



MARSON MT684 2D Scan Engine User Guide

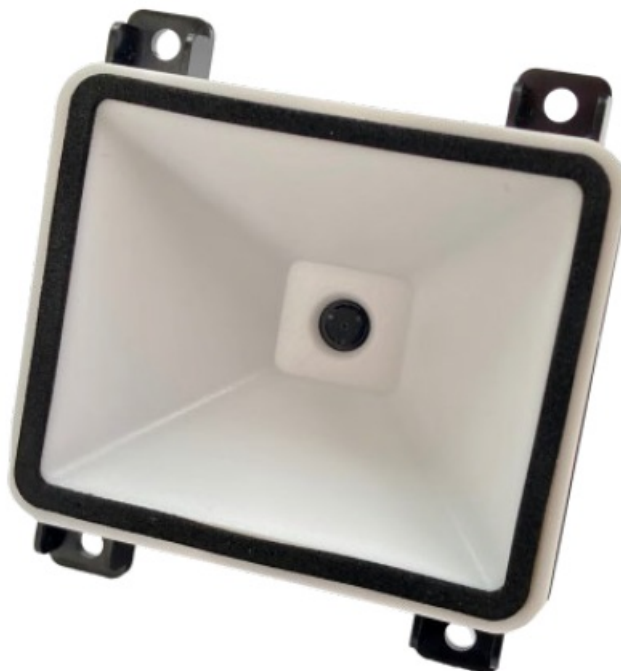
[Home](#) » [MARSON](#) » MARSON MT684 2D Scan Engine User Guide 

Contents

- [1 MARSON MT684 2D Scan Engine](#)
- [2 SPECIFICATIONS](#)
- [3 MECHANICAL DIMENSIONS](#)
- [4 ELECTRIC INTERFACE](#)
- [5 Reference Circuit Design](#)
- [6 OPERATIONAL TIMING](#)
- [7 VERSION HISTORY](#)
- [8 Documents / Resources](#)
 - [8.1 References](#)
- [9 Related Posts](#)

MARSON

MARSON MT684 2D Scan Engine



SPECIFICATIONS

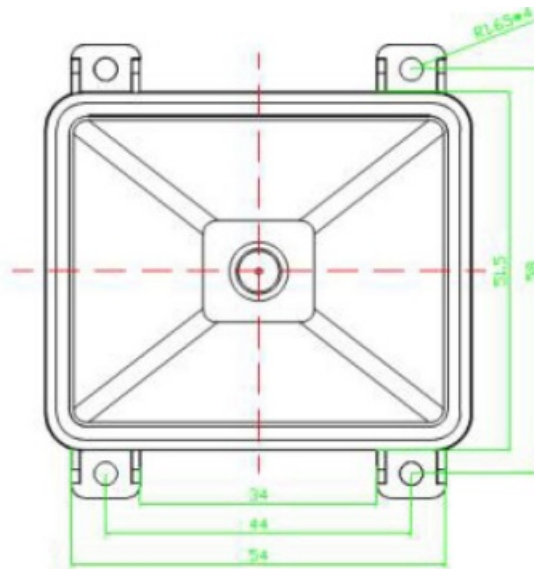
Light Source	white LED
Sensor	640 x 480 pixels
Resolution	5mil/ 0.125mm (1D barcode) 10mil/ 0.25mm (2D barcode)
Field of View	Horizontal 68° Vertical 50°
Scan Angle	Pitch Angle $\pm 60^\circ$ Skew Angle $\pm 60^\circ$ Roll Angle 360°
Print Contrast Ratio	25%
Typical Depth of Field	UPC/EAN 13Mil: 8 ~ 181mm Code 128 15Mil: 5 ~ 143mm QR Code 15Mil: 2 ~ 119mm
Dimension	W61.5 x L65 x H30.7 mm
Connector	Micro USB Port 12 pin ZIF (pitch=0.5mm) 9pin Wafer (pitch=1.0mm)

