

MT688K

2D Scan Engine

Integration Guide



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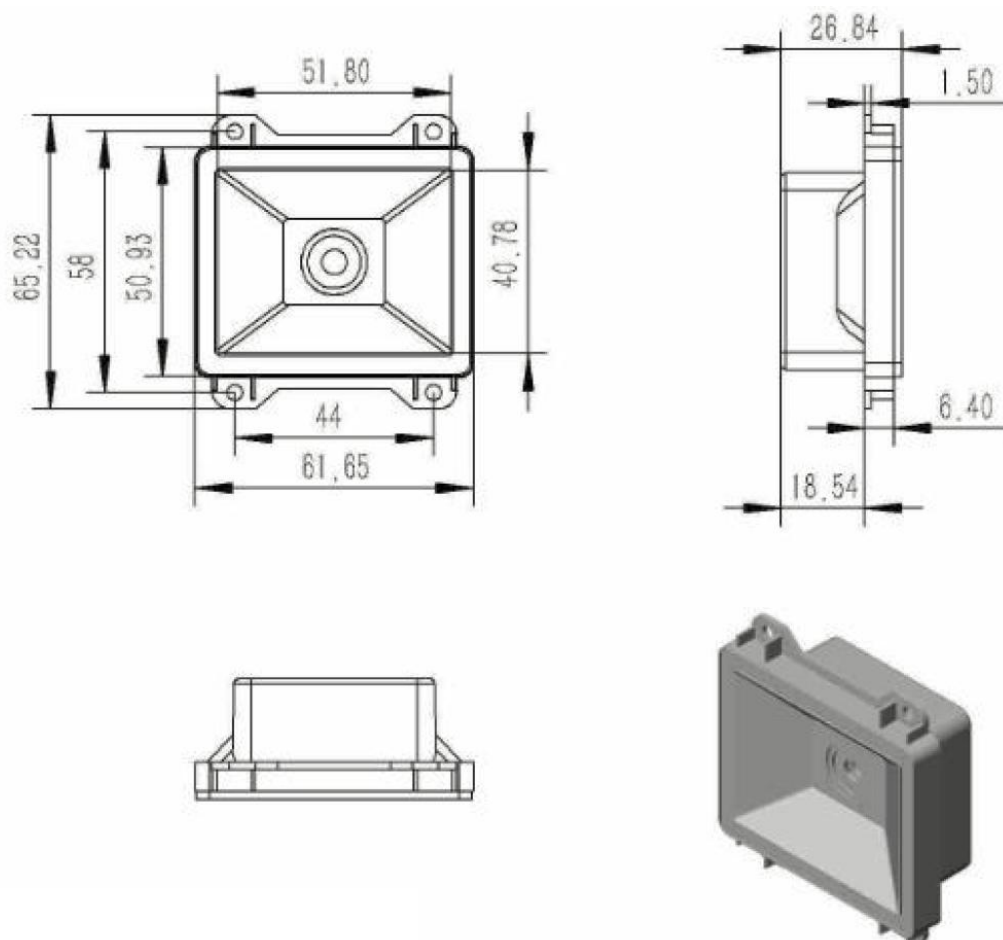
1. SPECIFICATIONS

