

Transimpedance Amp.

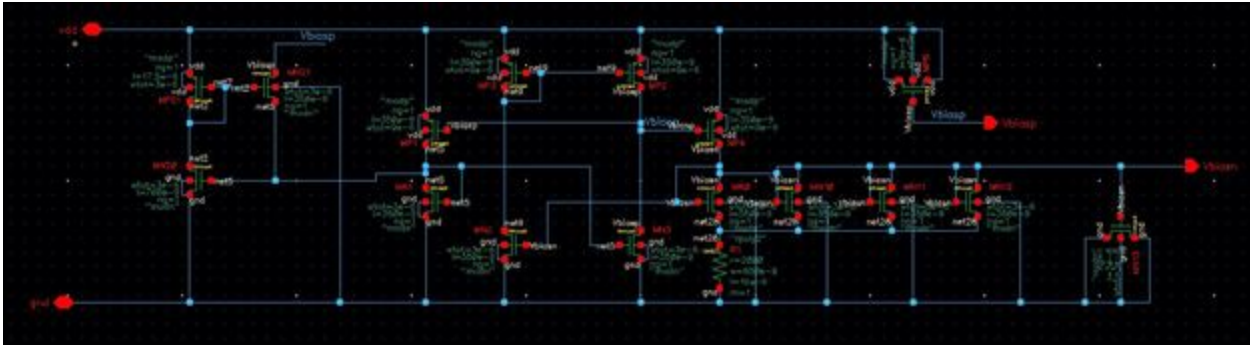
Using AMS 0.35 μ m SiGe-BiCMOS process (S35)

Baker Research (Spring 2018)

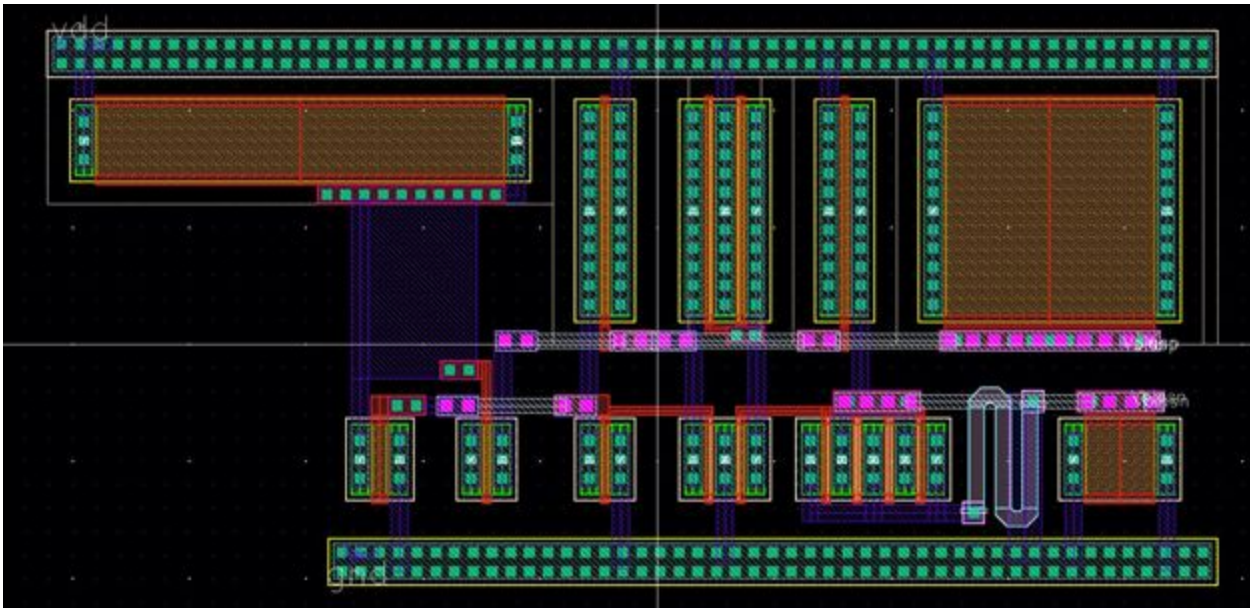
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Device parameters			
MOSFET Parameters			
VDD = 5 V			
Min. length = 350 nm			
Parameter	NMOS	PMOS	Comments
Bias Current Id	100 μ A	100 μ A	
W/L	3 μ / 350 n	9 μ / 350 n	
Vds,sat Vsd,sat (overdrive voltage)	500 mV	500 mV	10% of VDD
Vgs Vsg	1.05 V	1.20 V	
Vthn Vthp	550 mV	700 mV	
Ro (Vds = Vds,sat)	23.4 k Ω	12.2 k Ω	
Ro (Vds = 1 V)	95.2 k Ω	41.2 k Ω	
Ro (Vds = 1.8 to 2 V)	128 k Ω	47.0 k Ω	
HBT Parameters			
Model	npn121h5		
Device area	2		

