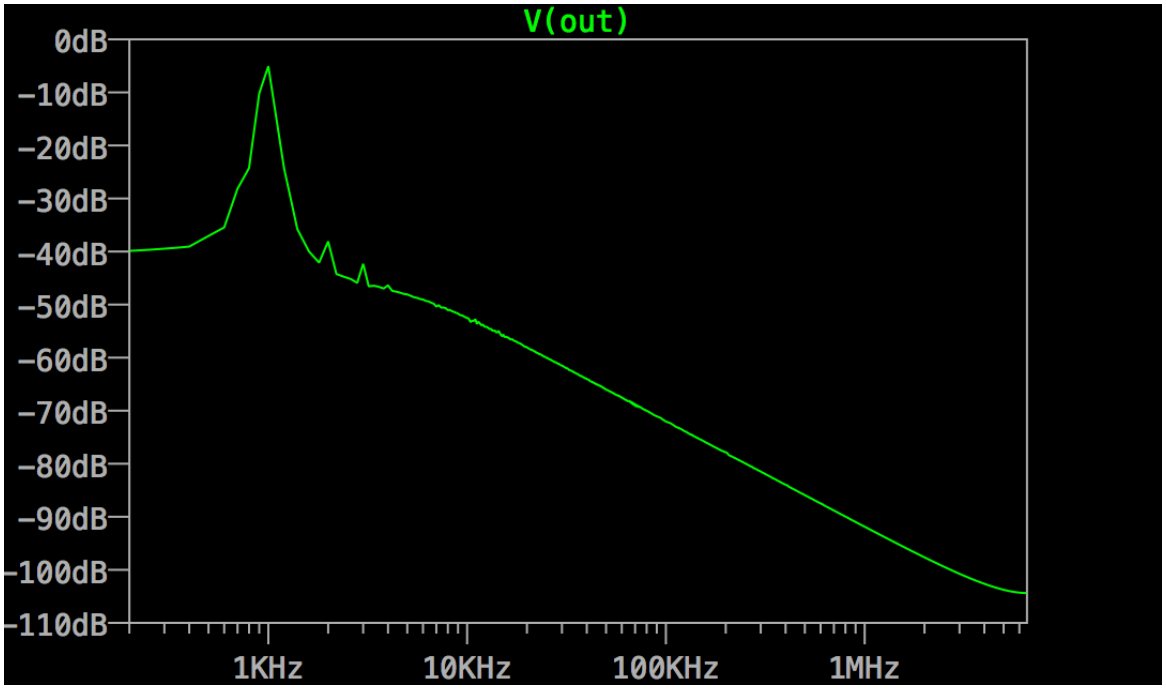
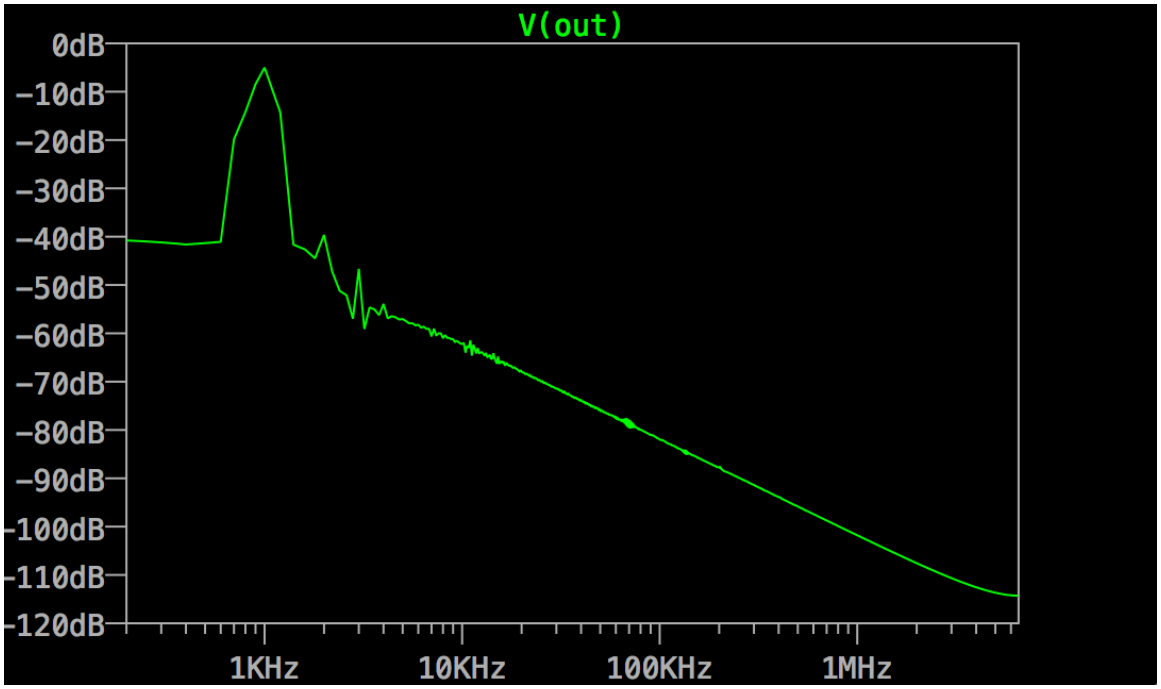
LTSpice FFT display
with two apertures for Gaussian Window

