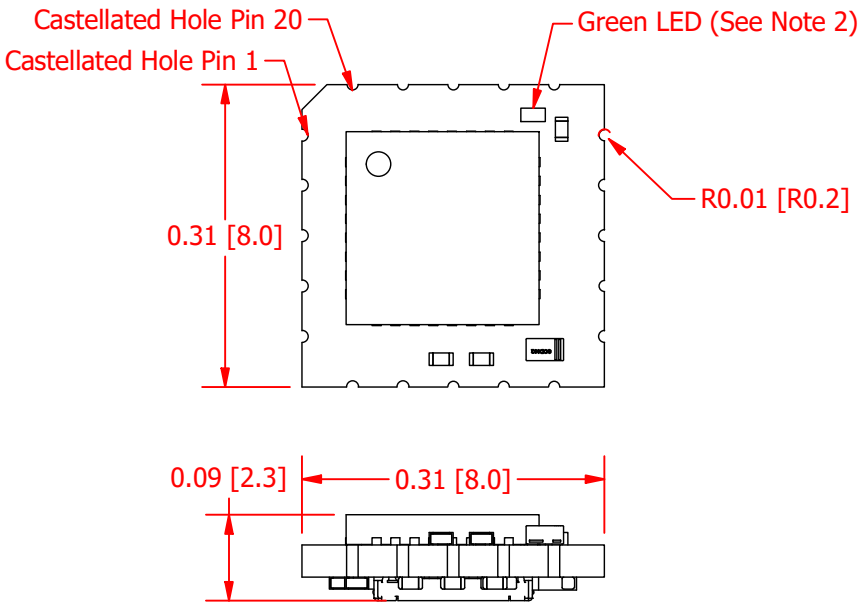
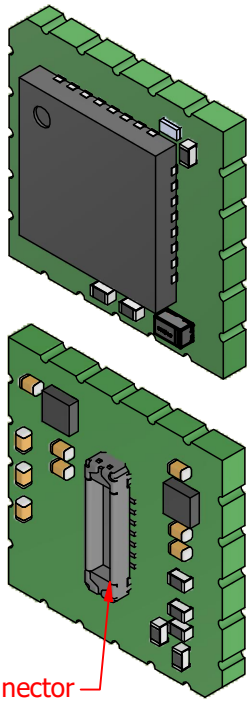
FUTEK MODEL QIA128

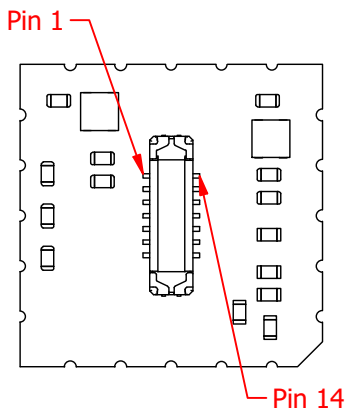
ITEM NUMBER: QSH02084

INCH [mm] | R.O.= Rated Output

Miniaturized Integrable Sampling System







	Castellated Hole Pin Number	Pin Function	Input/Output Connector Pin Number	Description
JTAG	1	$\overline{\text{RESET}}$	NA	NA
	2	TMS	NA	NA
UART	3	Rx	7	Receive Signal
	4	Tx	6	Transmit Signal
SENSOR	5	GND	1	Ground
	6	-EXCITATION	2	Sensor Excitation Return
	7	-SIGNAL	5	Signal Negative Input
	8	+EXCITATION	3	Sensor Excitation
	9	+SIGNAL	4	Sensor Positive Input
	10	VIN	9	Voltage Input
SPI	11	$\overline{\text{CS}}$	14	Chip Select
	12	SCLK	13	Serial Clock
	13	HICO	12	Host-In-Client-Out
	14	HOCI	11	Host-Out-Client-In
	15	$\overline{\text{DRDY}}$	10	Data Ready
JTAG	16	VDD	NA	NA
	17	NTRST	NA	NA
	18	TDO	NA	NA
	19	TDI	NA	NA
	20	TCK	NA	NA

Note : Active low DRDY pin is used to keep all communication synchronized

CUSTOMER APPROVAL- COMPANY:

CUSTOMER APPROVAL- NAME / DATE:

REVISIONS: (Refer to dwg # revision sheet)

A	9/28/2022
C	7/25/2023

INFOSHEET

STANDARD NOTES: (Unless Otherwise Specified)

ALL DIMENSIONS ARE IN INCHES

DRAWING INTERPRETATION DIMS. PER ASME-Y14.5

REMOVE BURRS AND BREAK SHARP EDGES .005 - .015

THREADS PER HANDBOOK H-28

DIMENSIONS ARE SHOWN AFTER PLATING

3rd ANGLE PROJ.

