

EE 2920

Dr. Johnson

Homework 15

1) Determine the minimum capacitor value to be used in the ideal full-wave rectifier from class to ensure a maximum of 200mv of ripple
assume: $12v_{rms}$, 15KHz input and a $20K\Omega$ load - 50pts

C =

2) Using the standard wall wart (no regulator) from the lecture and the diode characteristics below, determine the maximum and minimum “minimum” voltage at the output. - 50pts

assume: $I_{Loadmin} = 1\text{mA}$ (standby), $I_{Loadmax} = 50\text{mA}$ (full load), $25\text{ }^\circ\text{C}$, standard line voltage variation, turns ratio = 40, 100mV of ripple

Diode Characteristics	
25 C	
Forward Current	Forward Voltage
0.5mA	0.65V
1mA	0.72V
5mA	0.8V
10mA	0.85V
50mA	0.90V
100mA	0.95V

Min - Minimum =

Max - Minimum =