



**HAIDAR TECHNOLOGY, LLC.**  
The Next Generation Of Intelligent Embedded GUI Systems

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**SNT-N800480-50-RT**  
**SNT-N800480-50-CT**  
**5.0" WVGA TFT with Touch Screen Display Module**  
**Powered By SegeNT embedded GUI Board**  
**Hardware Manual**

**REV 1.0**

Revision 1.0

Issue Date: 03/20/2014

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## 1. Overview:

Haidar Technology SNT-N800480-50-RT and SNT-N800480-50-CT are full color TFT display modules with integrated resistive touch screen or capacitive touch screen. It is powered by Haidar's SegeNT GUI Controller board and supported by Haidar's uiLAB GUI Designer software.

**Please, refer to SegeNT hardware and software manuals for more information on how to use the display module and how to integrate it into your design.**

**Please, refer to uiLAB help for more information on how to start designing your GUI.**

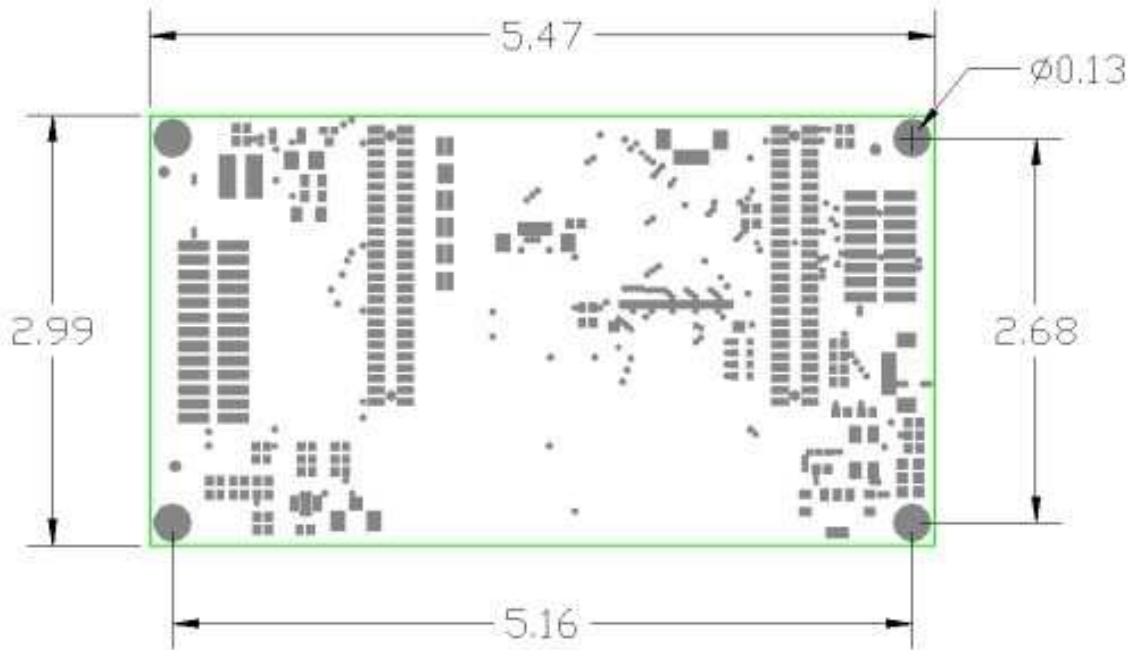
**Please note that SegeNT LCD Timing parameters are hard coded and cannot be changed.**

