Soldering Lab Worksheet

ECE 405 - Homework #5 - Due Week #11

Name

Group#

Date

LED's

On your Soldering Board is a group of discrete LEDs' that create the circle, the manufactures part# is SML-LXFM0603SUGCTR and this device is using 20mA.

- What is the typical Vf of this device _____
- What is the Intensity of the LED in milli candles? _____
- What is the Max current this device is rated for? _____
- What is the Typical Wavelength of this device? _____
- What is the cost to purchase the LED's for the circular ring only in 1 lot vs 10 lot pricing?
- # of LED's x 1 lot = $_____ # of LED's x 10 lot = $_____
- Cost differential of the total =$_____

IC Packages

Questions pertaining to QFP44 IC's on the main board, QFP44 Is the size of the IC, with a manufacturers part # of B505CA4EMCAXP

- What is the Digi-key part# _____?
- How many 8-bit digital I/O ports does this microcontroller have? _____
- How many leads (Pins) are on this package? _____
- What page of the datasheet will you find the Package outline dimensions/ pitch etc.
- Page #_____

Soldering with Unleaded Solder

This lab project required Solder Paste Leaded Manufacturers part# TS391AX

- What does 1 tube of solder paste (Leaded) Cost $ _____
- What is its composition? _____
- What does the first number of the composition stand for? _____
- What does the second number of the composition stand for? _____
- What is the melting point of this solder in degrees Celsius? _____
- What is the shelf life of Solder paste? _____

Trace width Calculations

Using Digi-keys Conversion Calculator for trace width answer the following

Calculate the trace width in mils of a trace 7.4CM long carrying 1.2 A of current with a thickness of 1 oz/ft2 and a temperature rise of 20 deg F from an ambient room temperature of 68 deg F.

- The External Required Trace width would be? -_____mils

With the same information, use copper thickness of 0.5oz/ft2

- The External Required trace width would be? _____mils

With the same information, use copper thickness of 2oz/ft2

- The External Required Trace width would be? _____mils

Once the Surface Mount Soldering Kit has been completed The Kit and the worksheet should be turned in to Dr. Glower or Jeff Erickson before Week 11 (1 Worksheet + 1 Practice Solder Board per Group) You may keep the Boards once graded