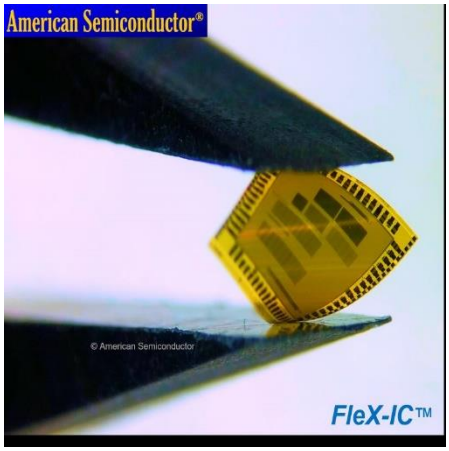
AS_NRF51822 FleX-BLE™
Flexible BLE Integrated Circuit (IC)

American Semiconductor®
Changing Your World One Flexible Chip at a Time

FleX-BLE Overview

The AS_NRF51822 FleX-BLE is a physically flexible IC that supports *Bluetooth*® Low Energy (BLE) communication. This FleX-BLE chip is an ultra-thin, flexible version of Nordic Semiconductor's nRF51822 Multiprotocol Bluetooth low energy/2.4 GHz RF System on Chip. The American Semiconductor FleX™ Semiconductor-on-Polymer™ process is used to convert the standard CMOS product into the robust, thin and physically flexible form factor. This feature rich FleX-BLE product has an ARM® Cortex™ M0 processor, 256KB embedded Flash memory, 32KB RAM, encryption co-processor, temperature sensor, and 10-bit analog-to-digital converter. The FleX-BLE operates from 1.8-3.6V.



FleX-BLE Features

Central Processor Unit	32-bit ARM Cortex-M0
Flash Nonvolatile Memory	256 kB
SRAM	32 kB
Wireless Communication	2.4GHz Bluetooth Low Energy 250 kbps, 1 Mbps, 2 Mbps supported data rates
Analog-to-Digital Converter	8/9/10 bit ADC – 8 configurable channels
Flexible Power Management	1.8V to 3.6V; multiple low-power modes
General-Purpose I/O Pins	31
Digital Communication Protocols	I2C, UART, SPI
Timers	3 x 16/24-bit timers with counter mode
Temperature Sensor	±4 °C with 0.25 °C resolution
Analog Comparator	Low Power with Wakeup Source
Real Time Counter	24 bit Counter and 12 bit prescalar
Hardware Encryption	128 bit AES block encryption
Random Number Generator	Non-deterministic random numbers derived from thermal noise
Oscillators	16MHz XO, 16MHz RCOSC, 32MHz XO 32kHz XO, 32kHz RCOSC
DC/DC Converter	On-Chip

FleX-BLE Physical Specifications

Die Size	3.8 x 3.8mm
Thickness	35um
Pad Count	66
Min Pad Size	56 x 56 um
Min Pad Spacing	44 um
Flexibility	FleX Silicon-on-Polymer
Flexible	Yes
Conformal	Yes

Bluetooth™

FleX-BLE Pin List

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	VDD	18	VSS	35	SWDCLK	51	XC1
2	VDD	19	VSS	36	P0.17	52	XC2
3	DCC	20	P0.08	37	P0.18	53	VSS
4	VSS	21	P0.09	38	P0.19	54	DEC1
5	P0.30	22	P0.10	39	P0.20	55	Do not bond
6	P0.31	23	P0.11	40	VSS	56	P0.21
7	P0.00 AFEF0	24	P0.12	41	DEC2	57	P0.22
8	P0.01 AIN2	25	VSS	42	VDD_PA	58	VSS
9	P0.02 AIN3	26	P0.13	43	ANT1	59	P0.23
10	VSS	27	P0.14	44	ANT2	60	P0.24
11	P0.03 AIN4	28	P0.15	45	VSS	61	P0.25
12	P0.04 AIN5	29	P0.16	46	VSS	62	VSS
13	P0.05 AIN6	30	Do not bond	47	VSS	63	P0.26 AIN0 XL2
14	P0.06 AIN7 AREF1	31	Do not bond	48	VSS	64	P0.27 AIN1 XL1
15	P0.07	32	Do not bond	49	AVDD	65	P0.28
16	VDD	33	SWDIO/nRESET	50	AVDD	66	P0.29
17	VDD	34	VSS				

FleX-BLE Ordering Information

Part Number	Description
AS_nRF51P.fxd	FleX-BLE flexible die with 10um Ni/Au plated bond pads

Preliminary Information

This product and the associated documentation are still in development. Changes to the design and specification may be expected.

Contact Info

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