Odax Technologies Inc
www.odaxtechnologies.com

ODAX EDA Maker

Datasheet

Product Summary

Compact maker-level electrodermal activity (EDA) / galvanic skin response (GSR) analog sensor board for measuring changes in skin conductance using two skin-contact electrodes. The board provides a ground-referenced analog output for connection to a microcontroller ADC. Recommended supply is 3V to 5V DC, while electrodes contact skin. User connections are VIN, GND, and VOUT, with a 3.5mm TS electrode jack for the two electrode lead contacts.

Product family	EDA Maker Grade Analog
SKU / Part number	ODAX-EDA-MB1-100-ASM-R1
Document number	ODAX-EDA-MB1-R1
Revision	R1
Release date	2026-04-19
Status	Released

1 Item Information

Item Identification

Item name	ODAX EDA Maker
SKU / Part number	ODAX-EDA-MB1-100-ASM-R1
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1.1 Description

The ODAX EDA Maker is a compact analog sensor board intended for makers, and those seeking to prototype in electrodermal activity (EDA) and galvanic skin response (GSR) experiments. The board applies a low-voltage electrode bias, measures the resulting skin-current response with a TIA-based analog front end, and outputs a positive-slope voltage suitable for a microcontroller ADC. Changes in skin resistance alter the VOUT signal, which is commonly used as an indicator in EDA/GSR experiments related to physiological responses such as stress and arousal.

The module is intended to be used with two skin-contact electrodes or ODAX EDA contact straps on adjacent fingers of the same hand. The output is intended for relative EDA/GSR trend measurement, event detection, biofeedback experiments, and custom firmware development. It is not a medical device and is not intended for diagnosis, monitoring, treatment, or safety-critical use. (https://www.odaxtechnologies.com/products lists straps and electrodes for use with the board)

1.2 Applications

- EDA and GSR measurement for prototyping and makers
- Psychophysiology, HCI, affective computing, biometrics, and biofeedback experiments
- Wearable sensing prototypes using standard electrode lead sets
- Low-frequency analog bio-signal sensing

2 Images and Diagrams

2.1 Product Photo

Figure 1 shows the board.