Operation Voltage	3.3VDC \pm 5% 5V (USB)
Working Current	< 120 mA
Interface	UART TTL USB HID USB VCP
Operating Temperature	-20°C ~ 60°C
Storage Temperature	-40°C ~ 70°C
Humidity	5% ~ 95%RH (Non-condensing)
Drop Durability	1.2M
Ambient Light	100,000 Lux (Sunlight)
1D Symbolologies	UPC-A/ UPC-E EAN-8/ EAN-13 Code 128 Code 39 Codabar Interleaved 2 of 5

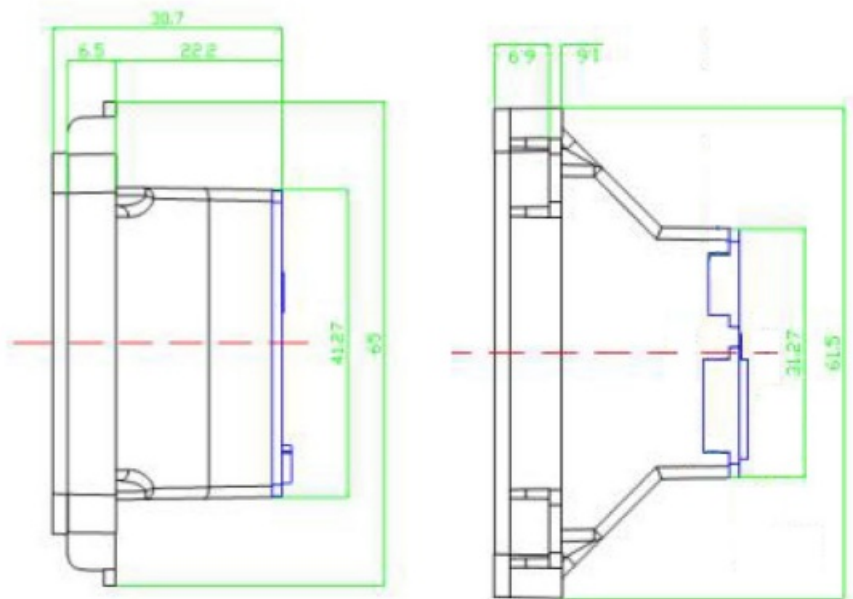
	Industrial 2 of 5 Matrix 2 of 5 Code 11 MSI Plessey GS1 Databar
2D Symbolologies	QR Code PDF417 Data Matrix
ESD	Functional after 4KV contact, 8KV air discharge (requires housing that is designed for ESD protection and stray from electric fields)
Environmental	WEEE, RoHS 2.0

MECHANICAL DIMENSIONS

(Unit = mm)