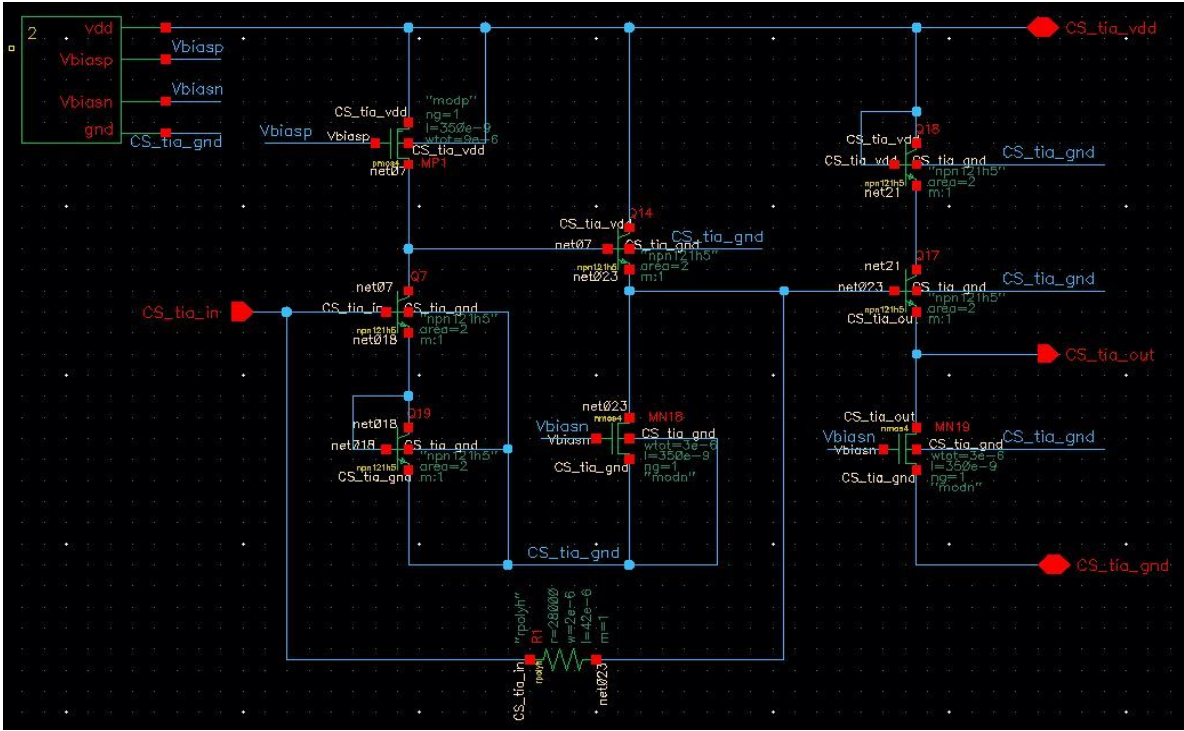
Beta-multiplier Schematic



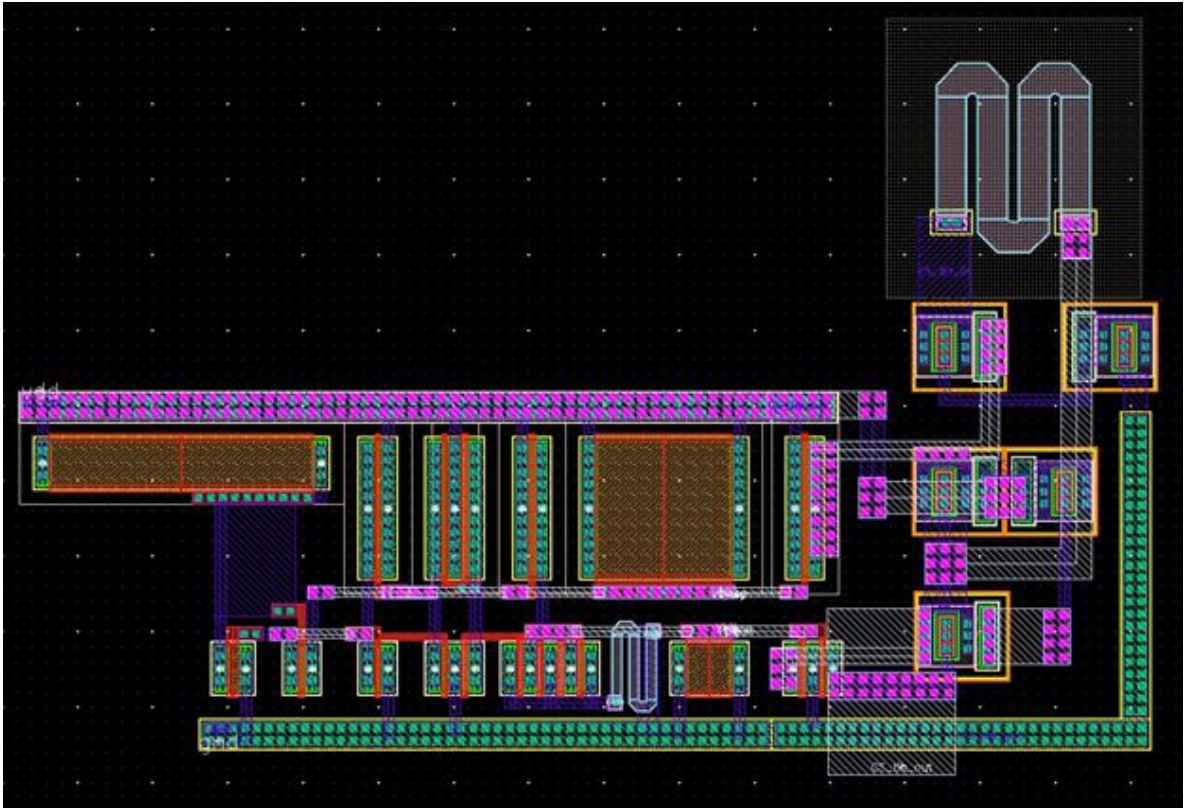
Beta-multiplier Layout



TIA schematic



TIA layout



TIA layout (less layers visible)