## 2. Features:

- 5.0" WVGA (800X480) TFT Color display. 56K True to life colors.
- Newhaven NHD-5.0-800480TF-ATXL#-T or compatible TFT Display with resistive TP.
- Newhaven NHD-5.0-800480TF-ATXL#-CTP or compatible TFT Display with capacitive TP.
- Integrated 4-wire resistive touch screen. Pen and Finger touch. (SNT-N800480-50-RT)
- Integrated single- touch capacitive touch screen. (SNT-N800480-50-CT)
- Powered by SegeNT embedded controller GUI Board
- Efficient LED backlight driver on board.
- Audio amplifier on board.
- Simple Serial CMOS RS232 interface.
- 3.3V or 5V voltage input. Default is 3.3V
- High brightness (450cd/m<sup>2</sup>)
- Wide viewing angle (-75° to +75°)
- Wide operating temperature (-20°C to +70°C)

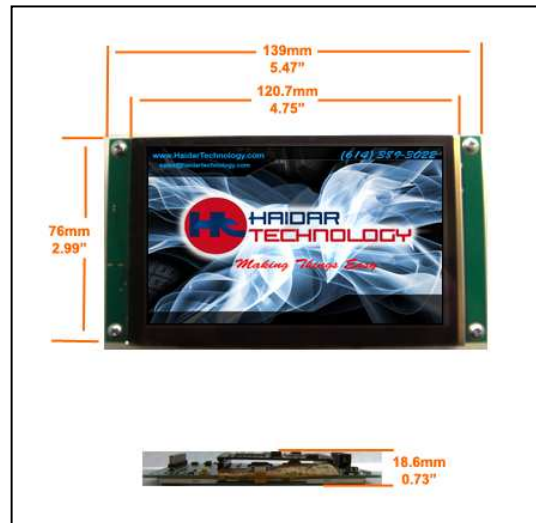


### 3. Carrier Board dimensional drawing:



All dimensions are in inches

### 4. Module Dimensions:



|                 |                |
|-----------------|----------------|
| Width           | 2.99" / 76mm   |
| Length          | 5.47" / 139mm  |
| Depth           | 0.73" / 18.6mm |
| LCD Area Width  | 4.75" / 121mm  |
| LCD Area Length | 2.00" / 76mm   |

## 5. Electrical Characteristics:

**SNT-N800480-50-xT requires 3.3VDC (Default) OR 5VDC (Power Select Jumper). Exceeding the supply voltage over the typical value will cause a permanent damage to the board and to the attached LCD and void your warranty.**

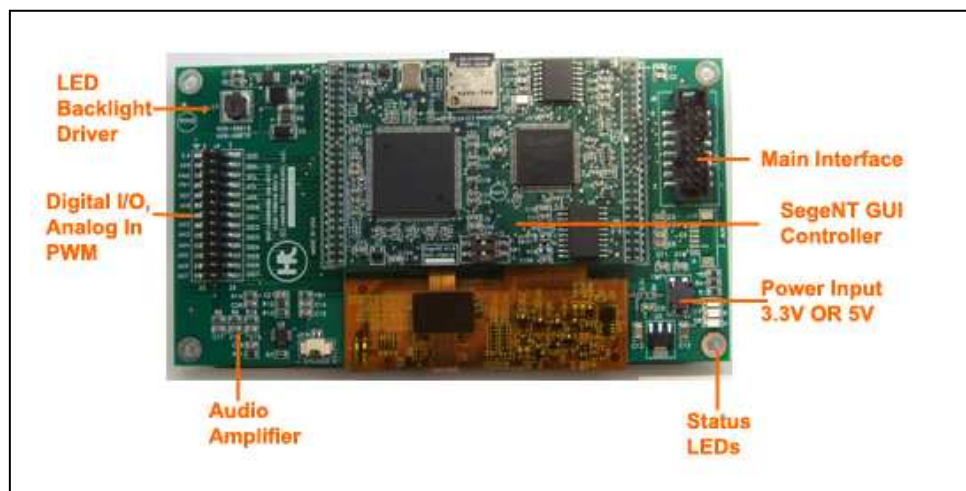
| Configuration     | Typical Current (A) at 3.3V | Max Current (A) at 3.3V |
|-------------------|-----------------------------|-------------------------|
| Back light is OFF | TBD                         | TBD                     |
| Back light is ON  | TBD                         | TBD                     |

