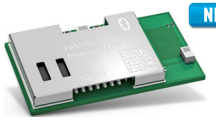
Panasonic
INDUSTRY

WIRELESS CONNECTIVITY
Product Leaflet

	Bluetooth® Low Energy	Bluetooth® LE & IEEE® 802.15.4		
			 NEW	
SERIES	**PAN1740A**	**PAN1780**	**PAN1781**	**PAN4620**
STATUS	Mass Production	Mass Production	Mass Production	Mass Production
PART NUMBER	ENW89852A1KF	ENW89854A1KF ENW89854A3KF (PAN1780AT)	ENW89857A1KF	ENWC9B01A1EF
RF CATEGORY	**Bluetooth®5.0**	**Bluetooth® 5.1, IEEE® 802.15.4 & NFC-A**	**Bluetooth® 5.1, IEEE® 802.15.4**	**Bluetooth® Low Energy 4.2 & IEEE® 802.15.4**
SOFTWARE & DRIVERS	SDK by Dialog	nRF5 SDK by Nordic Nordic Connect SDK	nRF5 SDK by Nordic Nordic Connect SDK	SDK by NXP
INTEGRATED CIRCUIT	DA14585	nRF52840	nRF52820	KW41Z
SIZE [MM]	9.0 x 9.5 x 1.8	15.6 x 8.7 x 2.0	15.6 x 8.7 x 2.0	15.6 x 8.7 x 1.9
RX SENSITIVITY [DBM]	-93 @ 1MB/s	-95 @ 1Mb/s -103 @ 125kb/s	-95 @ 1Mb/s -103 @ 125kb/s	BLE: -95 @ 1Mb/s 802.15.4: -100 @ 250kb/s
TX POWER (MAX.)[DBM]	+0	+8	+8	+3.5
POWER SUPPLY [V]	2.2 to 3.3	1.7 to 5.5	1.7 to 5.5	1.8 to 4.2
CURRENT CONSUMPTION	Tx: 4.9mA, 3V @ 0dBm Rx: 4.9mA , 3V	Tx: 4.8mA, 3.3V @ 0dBm Rx: 4.8mA, 3.3V	Tx: 4.9mA @ 0dBm Rx: 4.7mA	Tx: 6.1mA, 3.6V @ 0dBm Rx: 6.8mA, 3.6V
SLEEP MODE CURRENT	Sleep Mode (Full RAM Retention):4µA Deep Sleep Mode: 520nA	Wake-on-RTC: 1.5µA Off Mode: 0.4µA	Wake-on-RTC: 1.2µA Off Mode: 0.3µA	Low Power Mode: 0.67µA
INTERFACES	GPIO, UART, SPI+, I2C, ADC, 3-axis QD	GPIO, UART, QSPI, I2C, I2S, ADC, PDM, PWM, NFC-A, USB2.0	GPIO, UART, SPI, I2C, USB2.0, QDEC	UART, SPI, I2C, ADC & DAC, TSI
MICROCONTROLLERS AND MEMORY	ARM® Cortex®-M0 96kB SRAM, 64kB OTP	ARM® Cortex®-M4F 256kB RAM, 1MB Flash	ARM® Cortex®-M4 32kB RAM, 256kB Flash	ARM® Cortex®-M0+ 128kB SRAM, 512kB Flash
OPERATING TEMP. [°C]	-40 to +85	-40 to +85	-40 to +85	-40 to +85
EVALUATION KIT	ENW89852AXKF (Dongle) ENW89852AWKF (Dongle Kit)	ENW89854AXKF (Board) ENW89854AWKF (2 Board Kit) ENW89854AZKF (AT Board) ENW89854AYKF (2 AT Board Kit)	ENW89857AXKF (Board)	ENWC9B01AQEF (Board)

Applications

Status of engineering sample (ES) are expected as of the time of leaflet production.

