Panasonic
INDUSTRY

WIRELESS CONNECTIVITY
Product Leaflet

	Bluetooth® Low Energy	Bluetooth® LE & IEEE® 802.15.4		
			NEW Available from 03/2021*	
SERIES	**PAN1740A**	**PAN1780**	**PAN1781**	**PAN4620**
STATUS	Mass Production	Mass Production	Development	Mass Production
PART NUMBER	ENW89852A1KF	ENW89854A1KF ENW89854A3KF (PAN1780AT)		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	SDK by Nordic	SDK by Nordic	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)		ENWC9B01AQEF (Board)

*Dates are preliminary and can change due to development process

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 Available from 10/2020*	NEW Available from 12/2020*
SERIES	**PAN1326C2**	**PAN9026**	**PAN9028**	**PAN9520**
STATUS	Mass Production	Mass Production	Development	Development
PART NUMBER	ENW89823A5KF	ENWF9202A1EF (EU) ENWF9201A1EF (US) ENWF9203A1EF (CA) ENWF9208A1EF (Multi-region)		
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 Init Script by TI	HCI Linux & Free RTOS Drivers by NXP	HCI Linux & Free RTOS Drivers by NXP	SDK by Espressif
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	3.0 to 3.6 without PMIC / 3.3 with 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 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)	ENWF9201AYEF (Dongle Kit) ENWF9201AXEF (i.MX)		

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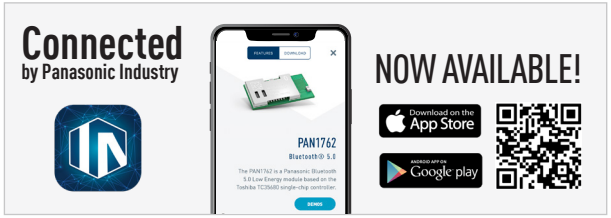
Panasonic Wireless Connectivity solutions encompass a wide range of technologies, with a focus on helping design engineers increase their product's speed-to-market.

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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