## 6. Electrical Specifications:

| Parameter   | Symbol | Min.   | Typ. | Max.   | Units |
|---|--------|--------|------|--------|-------|
| Input Supply Voltage (PWR SELECT Jumper is set to 3.3V). Default settings | VDD    | 3.1    | 3.3  | 3.7    | V     |
| Input Supply Voltage (PWR SELECT Jumper is set to 5V)                     | VCC    | 4.5    | 5    | 6      | V     |
| High Level Input Voltage (VDD = 3.3V)                                     | VIH    | 0.7VDD | -    | VDD    | V     |
| Low Level Input Voltage (VDD = 3.3V)                                      | VIL    | 0      | -    | 0.3VDD | V     |
| Digital sink/source current   | Id     | -      | -    | 25     | MA    |
| Analog input voltage  | Va     | 0      | -    | 3.3V   | V     |
| RS232 TX/RX   |        | 0.7VDD | -    | VDD    | V     |

**Warning: RX and TX use a CMOS level of 3.3V. Connecting them to standard (PC) RS232 with +/- 12V or other will damage the controller and void your warranty.**

## 7. Carrier Board Picture:



## 8. Power Input Select Jumper (J2):

This jumper is used to set the voltage input. The default setting is 3.3V. Zero ohm 603 resistor is used to switch between 3.3V or 5V.

## 9. Pin Description (J8):

Main Interface (16Pos, 0.1", IDC connector)

| Pin Name   | Pin # | Type | Tolerance | Description                   |
|------------|-------|------|-----------|-------------------------------|
| VIN        | 1     | PWR  | 3.3V/5V   | Power Supply Input            |
| VIN        | 2     | PWR  | 3.3V/5V   | Power Supply Input            |
| GND        | 3     | PWR  | 0V        | Power Ground                  |
| GND        | 4     | PWR  | 0V        | Power Ground                  |
| LED_RX     | 5     | DOUT | 3.3V      | SegeNT RX LED Signal          |
| LED_TX     | 6     | DOUT | 3.3V      | SegeNT TX LED Signal          |
| RX         | 7     | DIN  | 3.3V      | SegeNT Main UART RX           |
| TX         | 8     | DOUT | 3.3V      | SegeNT Main UART TX           |
| RS485DE    | 9     | DOUT | 3.3V      | SegeNT Main RS485 Data Enable |
| READY/BUSY | 10    | DOUT | 3.3V      | SegeNT Ready/Busy signal      |
| NOTIFYHOST | 11    | DOUT | 3.3V      | SegeNT NotifyHost signal      |
| BUZZER     | 12    | DOUT | 3.3V      | SegeNT Buzzer signal          |
| LED_HB     | 13    | DOUT | 3.3V      | SegeNT HB LED Signal          |
| RESET      | 14    | DIN  | 3.3V      | SegeNT Reset Signal           |
| NC         | 15    |      |           | Leave open.                   |
| NC         | 16    |      |           | Leave open.                   |

## 10. Pin Description (J10):

Auxiliary Main Interface (Molex part # 53261-0671)

| Pin Name   | Pin # | Type | Tolerance | Description              |
|------------|-------|------|-----------|--------------------------|
| VIN        | 1     | PWR  | 3.3V/5V   | Power Supply Input       |
| GND        | 2     | PWR  | 0V        | Power Ground             |
| RX         | 3     | DIN  | 3.3V      | SegeNT Main UART RX      |
| TX         | 4     | DOUT | 3.3V      | SegeNT Main UART TX      |
| READY/BUSY | 5     | DOUT | 3.3V      | SegeNT Ready/Busy signal |
| NOTIFYHOST | 6     | DOUT | 3.3V      | SegeNT NotifyHost signal |

