

due Thursday, 2010-10-21

HOMEWORK for WEEK 6: (Borrowed from Harvard course)

Design a circuit that will deliver two outputs: one that looks like the input (except for a DC offset), and one that looks like an inverted version of the input (except that the DC level is whatever you think best). Such a circuit is called a "phase splitter."

Here are the specifications:

- power supply: $+25V$
- quiescent I_c : $2.5mA$
- R_{out} for signal source feeding your circuit: $\leq 100\Omega$
- $f_{signal} \geq 50 Hz$

Once your design is complete, evaluate the following, at signal frequencies:

- input impedance
- output impedance, at in-phase terminal (emitter)
- output impedance, at inverted-phase terminal
- largest input signal that can pass through your circuit without clipping (collector)

Now add a circuit fragment that will lower R_{out} at the collector.

- What is the new R_{out} ?