EE 319k
2/14/2017

Switch Measurements

Parameter	Value	Units	Conditions
Resistance of the 10kΩ resistor, R1	9.82k	ohms	with power off and disconnected from circuit (measured with ohmmeter)
Supply Voltage, $V_{+3.3}$	3.288	volts	Powered (measured with voltmeter)
Input Voltage, V_{PE1}	-2.5mv	volts	Powered, but with switch not pressed (measured with voltmeter)
Resistor current	0	mA	Powered, but switch not pressed $I=V_{PE1}/R1$ (calculated and measured with an ammeter)
Input Voltage, V_{PE1}	3.28	volts	Powered and with switch pressed (measured with voltmeter)
Resistor current	0.33	mA	Powered and switch pressed $I=V_{PE1}/R1$ (calculated and measured with an ammeter)

LED Measurements

Row	Parameter	Value	Units	Conditions
1	Resistance of the 220Ω resistor, R19	216.4	ohms	with power off and disconnected from circuit (measured with ohmmeter)
2	+5 V power supply V_{+5}	5.12	volts	(measured with voltmeter relative to ground, *notice that the +5V power is not exactly +5 volts*)
3	TM4C123 Output, V_{PE0} input to 7406	-50m	volts	with **PE0** = 0 (measured with voltmeter relative to ground)
4	7406 Output, V_{k-} LED k-	3.6	volts	with **PE0** = 0 (measured with voltmeter relative to ground)
5	LED a+, V_{a+} Bottom side of R19	5.04	volts	with **PE0** = 0 (measured with voltmeter relative to ground)
6	LED voltage	1.4	volts	calculated as $V_{a+} - V_{k-}$
7	LED current	0	mA	calculated as $(V_{+5} - V_{a+})$/R19 and measured with an ammeter
8	TM4C123 Output, V_{PE0} input to 7406	3.27	volts	with **PE0** = 1 (measured with voltmeter relative to ground)
9	7406 Output, V_{k-} LED k-	0.34	volts	with **PE0** = 1 (measured with voltmeter relative to ground)
10	LED a+, V_{a+} Bottom side of R19	2.177	volts	with **PE0** = 1 (measured with voltmeter relative to ground)

11	LED voltage	1.92	volts	calculated as V_{a+} - V_{k-}
12	LED current	12.7	mA	calculated as (V_{+5} - V_{a+})/R19 and measured with an ammeter