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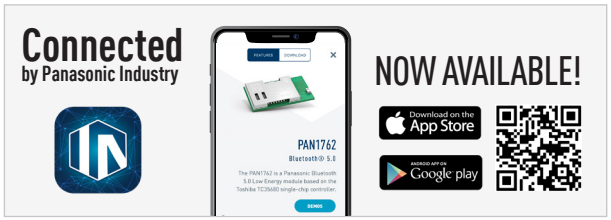
	Bluetooth® Dual Mode	Wi-Fi® & Bluetooth® LE		Wi-Fi®
			 NEW	 NEW
SERIES	**PAN1326C2**	**PAN9026**	**PAN9028**	**PAN9520**
STATUS	Mass Production	Mass Production	Mass Production	Mass Production
PART NUMBER	ENW89823A5KF	ENWF9202A1EF (EU) ENWF9201A1EF (US) ENWF9203A1EF (CA) ENWF9208A1EF (Multi-region)	ENWF9408A1EF (with PMIC) ENWF9408A2EF (without PMIC)	ENW49D01A1KF (4 MB Flash / 2 MB RAM) ENW49D02A1KF (1 MB Flash / No RAM)
RF CATEGORY	**Bluetooth® 5.1 Dual Mode (BR, EDR, Bluetooth® LE)**	**Wi-Fi® Radio 2.4 GHz & 5.0 GHz 802.11 a/b/g/n & Bluetooth® 5.0 (BR, EDR, LE)**	**Wi-Fi® Radio 2.4 GHz & 5.0 GHz 802.11 a/b/g/n/ac & Bluetooth® 5.1 (BR, EDR, LE)**	**Wi-Fi® Embedded 802.11 b/g/n**
SOFTWARE & DRIVERS	HCI Bluetooth Stack for MSP432 or STM32 Bluetooth Service Pack with Init Script	HCI Linux & i.MX RT Support MCUXpresso	HCI Linux & i.MX RT Support MCUXpresso	ESP-IDF by Espressif Arduino IDE
INTEGRATED CIRCUIT	CC2564C	88W8977	88W8987	ESP32-S2
SIZE [MM]	9.0 x 9.5 x 1.8	17.5 x 10.0 x 2.6	24.0 x 12.0 x 2.8	24.0 x 13.0 x 3.1
RX SENSITIVITY [DBM]	-90	-98 @ 1M-DSSS	-98 @ 1M-DSSS	-97 @ IEEE 802.11b
TX POWER (MAX.)[DBM]	+8	+17 @ IEEE 802.11b	+16 @ IEEE 802.11b	+19.8 @ IEEE 802.11b
POWER SUPPLY [V]	1.7 to 4.8	1.8 to 3.3	3.3 with PMIC 1.1, 1.8, 2.2, 3.3 without PMIC	3.0 to 3.6
CURRENT CONSUMPTION	Tx: 40mA, 3.3V @ 8dBm Rx: 20mA, 3.3V	Tx: 400mA @ 11Mb/s Rx: 70mA @ 11Mb/s	Tx: 320mA @ 11Mb/s Rx: 60mA @ 11Mb/s	Tx: 190mA, 3.3V @ 19.5 dBm Rx: 63mA, 3.3V @ 1 Mb/s
SLEEP MODE CURRENT	Deep Sleep Mode: 105 µA	Power Down Mode: 150µA	Power Down Mode: 150µA	Deep sleep mode <100 µA
INTERFACES	GPIO, UART, PCM	SDIO 3.0, HS UART, PCM	GPIO, SDIO 3.0, HS UART, PCM	GPIO, UART, SPI, I2C, I2S, RMT, PWM, USB, LCD, ADC & DAC
MICROCONTROLLERS AND MEMORY			88PG823 Power Management IC (PMIC)	Xtensa® 32-bit LX7 320 kB SRAM, 128 kB ROM internal memory Integrated QSPI Flash and PSRAM (size depending on version)
OPERATING TEMP. [°C]	-40 to +85	-30 to +85	-30 to +85	-40 to +85
EVALUATION KIT	ENW89819AYKF (EMK)	ENWF9201AWEF (mSDIO Dongle) ENWF9201AYEF (SDIO Dongle Kit) ENWF9201AXEF (i.MX Kit)	ENWF9408AVEF (mSD Adapter) ENWF9408AZEF (i.MX Kit)	ENW49D01AZKF (Board with 4 MB Flash, 2 MB RAM)

Panasonic Wireless Connectivity solutions encompass a wide range of technologies, with a focus on helping design engineers increase their product's speed-to-market.

The product portfolio covers all of today's latest communication protocols with ready-to-use modules for Bluetooth® Low Energy and Classic. Panasonic offers Bluetooth® Low Energy in combination with all important short range RF technologies: Wi-Fi® (2.4GHz & 5GHz), IEEE® 802.15.4 and NFC-A.

Engineered with design simplicity in mind, Panasonic's Wireless Solutions allow design engineers to quickly extend wireless communication into their feature set.



Design and specification are subject to change without notice.

> Ask Panasonic for technical specification before purchase and/or use.
> If there is any doubt regarding the safety of this product, kindly inform Panasonic immediately for technical consultation.
> Qualification of all products: CE, FCC, IC, Bluetooth® QDID if applicable.
> Different software/profile options available.

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