## 11. Pin Description (J3):

Audio Speaker (Molex part # 53261-0271)

| Pin Name  | Pin # | Type | Tolerance | Description                     |
|-----------|-------|------|-----------|---------------------------------|
| Speaker - | 1     | PWR  | 3.3V      | Connect to 8Ohm, 0.5-1W speaker |
| Speaker + | 2     | PWR  | 3.3V      | Connect to 8Ohm, 0.5-1W speaker |

## 12. Pin Description (J4):

General Input/Output (26Pos, 0.1" Header)

| Pin Name | Pin # | Type | Tolerance | Description              |
|----------|-------|------|-----------|--------------------------|
| VOUT     | 1     | PWR  | 3.3V      | Power                    |
| GND      | 2     | PWR  | 0V        | Power Ground             |
| AUX0     | 3     | DIO  | 3.3V      | Reserved for future use. |
| I2C_SDA  | 4     | DIO  | 3.3V      | Reserved for future use. |
| PWM0     | 5     | DOUT | 3.3V      | PWM0 Output              |
| I2C_SCL  | 6     | DIO  | 3.3V      | Reserved for future use. |
| PWM0     | 7     | DOUT | 3.3V      | PWM1 Output              |
| AUX_TX   | 8     | DOUT | 3.3V      | Reserved for future use. |
| ADC_VREF | 9     | AIN  | 2.5V      | ADC 2.5V VREF input.     |
| AUX_RX   | 10    | DIN  | 3.3V      | Reserved for future use. |
| AN0      | 11    | AIN  | 3.3V      | Analog Input 0           |
| DIO0     | 12    | DIO  | 3.3V      | Digital Input/Output 0   |
| AN1      | 13    | AIN  | 3.3V      | Analog Input 1           |
| DIO1     | 14    | DIO  | 3.3V      | Digital Input/Output 1   |
| AN2      | 15    | AIN  | 3.3V      | Analog Input 2           |
| DIO2     | 16    | DIO  | 3.3V      | Digital Input/Output 2   |
| AN3      | 17    | AIN  | 3.3V      | Analog Input 3           |
| DIO3     | 18    | DIO  | 3.3V      | Digital Input/Output 3   |
| AN4      | 19    | AIN  | 3.3V      | Analog Input 4           |
| DIO4     | 20    | DIO  | 3.3V      | Digital Input/Output 4   |
| AN5      | 21    | AIN  | 3.3V      | Analog Input 5           |
| DIO5     | 22    | DIO  | 3.3V      | Digital Input/Output 5   |
| AN6      | 23    | AIN  | 3.3V      | Analog Input 6           |
| DIO6     | 24    | DIO  | 3.3V      | Digital Input/Output 6   |
| AN7      | 25    | AIN  | 3.3V      | Analog Input 7           |
| DIO7     | 26    | DIO  | 3.3V      | Digital Input/Output 7   |