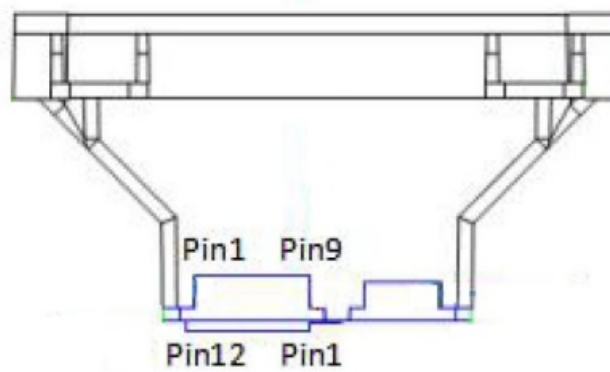


Front view



Side view

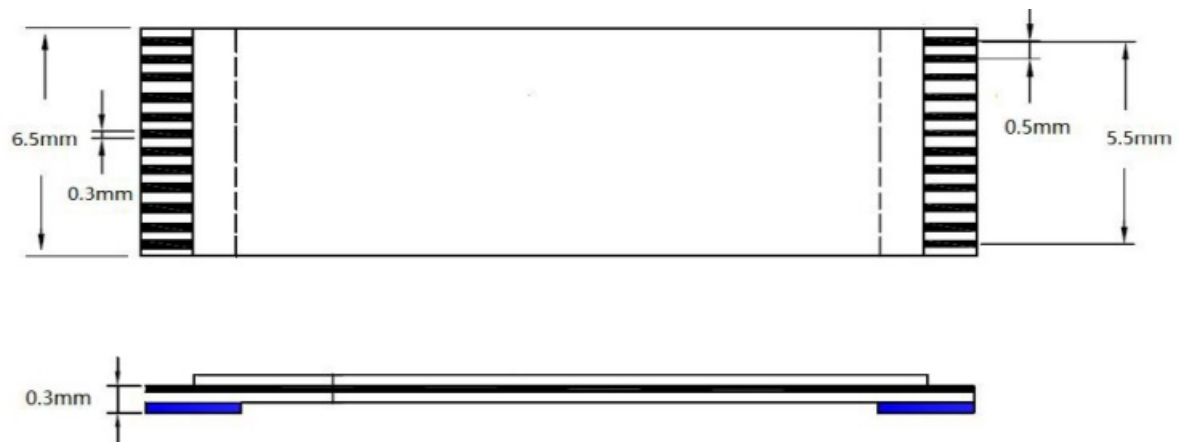
ELECTRIC INTERFACE



3-1. 12-pin ZIF Connector (Pitch 0.5mm, bottom contact)

Pin#	Signal	Description	I/O
1	NC	–	–
2	VCC	3.3V power supply	–
3	GND	Ground	–
4	RXD	TTL receive	I
5	TXD	TTL send	O
6	DN	USB D-	I
7	DP	USB D+	I
8	NC	–	–
9	BEEP	Good read buzzer indicator	O
10	DLED	Good read LED indicator	O
11	NC	–	–
12	TRIG	Trigger Input	I

Below is the drawing of FFC cable that connects to ZIF connector.

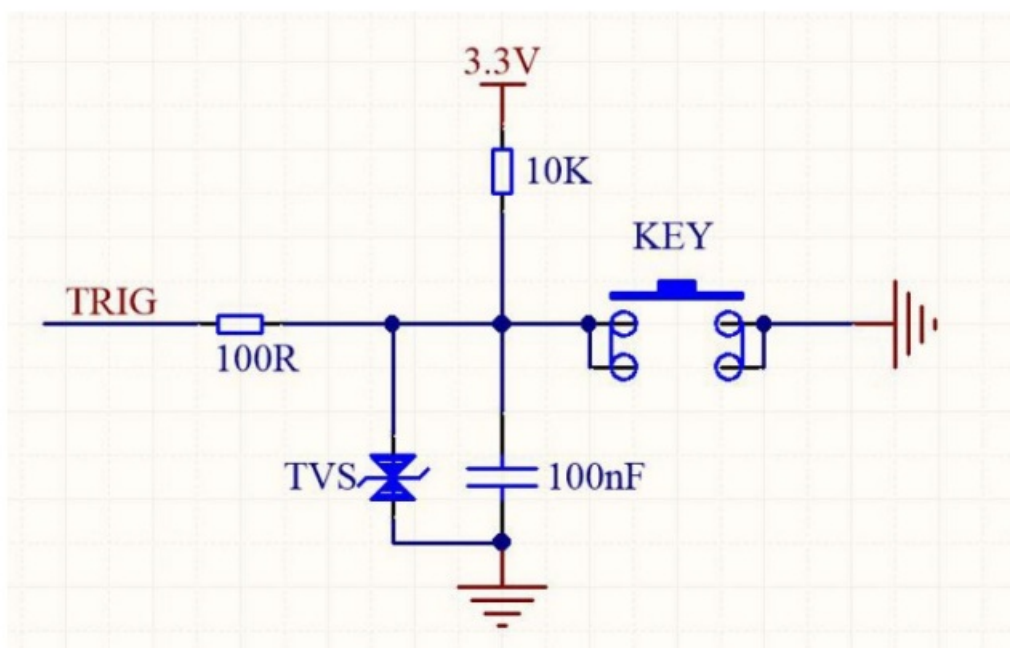


3-2. 9-pin Wafer Connector (Pitch 1.0mm)

