|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Value | Units | Conditions |
| Resistance of the  10kΩ resistor, R1 | 9.89 kΩ | ohms | with power off and  disconnected from circuit  (measured with ohmmeter) |
| Supply Voltage, V+3.3 | 3.285 V | volts | Powered  (measured with voltmeter) |
| Input Voltage, VPE1 | 3.4 mV | volts | Powered, but  with switch not pressed  (measured with voltmeter) |
| Resistor current | Calculated: ~ 0.0 mA  Measured: 0 mA | mA | Powered, but switch not pressed  I=VPE1/R1 (calculated and  measured with an ammeter) |
| Input Voltage, VPE1 | 3.28 V | volts | Powered and  with switch pressed  (measured with voltmeter) |
| Resistor current | Calculated: .33 mA  Measured: .33 mA | mA | Powered and switch pressed  I=VPE1/R1 (calculated and  measured with an ammeter) |

*Table 3.1. Switch measurements.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Row | Parameter | Value | Units | Conditions |
| 1 | Resistance of the  220Ω resistor, R19 | 219.8 V | ohms | with power off and  disconnected from circuit  (measured with ohmmeter) |
| 2 | +5 V power supply  *V+5* | 5.04 V | volts | (measured with voltmeter relative to ground, *notice that the +5V power is not exactly +5 volts*) |
| 3 | TM4C123 Output, *VPE0*  input to 7406 | 93.7 mV | volts | with **PE0** = 0  (measured with voltmeter relative to ground) |
| 4 | 7406 Output, *Vk-*  LED k- | 3.71 | volts | with **PE0** = 0  (measured with voltmeter relative to ground) |
| 5 | LED a+, *Va+*  Bottom side of R19 | 5.03 | volts | with **PE0** = 0  (measured with voltmeter relative to ground) |
| 6 | LED voltage | 1.32 | volts | calculated as *Va+*- *Vk-* |
| 7 | LED current | .045 | mA | calculated as (*V+5*- *Va+*)/R19  and  measured with an ammeter |
| 0.00 |
| 8 | TM4C123 Output, *VPE0*`  input to 7406 | 3.28 | volts | with **PE0** = 1  (measured with voltmeter relative to ground) |
| 9 | 7406 Output, *Vk-*  LED k- | 128.5 mV | volts | with **PE0** = 1  (measured with voltmeter relative to ground) |
| 10 | LED a+, *Va+*  Bottom side of R19 | 2.055 | volts | with **PE0** = 1  (measured with voltmeter relative to ground) |
| 11 | LED voltage | 1.9265 | volts | calculated as *Va+*- *Vk-* |
| 12 | LED current | 13.58 | mA | calculated as (*V+5*- *Va+*)/R19  and  measured with an ammeter |
| 13.26 |

*Table 3.2. LED measurements (assuming the 220 Ω resistor is labeled R19).*