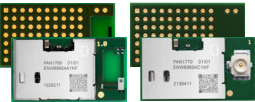
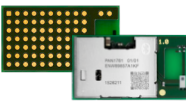
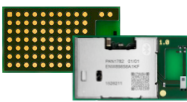
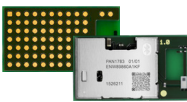


Wireless Connectivity | Product Leaflet

SERIES	Bluetooth® Low Energy	Bluetooth® LE & IEEE® 802.15.4					Bluetooth® Dual Mode
							
RF CATEGORY	Bluetooth® 5.0	PAN1780 / PAN1770	PAN1781	PAN1782	PAN1783(A)	PAN B511-1x	PAN13x6C/2
FREQUENCY [GHz]	2.4	Bluetooth® 5.3, IEEE® 802.15.4 & NFC-A	Bluetooth® 5.3, IEEE® 802.15.4	Bluetooth® 5.3, IEEE® 802.15.4 & NFC-A	Bluetooth® 5.3, IEEE® 802.15.4 & NFC-A	Bluetooth® 5.4, IEEE® 802.15.4	Bluetooth® 5.1 Dual Mode (BR, EDR, Bluetooth® LE)
INTEGRATED CIRCUIT	DA14585	nRF52840	nRF52820	nRF52833	nRF5340	nRF54L15	CC2564C
HOST MODE	Hosted or standalone	Hosted or standalone	Hosted or standalone	Hosted or standalone	Hosted or standalone	Hosted or Embedded	Hosted
MICROCONTROLLERS AND MEMORY	ARM® Cortex®-M0 64kB OTP, 96kB SRAM	ARM® Cortex®-M4F 1MB Flash, 256kB RAM	ARM® Cortex®-M4 256kB Flash, 32kB RAM	ARM® Cortex®-M4 512kB Flash, 128kB RAM	Dual ARM® Cortex®-M33 App: 1MB Flash, 512kB RAM, Network: 256kB Flash, 64kB RAM	ARM® Cortex®-M33 1.5MB Flash, 256kB RAM Opt: 4MB flash memory	-
SOFTWARE & DRIVERS	SmartSnippets™ Studio	nRF Connect SDK / AT: nBlue™	nRF Connect SDK	nRF Connect SDK	nRF Connect SDK	nRF Connect SDK	HCI
CERTIFIED ANTENNA	Integrated chip	Integrated chip / Terminal (via U.FL)	Integrated chip	Integrated chip	Integrated chip	Integrated chip	Integrated chip
REGULATORY CERTIFICATIONS	CE RED, FCC, ISED	CE RED, FCC, ISED, MIC, KCC, RCM, SRRC PAN1770/80AT: CE RED, FCC, ISED	CE RED, FCC, ISED, MIC, KCC, RCM, SRRC	CE RED, FCC, ISED	CE RED, FCC, ISED*	CE RED, FCC, ISED, MIC*	CE RED, FCC, ISED
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 2.0	15.6 x 8.7 x 2.0	ca. 10.4 x 9.6	9.0 x 9.5 x 1.8 (w/ Ant); 9.0 x 6.5 x 1.8 (w/o Ant)
Rx SENSITIVITY [dBm]	-93 @ 1MB/s	-95 @ 1Mb/s -103 @ 125kb/s	-95 @ 1Mb/s -103 @ 125kb/s	-96 @ 1Mb/s -103 @ 125kb/s	-97 @ 1Mb/s -103 @ 125kb/s		-90
Tx POWER (MAX.) [dBm]	+0	+8 (Chip Antenna)	+8	+8	+3 (Chip Antenna)		+10 (Chip Antenna) +11.5 (no Antenna)
POWER SUPPLY [V]	2.2 to 3.3	1.7 to 5.5	1.7 to 5.5	1.7 to 5.5	1.7 to 5.5		1.7 to 4.8
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: 4.9mA @ 0dBm Rx: 4.7mA	Tx: 3.4mA @ 0dBm Rx: 2.7mA		Tx: 40mA, 3.3V @ 8dBm Rx: 20mA, 3.3V
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	Wake-on-RTC: 1.5µA Off Mode: 0.6µA	Wake-on-RTC: 1.5µA Off Mode: 0.9µA		Deep Sleep Mode: 105 µA
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	GPIO, UART, QSPI, I2C, I2S, ADC, PDM, PWM, COMP, USB2.0	GPIO, UART, QSPI, I2C, I2S, ADC, PDM, NFC-A, USB2.0		GPIO, UART, PCM
OPERATING TEMP. [°C]	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85
PART NUMBER	ENW89852A1KF	ENW89854A1KF (PAN1780) ENW89854A3KF (PAN1780AT) ENW89854C1KF (PAN1770)	ENW89857A1KF	ENW89858A1KF	ENW89860A1KF (Chip Antenna) ENW89860C1KF (Bottom Pad)	ENW89861A1KF (PAN B511-1C) ENW89861C1KF (PAN B511-1B)	ENW89823A5KF (Chip Antenna) ENW89823C4KF (Bottom Pad)
EVALUATION KIT	ENW89852AXKF (Dongle) ENW89852AWKF (Dongle Kit)	ENW89854AUKF (PAN1780 EVB) ENW89854AVKF (PAN1780AT EVB) ENW89854CXKF (PAN1770 EVB)	ENW89857AXKF (EVB)	ENW89858AXKF (EVB)	ENW89860AXKF (EVB)		ENW89823AXKF (PAN1326C2 EVB) ENW89823CXKF (PAN1316C EVB)
STATUS	Mass Production	Mass Production	Mass Production	Mass Production	In Development	In Development	Mass Production

*Planned

Wi-Fi® & Bluetooth® LE



Wi-Fi®



Panasonic Industry Europe GmbH
wireless.connectivity@eu.panasonic.com
<https://industry.panasonic.eu>