### 13. Manual Change History:

| Date       | Revision | Change                         |
|------------|----------|--------------------------------|
| 03/20/2014 | REV1.0   | Initial version of this manual |
|            |          |                                |
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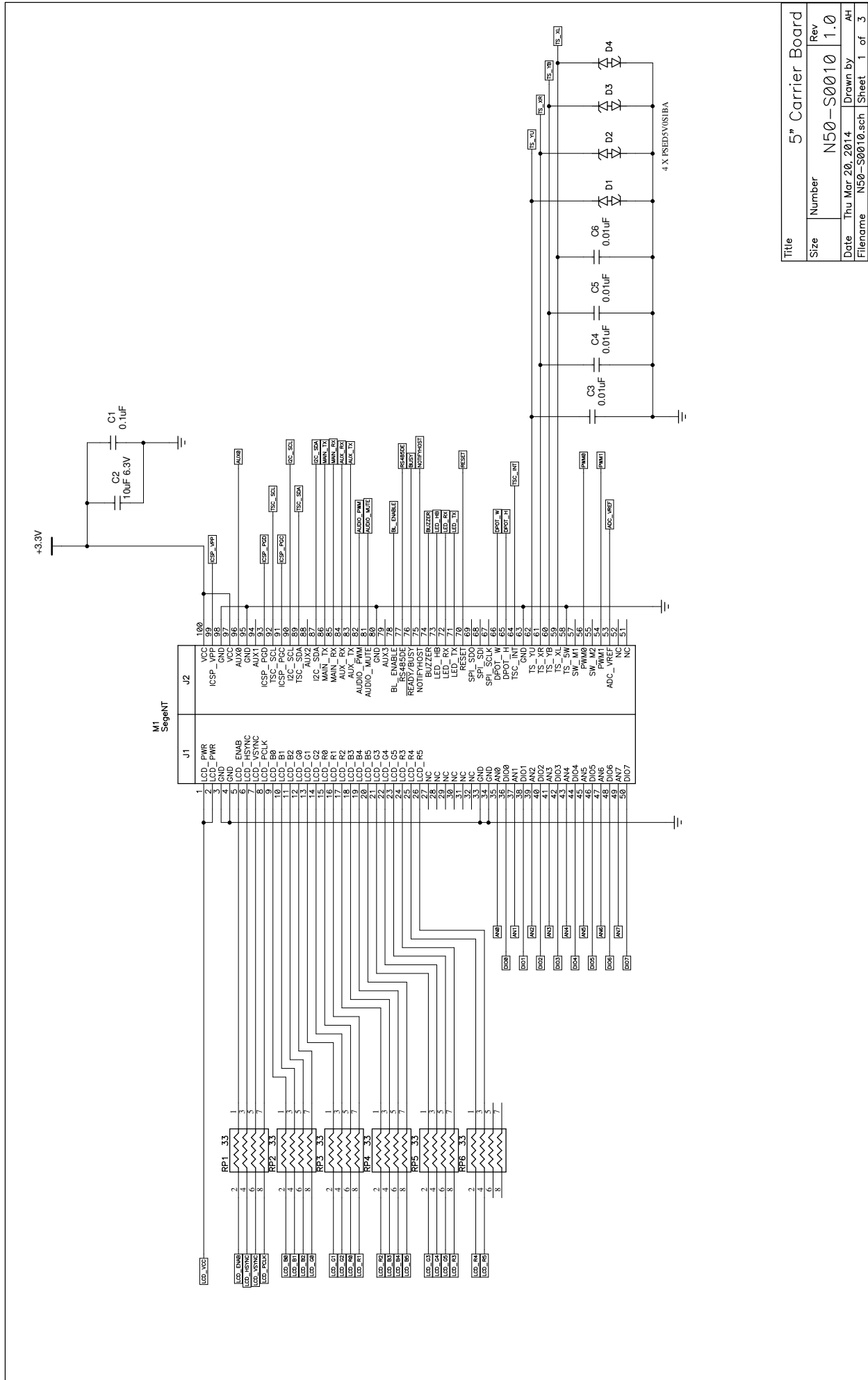
#### Hardware Limited Warranty

Haidar Technology, LLC. Warrants its hardware products to be free from manufacturing defects in materials and workmanship under normal use for a period of one (1) year from the date of purchase from Haidar. This warranty extends to products purchased directly from Haidar or an authorized Haidar distributor. Purchasers should inquire of the distributor regarding the nature and extent of the distributor's warranty, if any. Haidar shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed. This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall Haidar be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. Haidar is not liable for any claim made by a third party or made by the purchaser for a third party. Haidar shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty. Except as expressly set forth in this warranty, Haidar makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supercedes all previous warranties, and covers only the Haidar hardware.