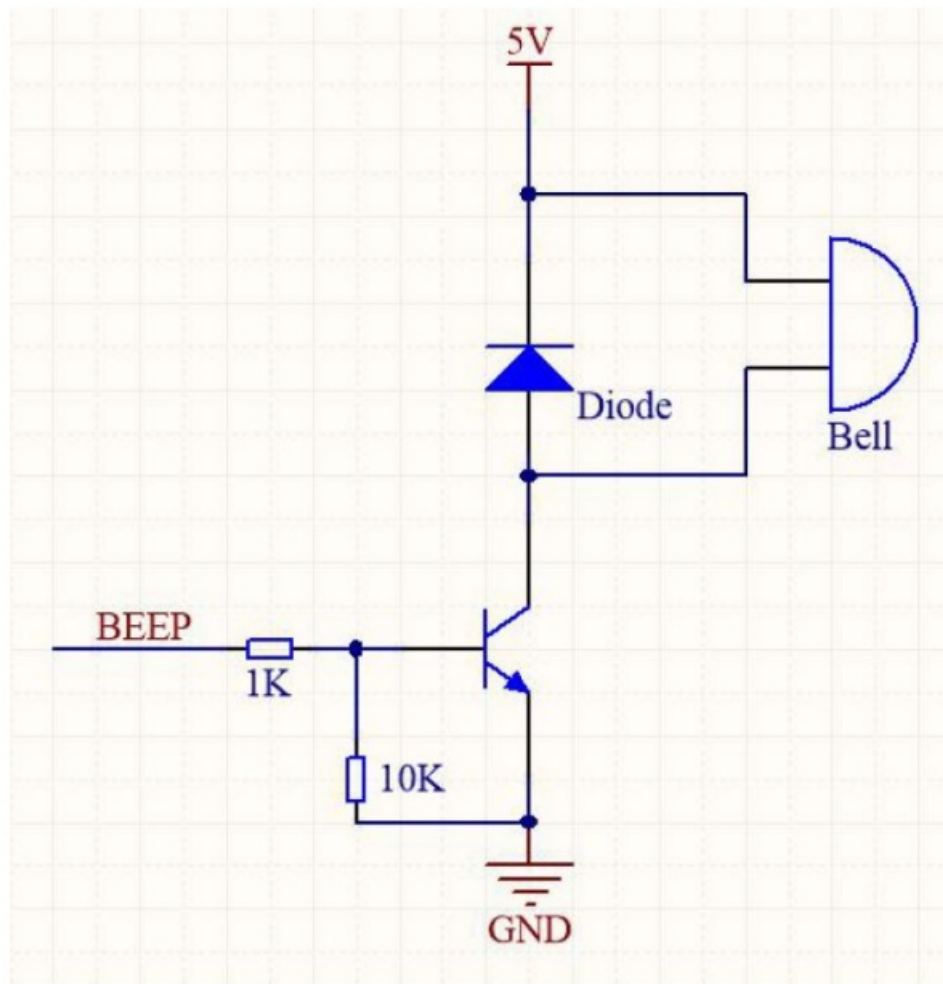
Pin#	Signal	Description	I/O
1	TRIG	Trigger Input	I
2	DLED	Good read LED indicator	O
3	BEEP	Good read buzzer indicator	O
4	DP	USB D+	I
5	DN	USB D-	I
6	TXD	TTL send	O
7	RXD	TTL receive	I
8	GND	Ground	–
9	VCC	3.3V power supply	–

