

| OLED Interface Board. | |
|------------------------------|------------------------------|
| Part Number: | MCIB-13 |
| Version: | 1 |
| Date: | 26/10/2015 |
| Revision History | |
| Date | Description of change |
| 26/6/2015 | First draft |
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MCIB-13 Interface Board

Overview & Features

The MCIB-13 is a direct Solder on OLED Character Interface Board. This can be used independently or in conjunction with MCIB-12 and UNO32 boards for easy evaluation of TAB OLED character displays.



Figure 1. MCIB-13 Interface Board

Features

- 33 way 0.7mm pitch TAB OLED connector.
- 20 way 1.0mm pitch SHD connector.
- Mechanical dimensions 70 x 35 x 6 mm.
- Can be use with MCIB-12 and UNO32.

Switch selectable:

- Enable/disable internal regulator.
- Select scanning direction for COM signal.
- Select the mapping between the display data column address and the segment driver.
- Set the appropriate character ROM.
- Set the character ROM/RAM management.
- Select the communication protocol.

Pin compatible with the following Midas displays:

- MCOT42005AX
- MCOT22005AX
- MCOT21605AX

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design • manufacture • supply

Connections

| MC1 Connector Pin Number | Symbol | Description |
|--------------------------|------------|---------------------------|
| 1 | N.C. (GND) | Linked to Ground |
| 2 | VSL | Segment voltage reference |
| 3 | VSS | Ground |
| 4 | REGVDD | Internal Regulator |
| 5 | SHLC | COM Signal |
| 6 | SHLS | SEG Signal |
| 7 | VDD | +5V/+3.3V |
| 8 | VDDIO | +5V/+3.3V |
| 9 | BS0 | MCU Interface Selection |
| 10 | BS1 | MCU Interface Selection |
| 11 | BS2 | MCU Interface Selection |
| 12 | GPIO | General Purpose I/O |
| 13 | #CS | Chip Select |
| 14 | RES# | Power Reset |
| 15 | D/C# | Data/Command Control |
| 16 | R/W#(WR#) | R/W Selector or Write |
| 17 | E(RD#) | R/W Enable or Read |
| 18 | D0 | Data 0 |
| 19 | D1 | Data 1 |
| 20 | D2 | Data 2 |
| 21 | D3 | Data 3 |
| 22 | D4 | Data 4 |
| 23 | D5 | Data 5 |
| 24 | D6 | Data 6 |
| 25 | D7 | Data 7 |
| 26 | IREF | Current Reference |
| 27 | ROM0 | ROM Selection |
| 28 | ROM1 | ROM Selection |
| 29 | OPR0 | ROM/RAM Management |
| 30 | OPR1 | ROM/RAM Management |
| 31 | VCOMH | Voltage Output |
| 32 | VCC | +12V |
| 33 | N.C. (GND) | Linked to Ground |

Table 2. MC1 Connector

| J1 (BM20B-SRDS-G-TF Connector) Pin Number | Symbol | Description |
|--|-----------|-----------------------|
| 1 | VCC | +12V |
| 2 | VDD | +3.3V |
| 3 | GND | 0V |
| 4 | 5V | +5V |
| 5 | GND | 0V |
| 6 | #CS | Chip Select |
| 7 | E(RD#) | R/W Enable or Read |
| 8 | R/W#(WR#) | R/W Selector or Write |
| 9 | D/C# | Data/Command Control |
| 10 | D0 | Data 0 |
| 11 | D1 | Data 1 |
| 12 | D2 | Data 2 |
| 13 | D3 | Data 3 |
| 14 | D4 | Data 4 |
| 15 | D5 | Data 5 |
| 16 | D6 | Data 6 |
| 17 | D7 | Data 7 |
| 18 | RES# | Power Reset |
| 19 | DISP | Display On |
| 20 | GPIO | General Purpose I/O |

Table 3. SHD Connector

Configuration

| Switch Selectable | Symbol | Description |
|-------------------|--------|-----------------------------------|
| 1 | REGVDD | Internal Regulator (Table 4) |
| 2 | SHLC | COM Signal (Table 5) |
| 3 | SHLS | SEG Signal (Table 6) |
| 4 | BS0 | MCU Interface Selection (Table 7) |
| 5 | BS1 | MCU Interface Selection (Table 7) |
| 6 | BS2 | MCU Interface Selection (Table 7) |
| 7 | ROM0 | ROM Selection (Table 8) |
| 8 | ROM1 | ROM Selection (Table 8) |
| 9 | OPR0 | ROM/RAM Management (Table 9) |
| 10 | OPR1 | ROM/RAM Management (Table 9) |

| Internal Regulator | Description |
|--------------------|--------------------|
| 0 | Regulator disabled |
| 1 | Regulator Enabled |