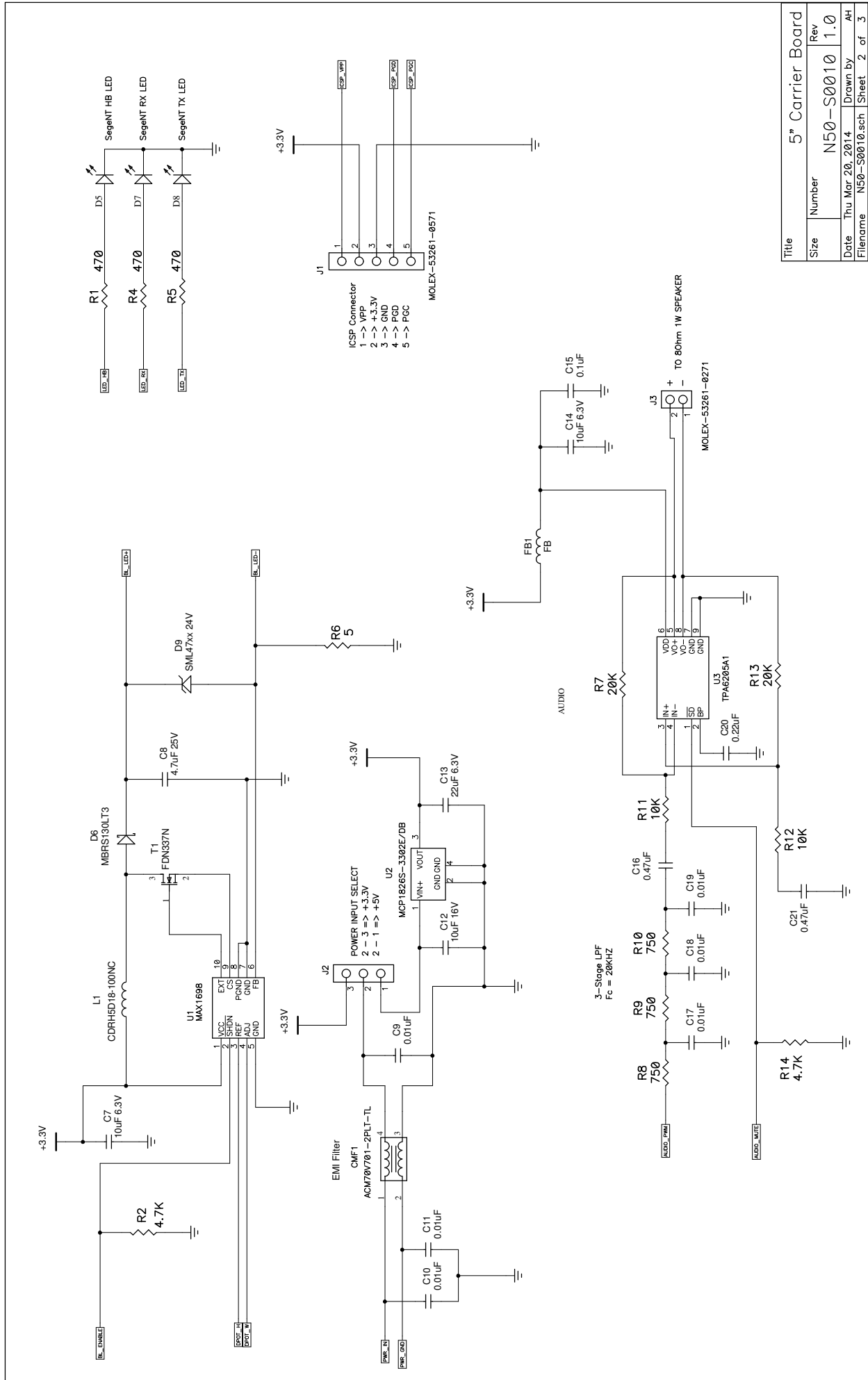
#### Returns and Repair Policy

No merchandise may be returned for credit, exchange, or service without prior authorization from. To obtain warranty service, contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number, and return address. Authorized returns must be shipped freight prepaid to Haidar Technology LLC with the RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. Haidar reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.

