



$T_h = 0.693 \cdot (R_a + R_b) \cdot C$
 $T_l = 0.693 \cdot (R_b) \cdot C$
 $PERIOD = T_h + T_l$
 $PERIOD_{min} = 0.693(10k\Omega + 2 \cdot 0\Omega) \cdot 1\mu F = 0.000693s = 1443Hz$
 $PERIOD_{max} = 0.693(10k\Omega + 2 \cdot 1000K\Omega) \cdot 1\mu F = 0.139s = 7.2Hz$

BJT CALCULATIONS
 $I_b = (V_{CC} - V_{be}) / R_{out} = (5V - 0.7V) / 150\Omega = 28.7mA$
 $V_{CE} = V_{CEsat}$
 $I_C = (V_{CC} - V_{diode} - V_{sat}) / R_1 = (5V - 2 - 0.4) / 150\Omega = 17.3mA$

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