Light Source	White LED
Sensor	1280 x 800 pixels
Scan Rate	100 Frames / Sec
Resolution	3mil/ 0.075mm (Code 39) 5mil/ 0.125mm (Data Matrix) 6.7mil/ 0.1675mm (QR Code)
Field of View	Horizontal 75° Vertical 60.2°
Scan Angle	Pitch Angle $\pm 80^\circ$ Skew Angle $\pm 80^\circ$ Roll Angle 360°
Print Contrast Ratio	10%
Typical Depth of Field	Code 39 5Mil: 57 ~ 162mm UPC/EAN 13Mil: 26 ~ 306mm Data Matrix 10Mil: 67 ~ 143mm QR Code 15Mil: 33 ~ 201mm
Dimension	65.2 x 61.7 x 26.8mm
Weight	45g
Connector	9pin Wafer (pitch=1.0mm) 12pin ZIF (pitch=0.5mm) Micro USB Port
Operation Voltage	3.2 ~ 5.5VDC
Working Current	< 350 mA @3.3V
Interface	UART TTL RS232 USB HID USB VCP
Operating Temperature	-40°C ~ 70°C
Storage Temperature	-40°C ~ 70°C
Humidity	5% ~ 95%RH (Non-condensing)
Ambient Light	100,000 Lux (Sunlight)
1D Symbolologies	Code128, Code39, Code 39 Full ASCII, Code 32, Code93, UPC-A, UPC-E, UPC-E1, UPC-E0, EAN-8, EAN-13, Bookland EAN/ISBN,

	Interleaved 2 of 5, Matrix 2 of 5, Industrial 2 of 5, Chinese 2 of 5, Codebar, Code 11, MSI, ISBT, GS1-128, GS1 Databar14, GS1 Databar Limited, GS1 Databar Expanded, Postal Codes
2D Symbologies	QR Code, Data Matrix, PDF417, Micro QR Code, MicroPDF417, Han Xin, Grid Matrix, Aztec, MaxiCode, GS1 QR Code, GS1 Data Matrix, GS1 Composite(CC-A/CC-B/CC-C)
ESD	Functional after 4KV contact, 8KV air discharge (requires housing that is designed for ESD protection and stray from electric fields)
EMC	TBA
Safety Approval	TBA
Environmental	RoHS 2.0

2. MECHANICAL DIMENSIONS

(Unit = mm)

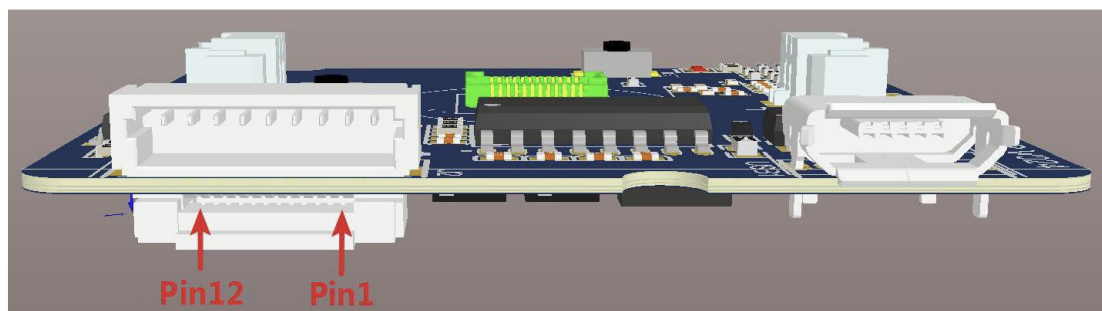


3. ELECTRIC INTERFACE

3-1. Electric Characteristics

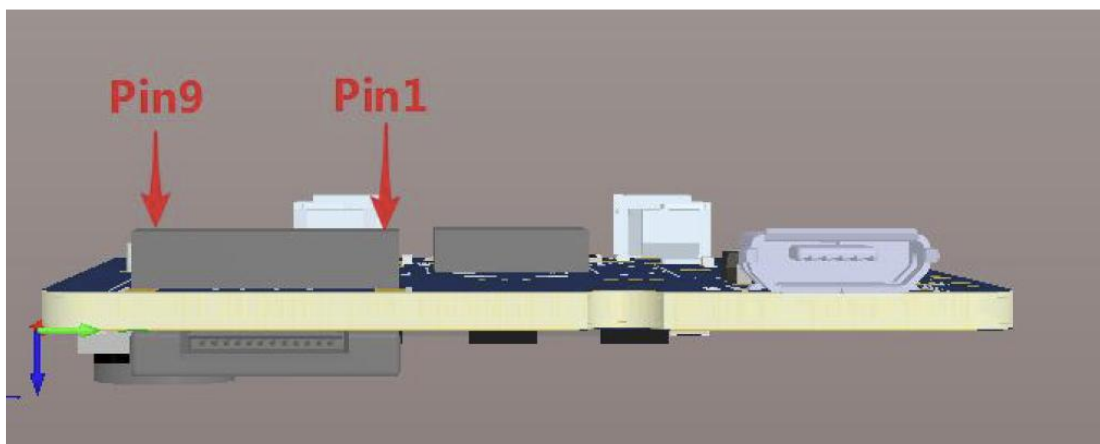
Symbol	Min	Max
Operating Voltage	0V	5.5V
Input Level	0V	3.3V