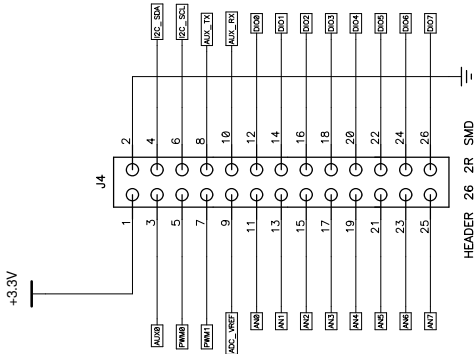
Return freight charges following repair of items under warranty shall be paid by Haidar, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.





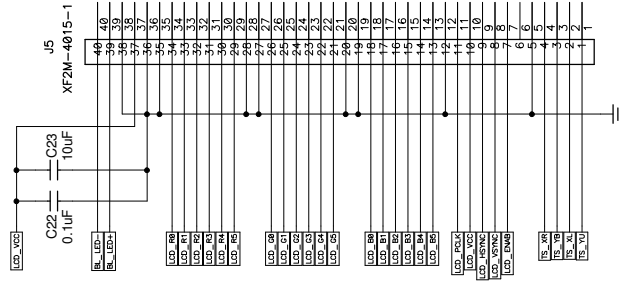


|          |                  |                  |        |
|----------|------------------|------------------|--------|
| Title    |                  | 5" Carrier Board |        |
| Size     | Number           | Rev              | 1.0    |
| Date     | Thu Mar 20, 2014 | Drawn by         | AH     |
| Filename | N50-S0010.sch    | Sheet            | 2 of 3 |

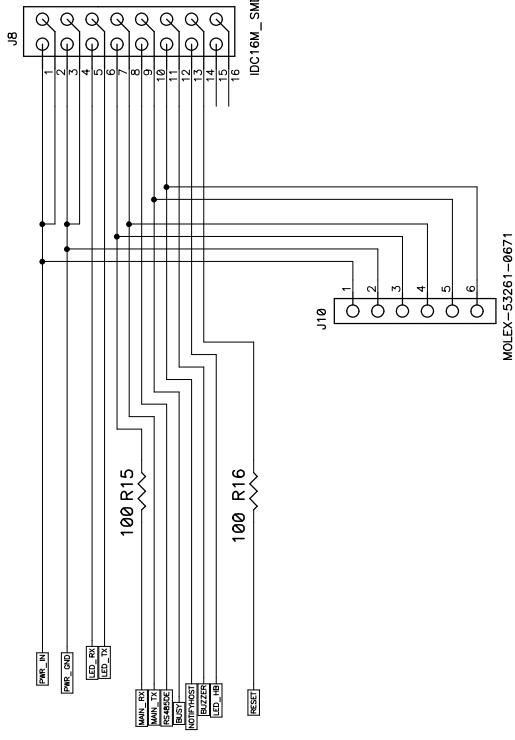


HEADER\_26\_2R\_SMD

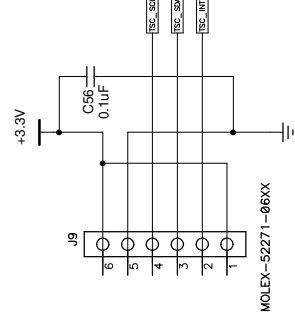
5" WVGA With Resistive TP Or Capacitive TP



J5  
XF2M-4015-1



MOLEX-53261-0671



MOLEX-53271-06XX

|          |                  |                  |        |
|----------|------------------|------------------|--------|
| Title    |                  | 5" Carrier Board |        |
| Size     | Number           | Rev              | 1.0    |
| Date     | Thu Mar 20, 2014 | Drawn by         | AH     |
| Filename | N50-S0010.sch    | Sheet            | 3 of 3 |