FFT of Gaussian is another Gaussian:

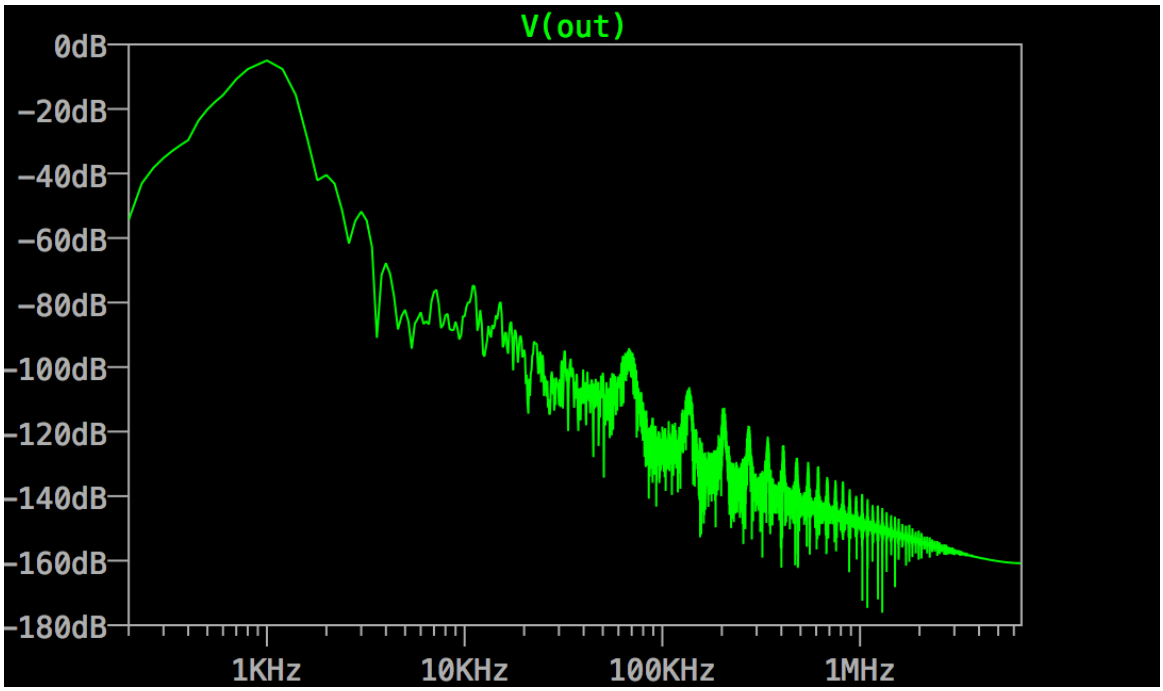
$$\frac{1}{\sqrt{2\pi\sigma}} e^{-\frac{x^2}{2\sigma^2}} \quad \overset{FFT}{\longleftrightarrow} \quad e^{-\frac{\sigma^2\varpi^2}{2}}$$