Table 4. Internal Regulator

| SHLC | Description |
|------|----------------------------|
| 0 | Normal Scanning Direction |
| 1 | Reverse Scanning Direction |

Table 5. COM Signal

| SHLS | Description |
|------|---------------------------|
| 0 | Normal Mapping Direction |
| 1 | Reverse Mapping Direction |

Table 6. SEG Signal

| MCU Interface Selection | BS0 | BS1 | BS2 |
|-------------------------|-----|-----|-----|
| I2C | 0 | 1 | 0 |
| Serial | 0 | 0 | 0 |
| 4-bit 68XX Parallel | 1 | 0 | 1 |
| 4-bit 80XX Parallel | 1 | 1 | 1 |
| 8-bit 68XX Parallel | 0 | 0 | 1 |
| 8-bit 68XX Parallel | 0 | 1 | 1 |

Table 7. MCU Interface Selection

| ROM Selection | ROM0 | ROM1 |
|---------------------|------|------|
| ROM A | 0 | 0 |
| ROM B | 1 | 0 |
| ROM C | 0 | 1 |
| Software Selectable | 1 | 1 |

Table 8. ROM Selection

| ROM/RAM Management | | OPR0 | OPR1 |
|--------------------|----------|------|------|
| 240 (CGROM) | 8(CGRAM) | 0 | 0 |
| 248(CGROM) | 8(CGRAM) | 1 | 0 |
| 250(CGROM) | 6(CGRAM) | 0 | 1 |
| 256(CGROM) | 0(CGRAM) | 1 | 1 |

Table 9. ROM/RAM Management

Links

Solder links are provided on the PCB to enable various unused connections to be tied low.

| Bus interface | Data/Command Interface | | | | | | | | Control Signal | | | | |
|------------------|------------------------|----|----|----|--------------------|-------|-----|---------|----------------|------|-----|---------|------|
| | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 | E | R/W# | CS# | D/C# | RES# |
| 4-bit 6800 | D [7 : 4] | | | | Tie LOW | | | | E | R/W# | CS# | D/C# | RES# |
| 4-bit 8080 | D [7 : 4] | | | | Tie LOW | | | | RD# | R/W# | CS# | D/C# | RES# |
| 8-bit 6800 | D [7 : 0] | | | | | | | | E | R/W# | CS# | D/C# | RES# |
| 8-bit 8080 | D [7 : 0] | | | | | | | | RD# | R/W# | CS# | D/C# | RES# |
| Serial Interface | Tie LOW | | | | SOD | SID | SCL | Tie LOW | | | CS# | Tie LOW | RES# |
| I2C | Tie LOW | | | | SDA _{OUT} | SDAIN | SCL | Tie LOW | | | SA0 | RES# | |

Table 10. Interface

| Characteristics | Conditions | LK1 | LK2 |
|-----------------|-----------------------------|----------|----------|
| Supply voltage | Low Voltage I/O Application | Shortcut | Open |
| Supply voltage | 5V I/O Application | Open | Shortcut |

Table 11. Power Supply

Electrical specifications

| Absolute Maximum Ratings | | |
|-------------------------------------|-----------|----|
| Operating Temperature | -40 to 85 | °C |
| Storage Temperature | -40 to 90 | °C |
| Supply Voltage for Logic (VDD) | -0.3 to 6 | V |
| Supply Voltage for I/O Pins (VDDIO) | -0.3 to 6 | V |
| Supply Voltage for Display (VCC) | 0 to 15 | V |

Table 12. Absolute Maximum ratings

| Typical Electrical Characteristics | | | | | | |
|------------------------------------|--------|-----------------------------|------|------|-------|------|
| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
| Supply Voltage for Logic | VDD | Low Voltage I/O Application | 2.4 | 2.8 | VDDIO | V |
| Supply Voltage for I/O Pins | VDDIO | Low Voltage I/O Application | 2.4 | 2.8 | 3.6 | V |
| Supply Voltage for Logic | VDD | 5V I/O Application | - | - | - | V |
| Supply Voltage for I/O Pins | VDDIO | 5V I/O Application | 4.4 | 5.0 | 5.5 | V |
| Supply for Display | VCC | - | 11.5 | 12.0 | 12.5 | V |

