant is tracking the inverse of IABC such that it is longest when IABC is lowest. This may be of use for voltage control amplifier applications where flexibility in the attack and decay of the envelope is desired.

