



DM Technology

DSE1182

Biometric Sensor

Product Description

The DSE1182 device is an analog front-end synchronized electrocardiogram (ECG), The device can also be used for optical Biometric sensing applications,

The DSE1182 offers excellent performance under a wide dynamic range.

Features

- Low Power consumption
- Low sleep current : <1uA
- Low Power high dynamic range sensor optimized for wrist-based ECG and PPG
- 20 Bit ADC
- UART communication up to 50Kbps
- 4x4x0.75mm QFN32 package
- Rated for operation from -40 to +85°C temperature range

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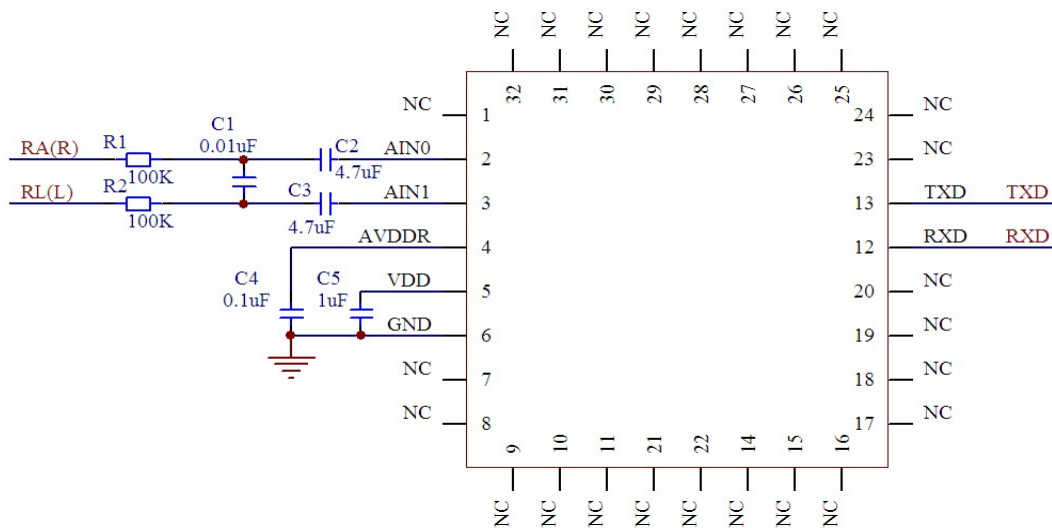
3 Ordering Guide

Part Number	Package	Details
DSE1182-Q4	4X4 mm Optical QFN	Single Lead ECG support

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4.ECG Typical Application Circuit



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5. ECG Capabilities

The DSE1182 has the capability to do single channel ECG measurements through a three-wire interface. This interface consists of two pins that can measure a differential voltage (AN0 and AN1). This differential voltage is measured by a built-in instrumentation amplifier and then digitized. A built-in 20-bit ADC allows for accurate measurement of the ECG voltage.

Since the AN0 and AN1 pins are designed to connect to electrodes that may potentially contact the human skin, they have enhanced ESD protection (up to 8kV resilience for HBM).