Reference Circuit Design

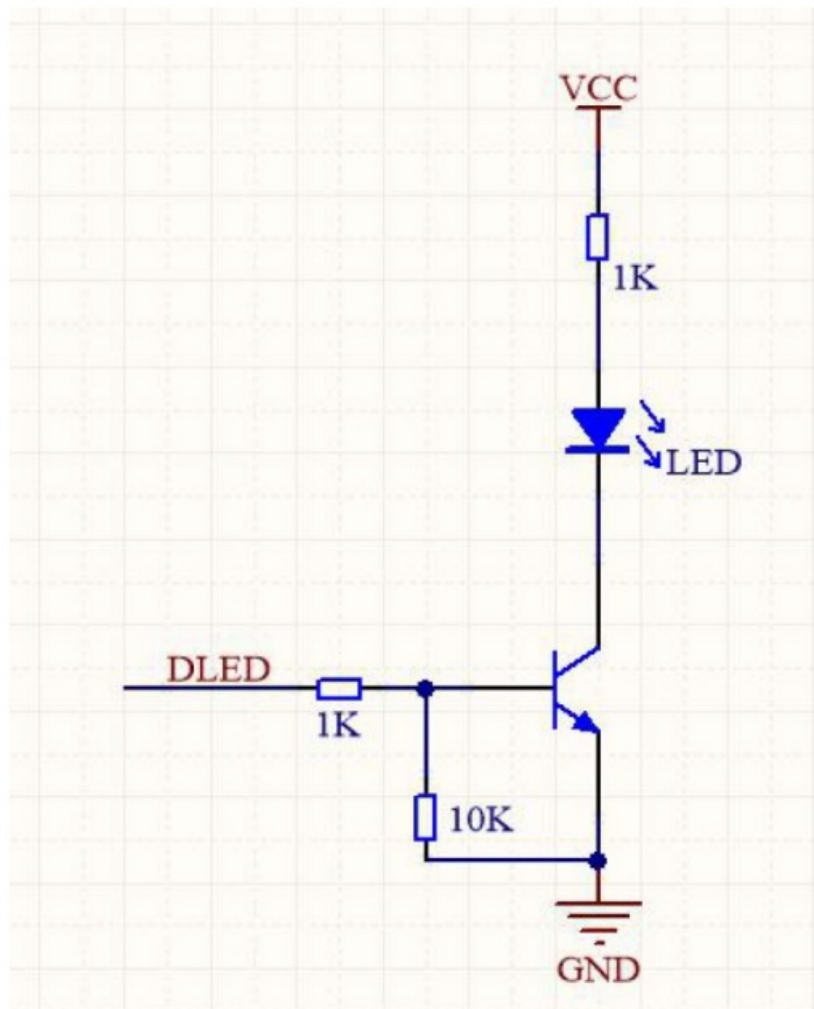
Reference design for external trigger (TRIG) driver circuit



Reference design for external buzzer (BEEP) driver circuit



Reference design for external LED (DLED) driver circuit



After a barcode is successfully read, both BEEP and DLED pin will send a high-level pulse.

OPERATIONAL TIMING

Power Up

When power is initially applied, the MT684 is activated and begins the process of initialization. Once initialization (duration $\geq 1000\text{ms}$) is completed, the MT684 emits power-up beeps, enters **Standby Mode** and is ready for barcode scanning.

Decode Timing

By default MT684 is in Continuous Mode, in which it takes at least 80ms for MT684 to complete a scanning operation (decode + data output + buzzer signal). When MT684 is configured in Trigger Mode, the Trigger signal must be kept low for at least 20ms to activate scanning. Therefore in Trigger Mode it takes at least 100ms for MT684 to complete a scanning operation (trigger signal + decode + data output + buzzer signal).

Summary of Operational Timings

- The minimum duration of initialization is 1000ms.
- In Continuous Mode (default), the minimum duration of scanning operation is 80ms.
- In Trigger Mode, the minimum duration of valid Trigger signal is 20ms and minimum duration of scanning operation is 100ms

VERSION HISTORY

Rev.	Date	Description	Issued
0.1	2021.09.07	Preliminary Draft Release	Shaw
0.2	2021.09.22	Added Vertical Field of View Angle & Scan Rate	Shaw
0.3	2021.10.15	Updated Specifications Added Operational Timing	Shaw
0.4	2022.05.09	Updated Specifications	Shaw
0.5	2022.09.07	Removed Scan Rate	Shaw

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Documents / Resources

	<p>MARSON MT684 2D Scan Engine [pdf] User Guide MT684, 2D Scan Engine, MT684 2D Scan Engine</p>
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References

- [Barcode Scanner | Scan Engines | RFID Reader | Custom Manufacturer AIDC solution - Marson](#)