The Poor Man Noise Source:

design, fabrication and calibration of a cheap solid state noise source

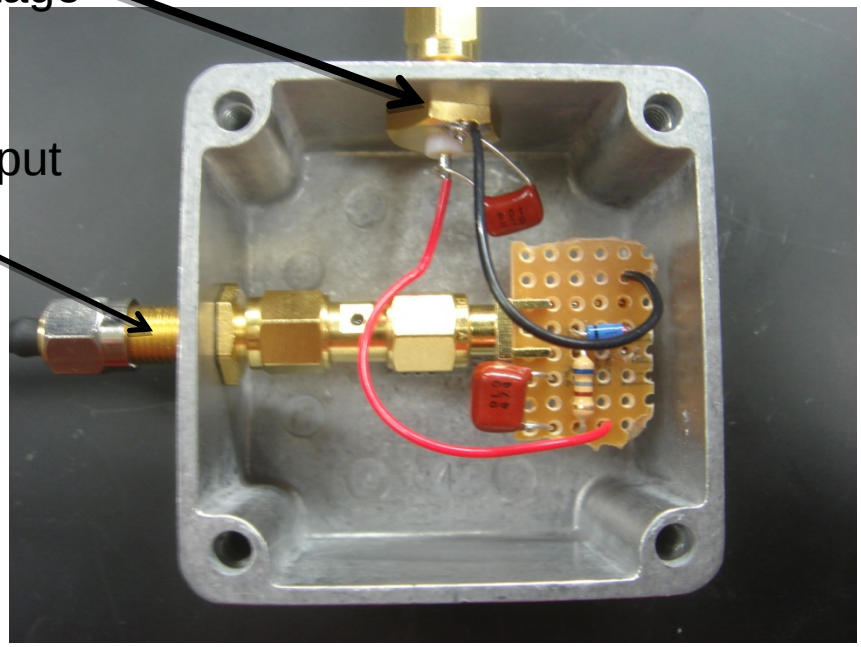
HAMDI MANI

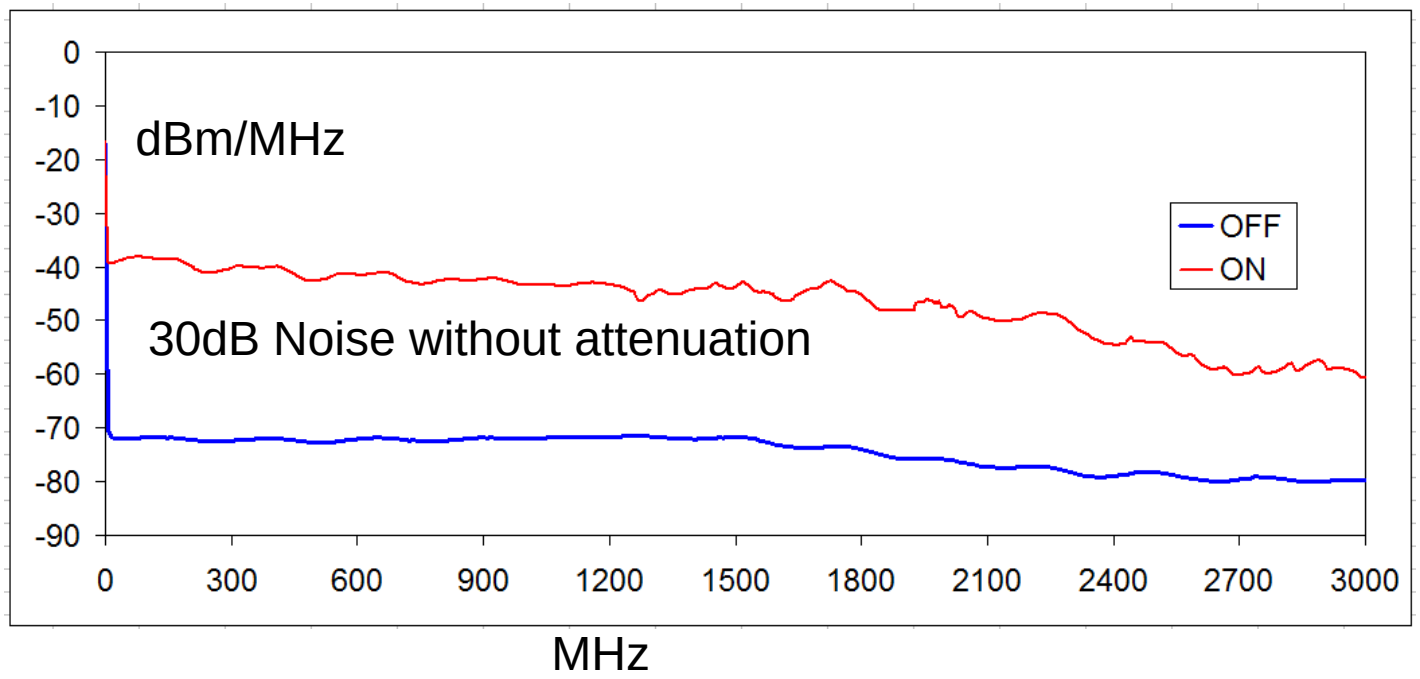
08/27/2011

GENERAL PURPOSE NOISE SOURCE

DC Voltage

RF Output





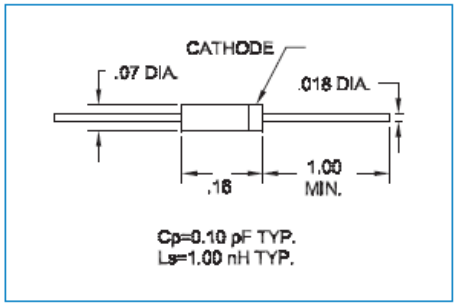
External attenuation
Of different values
Can be used to
Improve the match/
Flatness and to get
Different noise levels

Noisecom

Model	Frequency Range	Operating Conditions V_b (V)	I_{op} (mA)	RL (Ω)	Output ENR (dB)	Package
NC302L	10 Hz - 3 GHz	6 - 8	6	50	30 - 35	DO-35, BL, CH1
NC303	10 Hz - 8 GHz	8 - 12	8	50	30 - 35	DO-35, BL, CH1
NC303SOT	10 Hz - 8 GHz	8 - 10	8	50	30 - 35	SOT323
NC305	10 MHz - 11 GHz	8 - 12	10	50	29 - 34	BL, CH1
NC401	100 MHz - 18 GHz	8 - 12	10	50	30 - 35	C10, C50H, CH2
NC403	100 MHz - 27 GHz	8 - 12	12	50	24 - 28	C50, CH3