3-2. 12-pin ZIF Connector (Pitch 0.5mm)



Pin#	Signal	I/O	Description
1	NC	-	-
2	VCC	Power	3.2~5.5V power supply
3	GND	GND	-
4	RX	I	TTL receives 3.3V logic level
5	TX	O	TTL sends 3.3V logic level
6	D-	I/O	USB D- signal
7	D+	I/O	USB D+ signal
8	NC	-	-
9	Beep	O	Good Read Beep
10	LED	O	Good Read LED
11	NC	-	-
12	nTrig	I	Trigger (Falling Edge or Level Trigger)

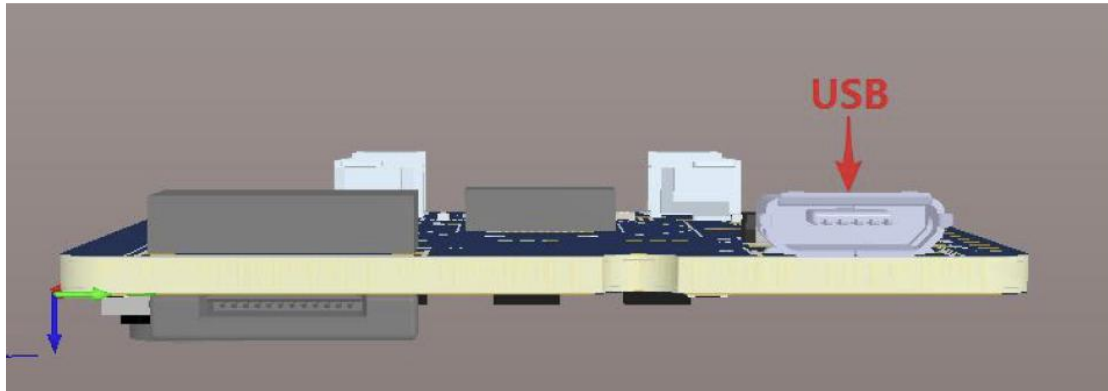
3-3. 9-pin Wafer (Wire-to-Board) Connector (Pitch 1.0mm)



Pin#	Signal	I/O	Description
1	VCC	Power	3.2~5.5V power supply
2	GND	GND	-
3	RX	I	TTL receives 3.3V logic level
4	TX	O	TTL sends 3.3V logic level
5	D-	I/O	USB D- signal
6	D+	I/O	USB D+ signal
7	232_RX	I	RS232 receives 3.3V logic level
8	232_TX	O	RS232 sends 3.3V logic level
9	nTrig	I	Trigger (Falling Edge or Level Trigger)

3-4. Micro USB Port

The scan engine also provides a Micro USB interface, which is the same as the USB interface on the FPC connector and the wire-to-board socket. It is suitable for scenarios requiring direct USB output, allowing direct transmission when the scan engine is switched to USB virtual COM or HID interface.



4. VERSION HISTORY

Rev.	Date	Description	Issued
0.1	2025.09.15	Preliminary Draft Release	Shaw
0.2	2026.09.24	Updated D.O.F	Shaw
0.3	2026.09.06	Updated D.O.F, Operating Voltage	Shaw

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