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The world's 1st EEG SoC

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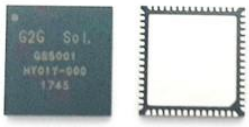
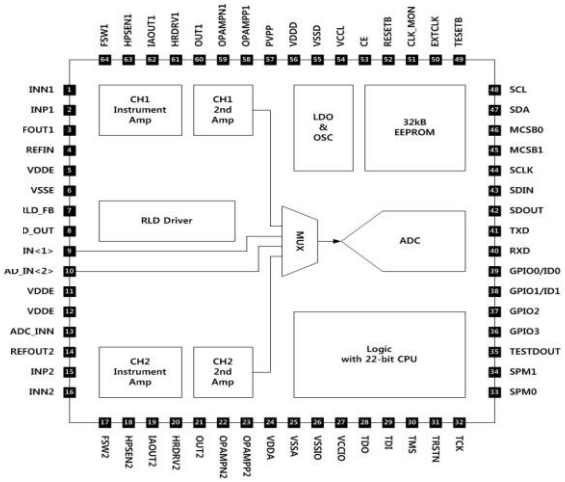
G2G Solution, a biosensor solution enabler, rolls out a new EEG SoC.

Today and everyday, we are seeing and going through technological changes on an astounding scale. A dazzling number of future technologies, as being predicted just a few years ago, has come true today and continued to innovate for shaping tomorrow. Of them, some futuristic digital technologies, such as Iris Identification, Artificial Intelligence (AI), Virtual Reality (VR) and Augmented Reality (AR), have already proven to be powerful in our everyday lives and starting to transform our conventional life style. How about EEG Brainwave in biopotential technology segment?

EEG, or electroencephalogram, is a tool and test that measures and records patterns of electrical signals in the brain, and gives information about the health and functioning of the brain. EEG technology, along with the fast development of Brain-Computer Interface (BCI) since its inception in 1924 with the detection of the first alpha brain waves, is already being widely translated into various new unique domains including gaming, web contents, marketing, education, and cognitive training. Have you ever imagined of the day where you would be able to control a gaming screen of your smartphone and a flying toy without moving a single muscle? Now, EEG and BCI technologies can make it possible.





Features

Supports 2-ch EEG measurement

Common-mode rejection ratio
: 80dB (dc to 60Hz)

Fast restore feature improves filter setting

Supports uncommitted op-amp for low-pass filter configuration

Supports leads-off detection function (AC/DC)

Controllable leads-off threshold

Fast restore feature

Integrated body-biasing amplifier

Integrated analog-to-digital converter

Built-In 20MHz oscillator

Flexible power-down mode

Embedded 32-bit MCU

Supply for operation
: 2.7V to 3.6V (Typ. 3.3V)

Supply for interface
: 1.8V to 3.3V

-40°C ~ +85°C operating temperature

62-No lead 6 x 6mm QFN package

Low-priced, high-functioning 2-channel EEG System-on-a-Chip

For this breakthrough technology to apply more friendly to all of us, G2G Solution has rolled out a low-priced but high-functioning 2-channel EEG System-on-Chip (EEG SoC). G2G's EEG SoC (GS5001) is designed specifically for a fast spread of entry-level wearable EEG applications. It supports non-invasive monitoring of brain waves. The 2-channel GS5001 consists of a rich set of brainwave signal processing and measuring units such as a built-in gain controllable low-noise instrumentation amplifier, auxiliary op-amps, a channel multiplexer and a 12-bit ADC. The GS5001 includes a low-pass and high-pass filter to reduce the noise signal, and the characteristics of filters can be set by external components.

Comparative Biosensors: GS5001 Vs. Others

Player	Category	MCU	Package	Size(mm)
GS5001	**EEG SoC**	**Built-In**	**62-QFN**	**6*6**
ADS1299	EEG/ECG AFE	External	64 QFN	10*10
TGAM-AM	ASIC Module	External	Sensor PCB	27.9 * 15.2
ADC8232	ECG/EKG	External	20-LFCSP	4*4

The world's first EEG System-on-Chip with a 32-bit MCU built-in

The majorities of system integrators and device makers use a multi-channel analog-front-end (AFE) with a 3rd party's micro processing chip to organize a hardware system for EEG applications. From now on, however, they can use GS5001 as a system-on-a-chip with no need of external micro processing solution. 32-bit ARM compatible RISC processor is also integrated for signal data modification, processing and system control. It supports 2-channel analog-front-end (AFE) for measurement and additional 2-channel external signal input. So the integrated MUX and ADC support total 4-channels signal input. Internal RISC processor is ARM946 instruction compatible processor. Several basic peripherals like SPI, I2C, UART, etc. are included for external interface.

This rich feature supports a user-friendly mechanical design that enables system integrators and developers to get a wearable mobile gadget with slim and light features allowing efficient integration into any EEG applications. G2G's ECG SoC will be full of promise that can help BCIs and EEG applications of today, which are still very much a subject for debate, successfully arrive on the consumer market in the not too distant future.

GS5001 EEG SoB - Evaluation Kit

Benefits

Helps sharply reduce size of PCB board and BOM costs

Ideally optimized for portable, wearable enclosure design

Supports EEG and ECG measurement

Offers optional interface such as URAT, SPI & I2C

High-functioning 2-channel Analog-Front-End (AFE) available NOW

Super-integrated performance with 32-bit MCU integration

Unique Application Branches

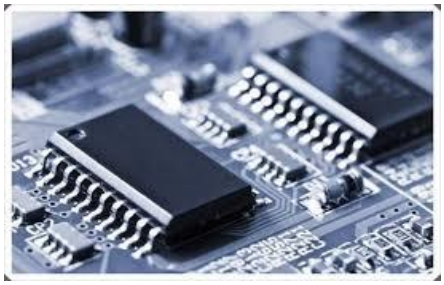
Application Branches

-. Gaming
-. Education
-. Entertainment
-. Nero-training, -marketing
-. BCI system & Robot
-. Healthcare
-. Smart Home Control
-. Self-driving

Application Devices

-. EEG Headset
-. EEG Headband
-. EEG Ear-Clip

G2G Solution, Inc. (http://www.g2gsol.com), is a Korea-based fabless semiconductor company specialized in On-cell touch controller, Touch Display Driver Integration (TDDI), Fingerprint ID, and other fascinating chip solutions for smartphones, tablets, notebooks and other high-end MIDs. The company is currently making a marked headway in the biometric solution industry by rolling out the world's first EEG SoC with a built-in 32-bit MCU, which is dedicated to Consumer Brain Wearables. For inquiries, sales@g2gsol.com



Comparative Composition of EEG Sensing IC: G2G Solution Vs. Competitors