ANGLE: ± 1/2°

CHAMFER: ± 5°

TOLERANCE: .X ± 0.1" .XX ± 0.01" .XXX ± 0.005"

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MODEL: QIA128	DWG No.: FI1519-C
DRAWN BY: P. THAKUR	CREATED DATE: 3/22/2019
APPROVED BY: F. ALLAHAKBARI	APPROVED DATE: 7/25/2023
CHECKED BY:	CAGE: 1X8M6 SHEET: 1 OF 3

FUTEK MODEL QIA128

Miniaturized Integrable Sampling System

ITEM NUMBER: QSH02084

INCH [mm] | R.O.= Rated Output

Specifications:

Input:
- Type: Differential
- Excitation: 2.5 VDC
- Bridge Resistance: 350 Ω (Min)
- Input Range: Up to 480 mV/V

Digital Output:
- Noise Free Resolution: 11.4 - 18.4 Bits (See Table)
- Sampling Rate: 4 - 1300 SPS
- Non-linearity: 0.01 % of R.O. (See Note 5)

Calibration:
- Number of Profiles: 1
- Stored Calibration Points: 23

Power:
- 3 VDC to 5 VDC
  - o 20-40mV peak-to-peak ripple in passband
  - o 20MHz bandwidth (cutoff 40dB @ 20MHz)
- Power Consumption: 45 mW (Max)
- Inrush Current: 180 mA (Max)

Noise Free Resolution (See Note 1)									
Range (mV/V)	GAIN	4 SPS (Default)	20 SPS	50 SPS	100 SPS	200 SPS	500 SPS	850 SPS	1300 SPS
240-480	1	18.4	17.7	16.7	16.3	15.8	15.2	14.6	14.2
120-240	2	17.1	16.8	15.8	15.3	14.9	14.2	13.9	13.3
60-120	4	16.9	16.7	16.5	16.3	16.0	15.0	14.9	14.1
30-60	8	16.8	16.4	16.3	16.1	15.6	15.1	14.8	13.8
15-30	16	16.7	16.3	16.2	16.0	15.5	15.2	14.7	13.7
7.5-15	32	16.6	16.2	16.1	15.9	14.9	14.7	14.6	13.5
3.7-7.5	64	16.5	16.1	16.0	15.8	15.7	15.2	14.5	13.4
1.8-3.7	128 (Default)	16.1	15.6	15.5	15.1	14.7	14.0	13.8	13.2
0.9-1.8	256	15.1	14.7	14.1	13.5	13.3	13.1	12.6	12.2
0-0.9	512	14.0	13.6	13.5	13.1	12.8	12.1	11.8	11.4

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CHAMFER: ± 5°
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CHECKED BY:	CAGE: 1X8M6 SHEET: 2 OF 3

FUTEK MODEL QIA128

Miniaturized Integrable Sampling System

ITEM NUMBER: QSH02084

INCH [mm] | R.O.= Rated Output

Features:

- On-board Temperature Measurement
- Selectable Gain Settings
- Onboard ESD Protection
- Weight: 0.25 g
- Ultra Low Power (45 mW)
- Ultra Miniaturized (8mm X 8mm)
- Controllable through Commands via UART and SPI with Implemented Error Detection Algorithms
  - o Custom Checksum - Refer to UART Communication Guide
  - o Cyclic Redundancy Check (CRC8) - Refer to QIA128 SPI Communication Guide

UART Communication	
Data (Bit)	8
Baud Rate (bps)	320,000
Parity	None
Stop (Bit)	1
Flow Control	None
Format	Data, Unit, LF
Operating Voltage	2.5 VDC (Compatible with 3.3 VDC)
Max Cable Length	6 m (See Note 3)

SPI Communication	
Serial Word Length (Bit)	8
SPI Mode	Mode 0 (CPOL = 0, CPHA = 0)
SCLK Frequency	1 MHz - 2 MHz
Operating Mode	Slave
Operating Voltage	1.8 VDC (Compatible with 3.3 VDC)
Max Cable Length	20 cm (See Note 3)

Environmental:

- Temperature Coefficient: 10 ppm/°C
- Operating Temperature: -40°F to 185°F (-40°C to 85°C)
- RoHS Compliant (2011/65/EU)

Note 1: Noise Free Resolution is calculated using upper limit of 'Range(mV/V)' or 'maximum dynamic range'
Note 2: Solid green LED indicates power ON
Note 3: Cable length parameters are only valid if the cables are shielded and properly terminated, and may not be valid in the presence of strong magnetic fields.
Note 4: All Grounds are internally connected
Note 5: Non-linearity calculated at R.O. of 2 mV/V and gain of 128

CUSTOMER APPROVAL- COMPANY:

CUSTOMER APPROVAL- NAME / DATE:

REVISIONS: (Refer to dwg # revision sheet)

INFOSHEET

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