MDK User Guide: Perforated Board

Part number: SJYN1624A

Electrical Details

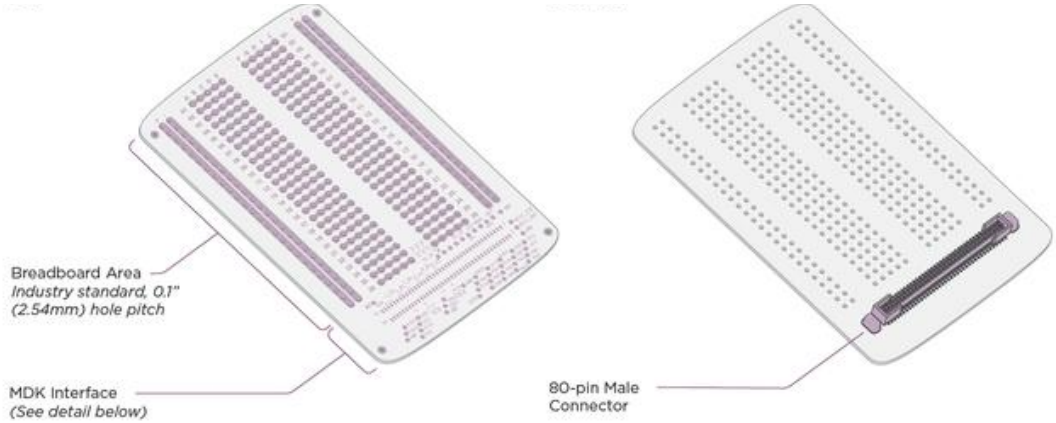
Overview

The Perforated Board is the primary vehicle for starting development of your Moto Mods Development Kit project.

The bottom side contains the mating connector to attach the Perforated Board to the Reference Moto Mod.

The top side consists of 3 distinct areas:

- Breadboard Area: place and connect hardware components needed to realize your project here.
- MDK Interface (80-pin connector breakout): all connector signals are accessible to probe with test equipment or attach to your project's hardware.
- MDK Interface (Test Points): easy access to signals you're likely to use most often during development of your project, clearly marked with silkscreen.

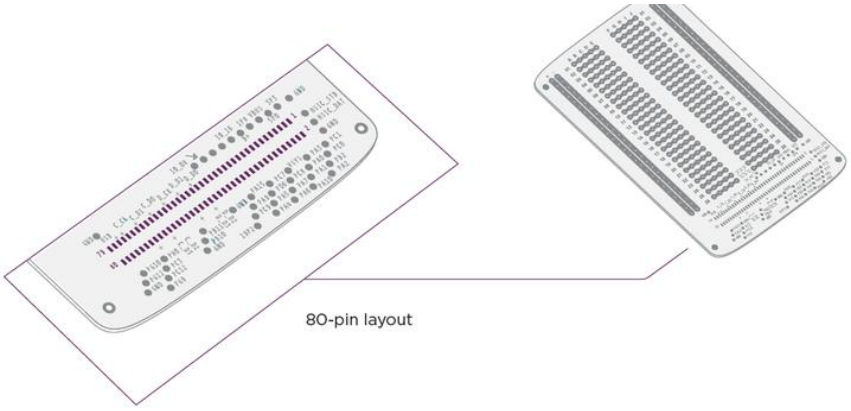


Breadboard Area

The breadboard area contains an arrangement of gold-plated holes to simplify installation and connection of your project's hardware. In each row, holes a-e are electrically connected, and holes f-j are electrically connected. At the left and right edges of the breadboard area each column (two on each edge, marked with + and -) is electrically connected to provide convenient attachment and connection for power and ground rails used in your design - of course you can use the columns for other purposes, but supply rails are the most common application.

MDK Interface (80-pin connector breakout)

All interfaces to the Reference Moto Mod are accessible here. High speed interfaces such as DSI, CSI and USB2.0/MyDP are available only in the breakout area. The pitch of the gold plated pads is 1 mm.



Test Pattern:

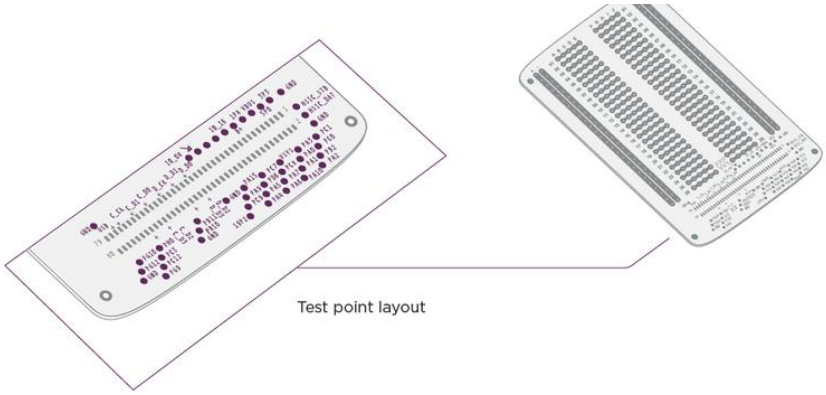
Key		Connection	Pin		Connection
DC Power source		3PC	1	2	PC1
Ground		HSIC_STB	3	4	PC0
Analog input/GPIO		HSIC_DAT	5	6	PB2
Display Tearing Effect		GND	7	8	PA2
Interrupt input/GPIO		5P0	9	10	PA3
		VBUS	11	12	PA0
		1P8	13	14	PA1
		GND	15	16	PA10
		VSYS	17	18	PC8
		B+	19	20	PA7
		GND	21	22	PA6
		PC7	23	24	PD6
		I2S_BCLK	25	26	PA5
		I2S_LRCLK	27	28	PA4
		I2S_SDI	29	30	PA15