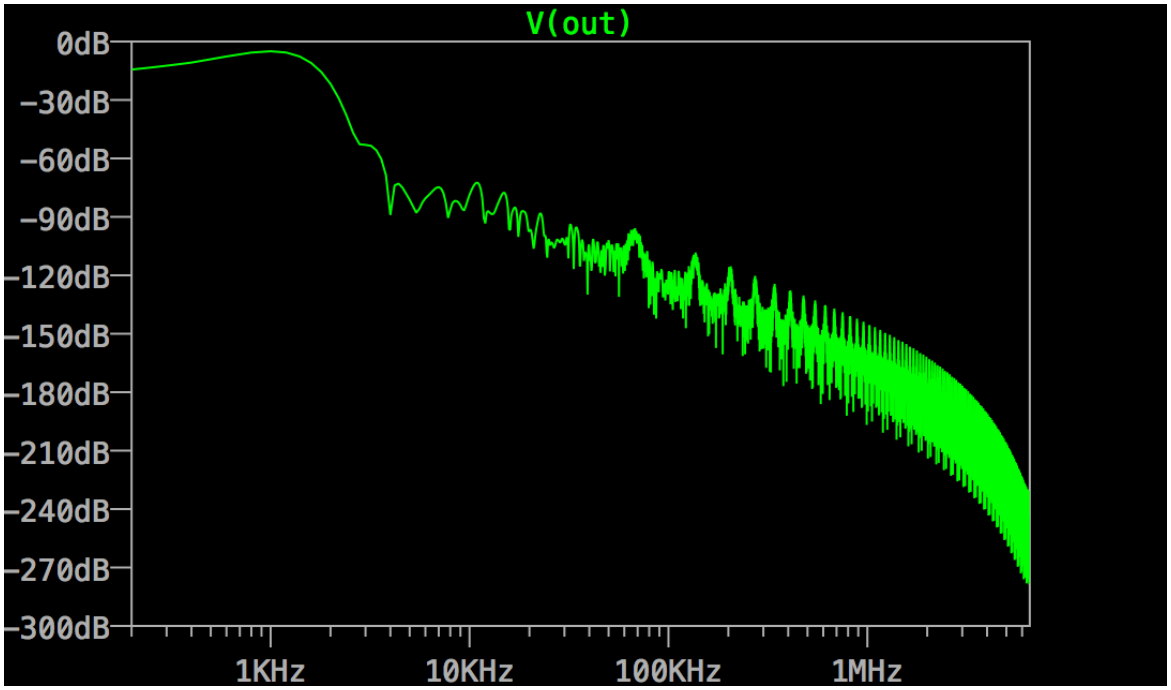
Gaussian window with Sigma = 1



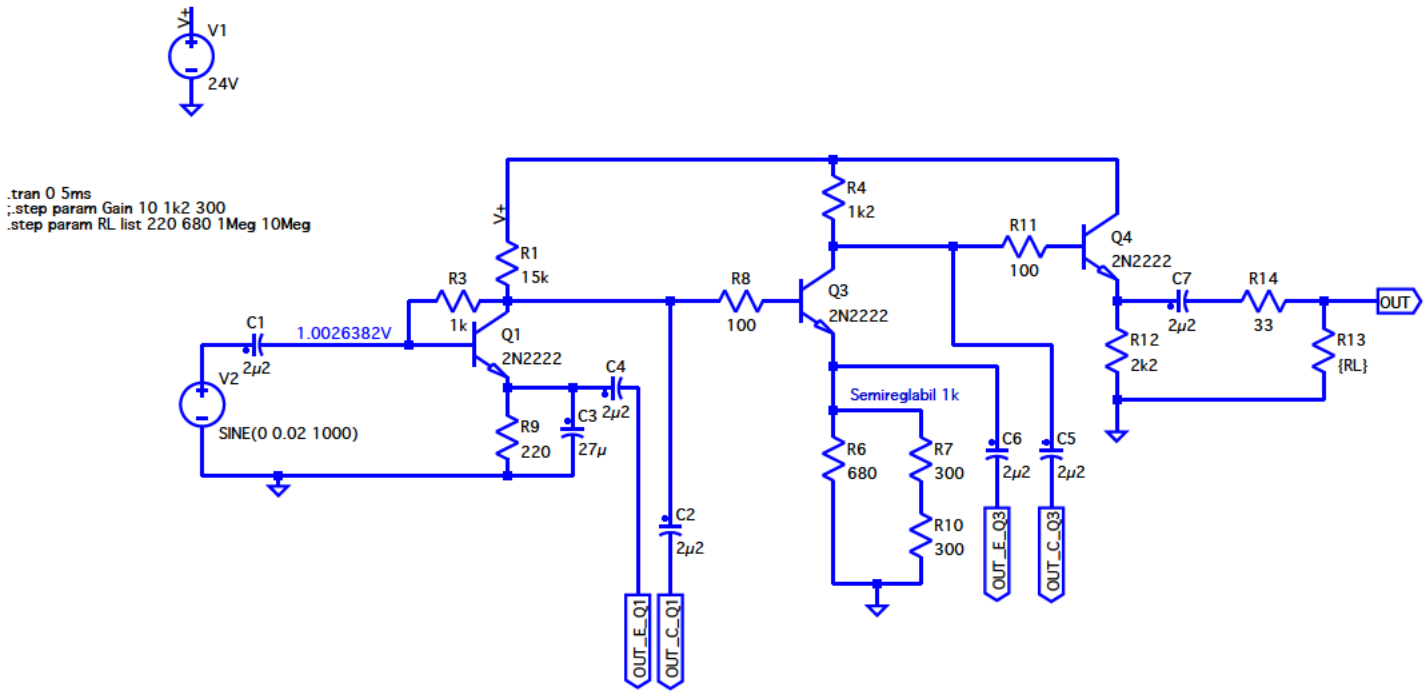
Gaussian window with a Sigma = 0.5 (default LTSpice Setting)



Gaussian window with Sigma = 0.25.
As sigma gets lower, resolution is higher but the discrimination (specificity) is lower (the 1 KHz peak is starting to disappear)



Gaussian window with Sigma = 0.125.
Max resolution (most „events” are captured) with minimum discrimination (lowest specificity).


V1
24V
V+
.tran 0 5ms
;.step param Gain 10 1k2 300
.step param RL list 220 680 1Meg 10Meg
R1
15k
R3
1k
C1
2µ2
1.0026382V
V2
SINE(0 0.02 1000)
Q1
2N2222
C4
2µ2
C3
27µ
R9
220
C2
2µ2
OUT_E_Q1
OUT_C_Q1
R4
1k2
R8
100
Q3
2N2222
Semireglabil 1k
R6
680
R7
300
R10
300
C6
2µ2
C5
2µ2
OUT_E_Q3
OUT_C_Q3
R11
100
Q4
2N2222
C7
2µ2
R14
33
OUT
R12
2k2
R13
{RL}