

(Due Friday, Oct. 28 by 6pm in homework locker)

1. Consider the class AB output stage when $V_{CC} = 9V$, $R_L = 10\Omega$. Let Q_N and Q_P be matched with $I_S = 10^{-14}A$ and $\beta = 100$. Design using a V_{BE} multiplier for a quiescent current $I_Q = 1mA$.
2. From a data sheet, a particular transistor can safely dissipate a maximum of 60W at a case temperature of $40^\circ C$. $T_{JMAX} = 120^\circ C$.
 - (a) If it is connected to a heat sink using an insulating washer for which the thermal resistance is $0.5^\circ C/W$, what heat-sink temperature is necessary to ensure safe operate at 30W?
 - (b) For an ambient temperature of $30^\circ C$, what heat-sink thermal resistance is required?
 - (c) If, for a particular extruded-aluminum-finned heat sink, the thermal resistance in still air is $4.5^\circ C/W$ per centimeter of length, how long a heat sink is needed?
3. Problems 9.1, 9.2
4. Exercise 9.3