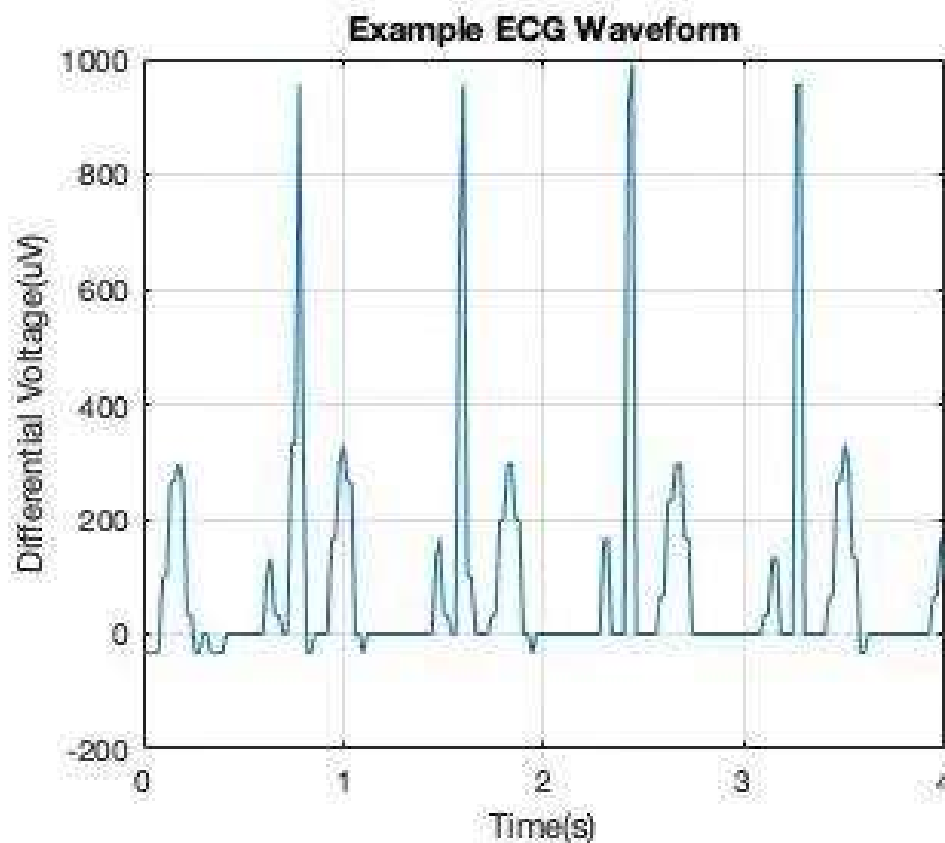


Figure 5.1. Example ECG Waveform C

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6. Electrical Specifications

Table 6.1 Recommended Operating condition and Specifications

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
VDD supply voltage	VDD	For ECG Operation	2.4	3	4	V
Operation Temperature	TA		-40	25	-85	°C
Store Temperature	TS		-55		155	°C
Current Consumption	IH	High operation Mode		1		mA
	IL	Low Power Mode		2		uA
	IS	Sleep Mode		1		uA
AVDDR	VO	Output Voltage	2.4		3.3	V
	IO	Output Current		10		mA
Input High Voltage	VIH		0.7VDD			V
Input Low Voltage	VIL				0.3VDD	V
Output Hight Voltage	VOH		VDD-0.3			V
Output Low Voltage	VOL				VDD+0.3	V

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7.Pin Descriptions

Table 7.1 DSE1182 Pin Description

Pin	Name	Type	Description
1	NC	N/A	Dot Not Connect
2	AIN0	Analog Input	Positive input to amplifier
3	AIN1	Analog Input	Negative input to amplifier
4	AVDDR	O	Internal LDO output
5	VDD	Power	Power Supply voltage Source
6	GND	Power	Ground
7 to 11	NC	N/A	N/A
12	RXD	I/O	UART RXD
13	TXD	I/O	UART TXD
14 to 32	NC	NC	Dot Not Connect

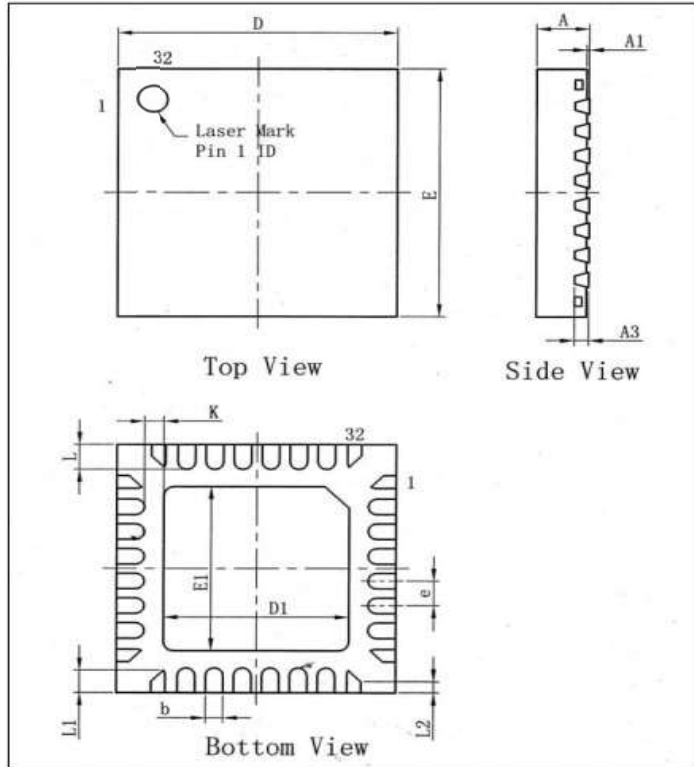
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8.Package Dimensions

Dimensions

4X4 mm QFN32



8.1 Package Dimensions

Unit: mm

Dimension	Min	Typ	Max
A	0.7	0.75	0.8
A1	0	--	0.05
A3		0.203REF	
b	0.15	0.2	0.25
D	3.9	4	4.1
E	3.9	4	4.1
D1	2.55	2.65	2.75
E1	2.55	2.65	2.75
e		0.40TYP	
K	0.2	--	--
L	0.3	0.4	0.5
L1	0.31	0.36	0.41
L2	0.13	0.18	0.23

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9.Revision History-

Revision 0.9 May 2017