Table 12. Typical Electrical Characteristics

Example

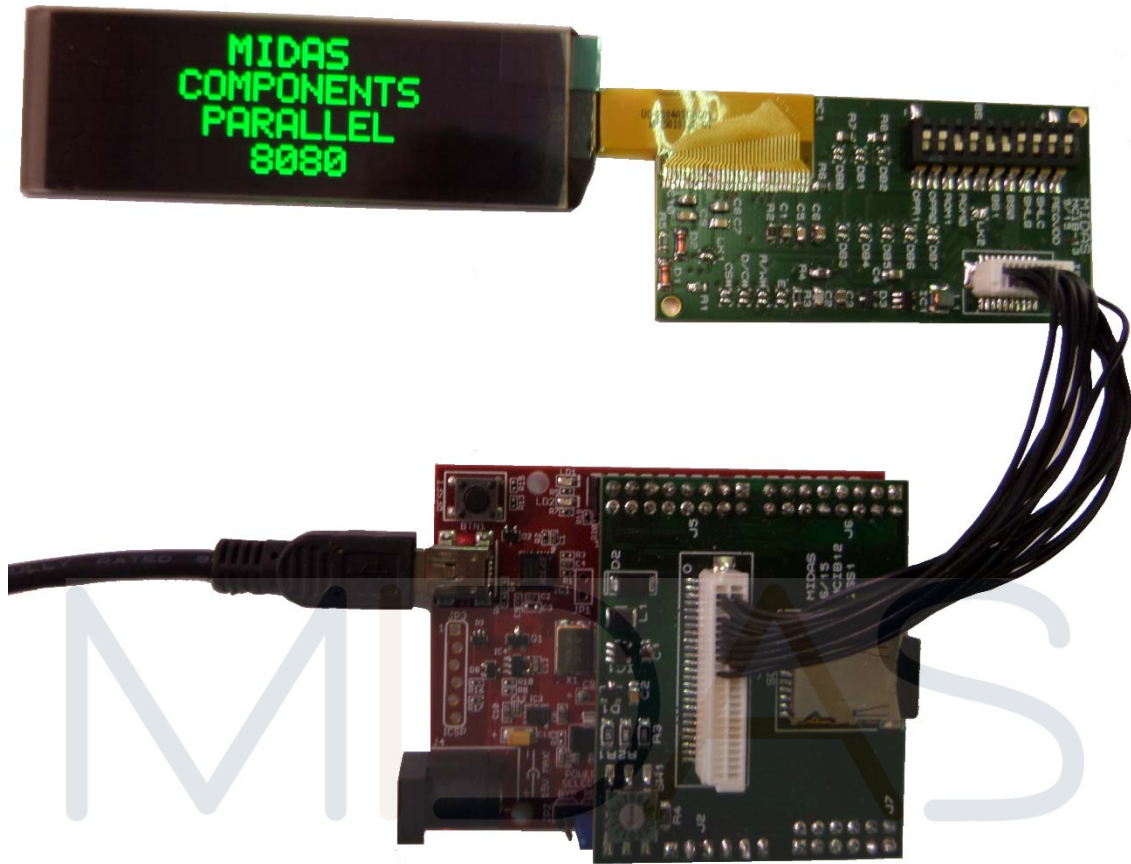


Figure 2. MCIB-13 with UNO32 and MCIB-12 8-Bit Parallel Mode

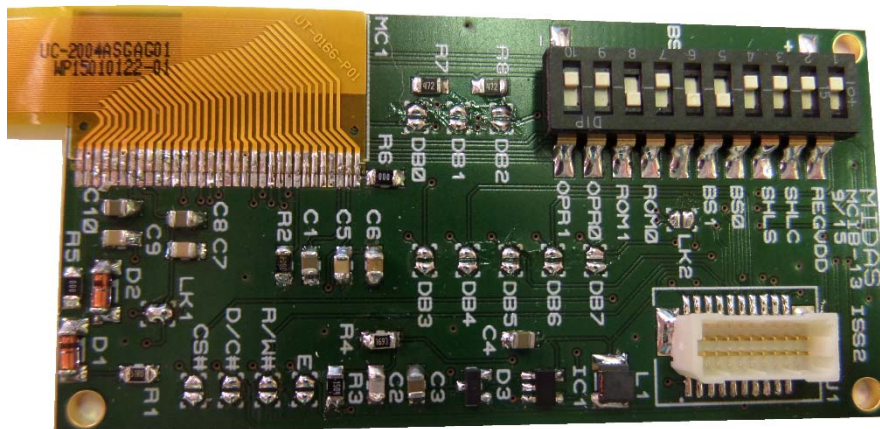


Figure 3. Close up of MCIB-13 Board's Links and Switch Positions.