Key		Connection	Pin		Connection
		I2S_SDO	31	32	PA9
		PC9	33	34	GND
		TE	35	36	19.2MHZ CLK
		GND	37	38	GND
		DSI_D0-	39	40	DSI_D2-
		DSI_D0+	41	42	DSI_D2+
		GND	43	44	GND
		DSI_D1-	45	46	DSI_D3-
		DSI_D1+	47	48	DSI_D3+
		GND	49	50	GND
		DSI_CLK-	51	52	PB11
		DSI_CLK+	53	54	PB10
		GND	55	56	GND
		CSI_D0-	57	58	CSI_D2-
		CSI_D0+	59	60	CSI_D2+
		GND	61	62	GND
		CSI_D1-	63	64	CSI_D3-
		CSI_D1+	65	66	CSI_D3+
		GND	67	68	GND
		CSI_CLK-	69	70	PH0

Key		Connection	Pin		Connection
		CSI_CLK+	71	72	PC3
		GND	73	74	PC12
		USB+	75	76	PG9
		USB-	77	78	PG10
		GND	79	80	PG12

MDK Interface (Test Points)

The test points are 1 mm diameter gold plated surrounding the breakout area pads. A full list of the test points is provided in the table below. Silkscreen identifies the signal name at each test point.



Test Point Mappings:

Pin	Test Point	Reference Moto Mod signal
1	3V3	Regulated 3.3 VDC
2	PC1	I2C_SDA
3	HSIC_STROBE	HSIC_STROBE
4	PC0	I2C_SCL
5	HSIC_DATA	HSIC_DATA

Pin	Test Point	Reference Moto Mod signal
6	PB2	GCCLK
8	PA2	UART_TX
9	5V0	Regulated 5.0 VDC
10	PA3	UART_RX
11	VBUS	SL_VBUS
12	PA0	UART_CTS
13	1V8	Regulated 1.8 VDC
14	PA1	UART_RTS
16	PA10	PA10
17	VSYS	VSYS_PCARD
18	PC8	PC8
19	BPLUS	MOD_B+
20	PA7	SPI_MOSI
22	PA6	SPI_MISO
23	PC7	PC7
24	PD6	PD6
25	GPIO16	I2S_BCLK
26	PA5	SPI_CLK
27	GPIO17	I2S_LRCLK
28	PA4	SPI_CS0_N

Pin	Test Point	Reference Moto Mod signal
29	GPIO20	I2S_SDI
30	PA15	SPI_CS1_N
31	GPIO19	I2S_SDO
32	PA9	PA9
33	PC9	PC9
35	GPIO8	TE
36	19.2MHZ	19.2 MHz Clock
52	PB11	Secondary I2C_SDA
54	PB10	Secondary I2C_SCL
70	PH0	PH0
72	PC3	PC3 (Analog input)
74	PC12	PC12
76	PG9	PG9
78	PG10	PG10
80	PG12	PG12

Note: To minimize impact to signal integrity, high-speed signals are not present at test points.

Mechanical Details

General Dimensions

- Pitch 2.54 mm
- 26 rows
- Power bus pins on the sides

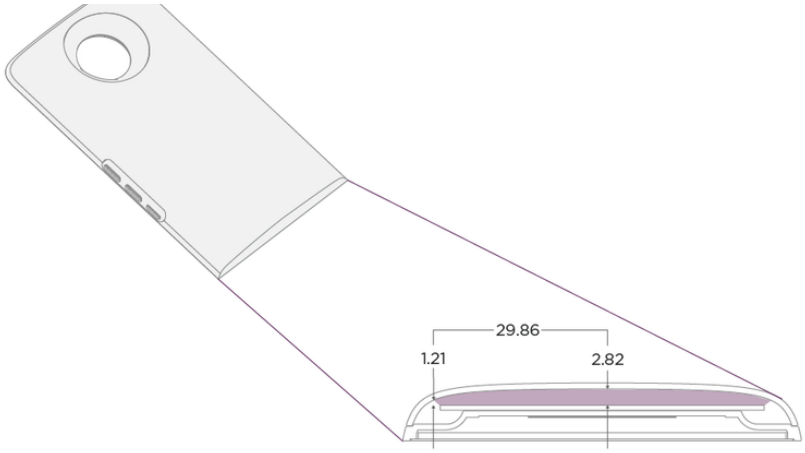
- First surface soldering

Allowable Component Height Overview with Included Cover

When using the in box cover, the height of any items added on top of the perforated board must not exceed 2.3 mm. Also ensure the height of all items on the board's bottom side are less than 1.3mm Max Component Height.

Impact of exceeding limits on top side of board

If you are using components that exceed these limits, you'll either need to dremel a hole in the cover, create your own cover, or not use a cover.



Impact of exceeding limits on bottom side of board

Exceeding these limits may result in damage to the Perforated Board, its added components, and yo ur Reference Moto Mod. If the assembly does not fit together properly, circuits on the Perforated Board may work intermittently or completely fail to function.