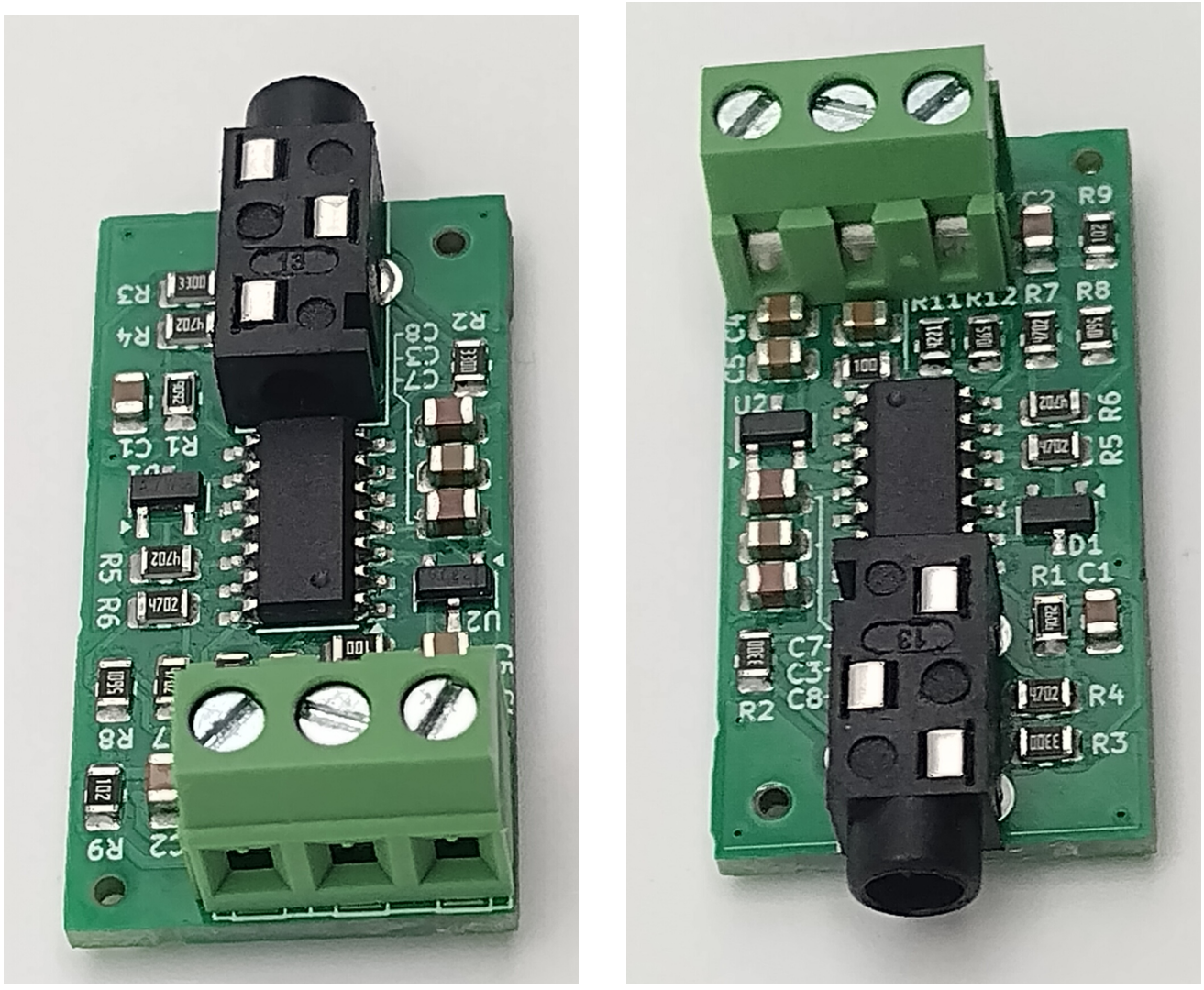
3 Ordering Information

See Table1, or https://www.odaxtechnologies.com/products for more product information.

Table 1: Ordering information

SKU	Variant	Description	Packaging
ODAX-EDA-MB1-100-ASM-R1	Sensor board	ODAX EDA Maker assembled EDA/GSR analog sensor board	Single board
ODAX-EDA-T1-100-BLK-R1	Accessory	ODAX EDA Contact Strap - Black	Strap
ODAX-EDA-T1-100-WHT-R1	Accessory	ODAX EDA Contact Strap - White	Strap
ODAX-EDA-MT1-100-BLK-R1	Accessory	ODAX EDA Contact Strap - Maker Grade - Black	Strap

For a typical finger EDA/GSR setup, use two contact straps connected to the two electrode lead contacts. Place the straps on adjacent fingers of the same hand and route the lead so that cable motion



(a) back **(b)** front

Figure 1: ODAX EDA Maker board

is minimized.

4 Electrical and Interface Specifications

Unless otherwise stated, values are preliminary and intended for maker-level use. End-system accuracy depends on electrode condition, skin condition, contact pressure, motion, firmware filtering, ADC resolution, and user calibration.

4.1 Recommended Operating Conditions and Characteristics

Table 2: Recommended operating conditions and preliminary electrical characteristics

Parameter	Symbol	Min	Typ	Max	Notes
Supply voltage, recommended	VIN	3.0 V	3.3 or 5.0 V	5.0 V	Battery-powered system while electrodes contact skin
Supply voltage, tolerated functional range	VIN	3.0 V		5.5 V	Not the recommended operating range; verify in end system (other voltages may be tolerated)
Analog output voltage, representative use	VOUT	0.1 V		1.2 V	Resistor-substitution bench observations over practical range
Useful signal bandwidth	BW	DC		about 6 Hz	Intended for slow EDA/GSR signals, not high-speed biopotentials
Practical resistor-simulator range	R_{skin}	about 50 kΩ		about 1 MΩ	Representative range; skin and electrode behavior vary
ADC input impedance	Z_{ADC}	100 kΩ			Higher impedance preferred
Output response direction			Positive		Higher conductance produces higher VOUT

4.2 Safety-Critical Electrical Restrictions

Use battery power only when electrodes contact skin. Do not power the board from a mains adapter while connected to a person. Do not connect the board, electrodes, or attached microcontroller to mains-referenced instruments unless the complete system has appropriate isolation designed and verified by a qualified person. Do not exceed 5.5 V on VIN, and do not drive VOUT from another source.

4.3 User Connections

Table 3: Board and electrode connections

Connection	Direction / Contact	Description
VIN	Input	DC supply input. Recommended 3 to 5 V from a battery-powered system while electrodes contact skin.
GND	Reference	Common ground for the board and the ADC system.
VOUT	Output	Analog EDA/GSR output. Connect to a high-impedance ADC input.
3.5 mm jack tip	E+	Electrode drive contact. Connect to one skin contact strap/electrode.
3.5 mm jack sleeve	E-	Measurement return contact. Connect to the second skin contact strap/electrode.
3.5 mm jack ring	NC	If a TRS jack or plug is used mechanically, the ring contact is not used by the board.

The physical order of the VIN, GND, and VOUT terminals should be verified against the board silkscreen for the supplied revision. Do not intentionally connect either electrode contact to GND.

5 Mechanical Information

Table 4: Mechanical characteristics

Parameter	Nominal	Unit	Notes
PCB length	33	mm	Nominal board dimension
PCB width	17	mm	Nominal board dimension
Board format	Assembled PCB		Compact maker-level module
Electrode connector	3.5 mm jack		Used as TS for two electrode lead contacts
User electrical interface	VIN, GND, VOUT		Three simple user connections

The 3-position terminal block is user-removable. Users may desolder the terminal block and replace it with soldered wires or pin headers to suit their application. Care should be taken during rework to avoid damage to PCB pads and nearby components.

5.1 Electrode Placement

Place two finger straps on adjacent fingers of the same hand. Keep strap pressure comfortable and consistent, and route the cable so that it does not pull on the straps during measurement. Motion, changing contact pressure, and inconsistent strap placement can be larger error sources than the electronic front end.