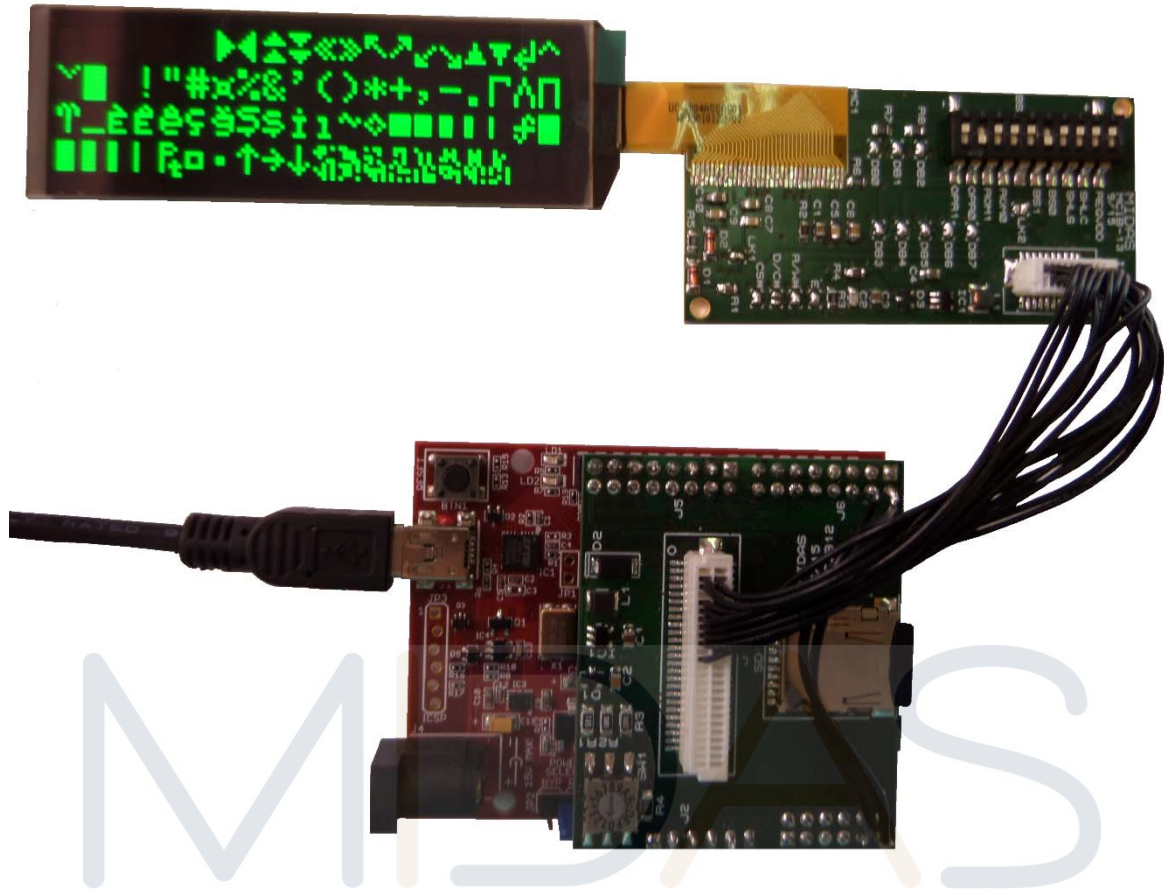


Figure 4. MCIB-13 with UNO32 and MCIB-12 I2C Interface

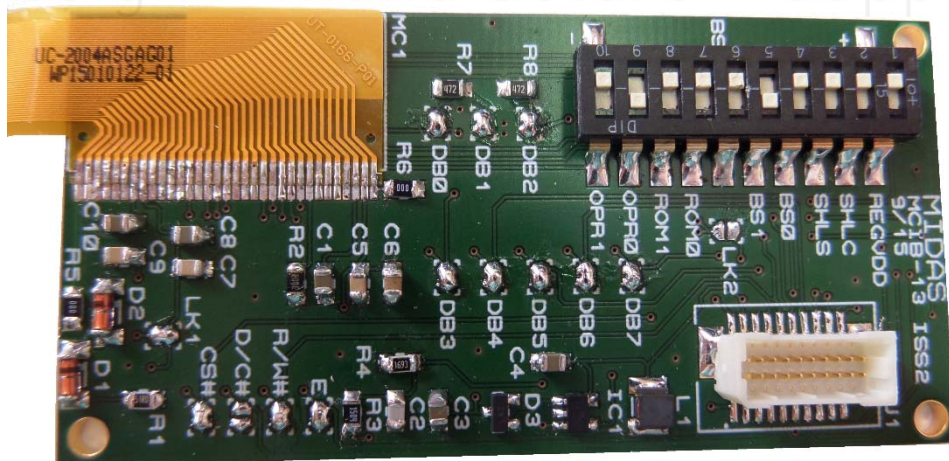
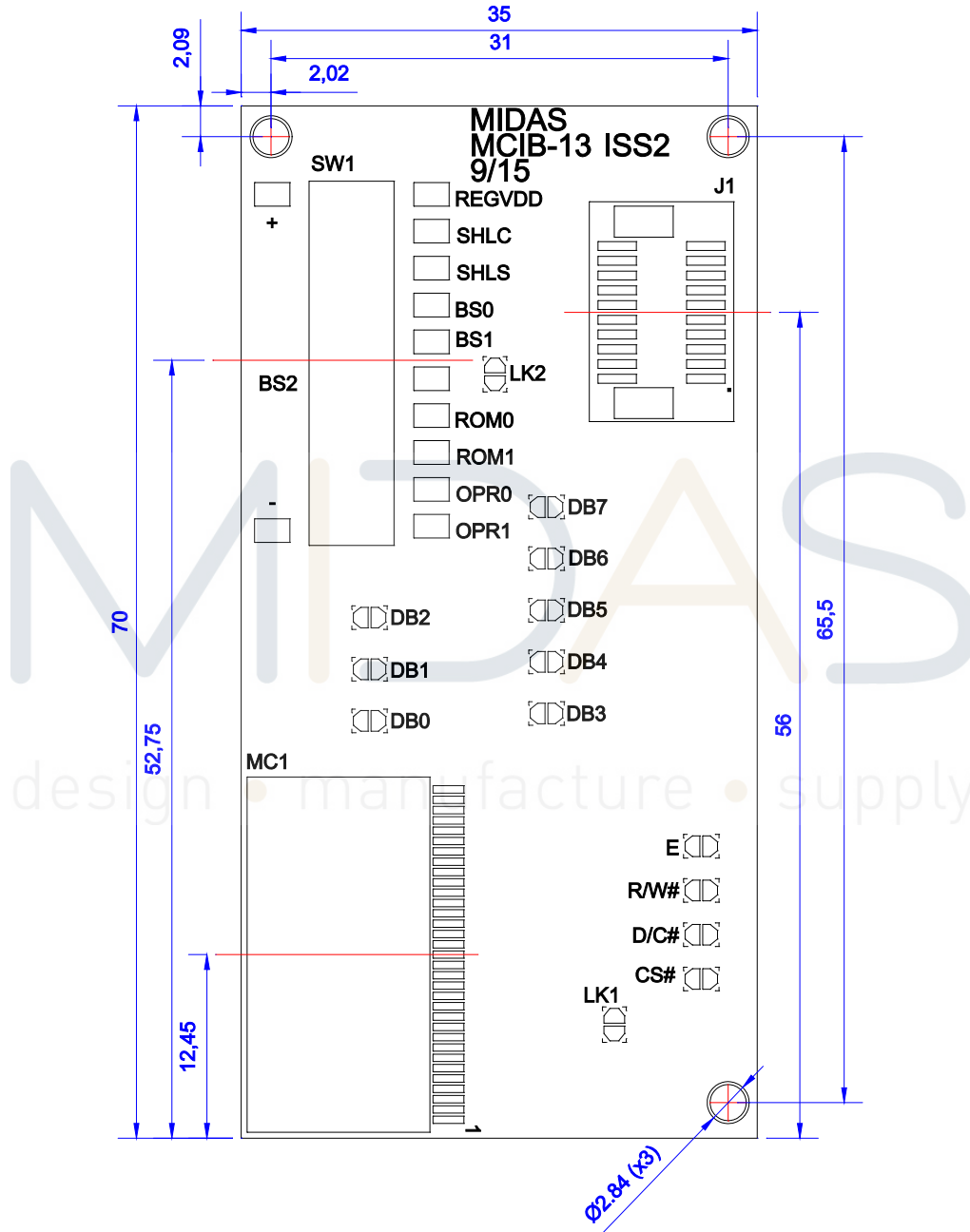


Figure 5. Close up of MCIB-13 Board's Links and Switch Positions.

Mechanical Drawing



*Note all measurements are in mm unless stated otherwise.

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