NC404	18 GHz - 50 GHz	8 - 12	15	50	20 - 25	C50, CH3
NC405	18 GHz - 75 GHz	8 - 12	20	50	15 - 25	C50, CH3
NC406	18 GHz - 110 GHz	8 - 12	25	50	15 - 25	C50, CH3

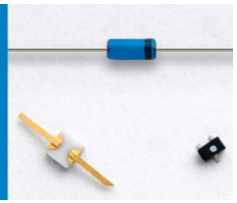
1. For chip configuration, add suffix "C".
2. For beam lead configuration, add suffix "BL".
3. For C50H configuration, add suffix "H".

DO-35 Package (inches)



NC 100/200/300/400 Series

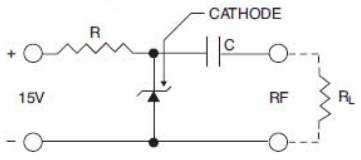
0.1 Hz to 110 GHz



Specifications

Output	White Gaussian Noise
Operating temperature	0°C to +55°C temperature for NC100 series -55°C to +125°C for all others
Storage temperature	-65°C to +150°C

Typical Bias Circuit



$$C \geq \frac{1}{2\pi R_L (f_c)}$$

For NC100 Series
R = 150K

For NC200 Series
R = 15K

For NC300/400 Series
R = Adjust for performance

R_L = Load resistor
For recommended value, see charts on reverse page

f_c = low frequency cut-off