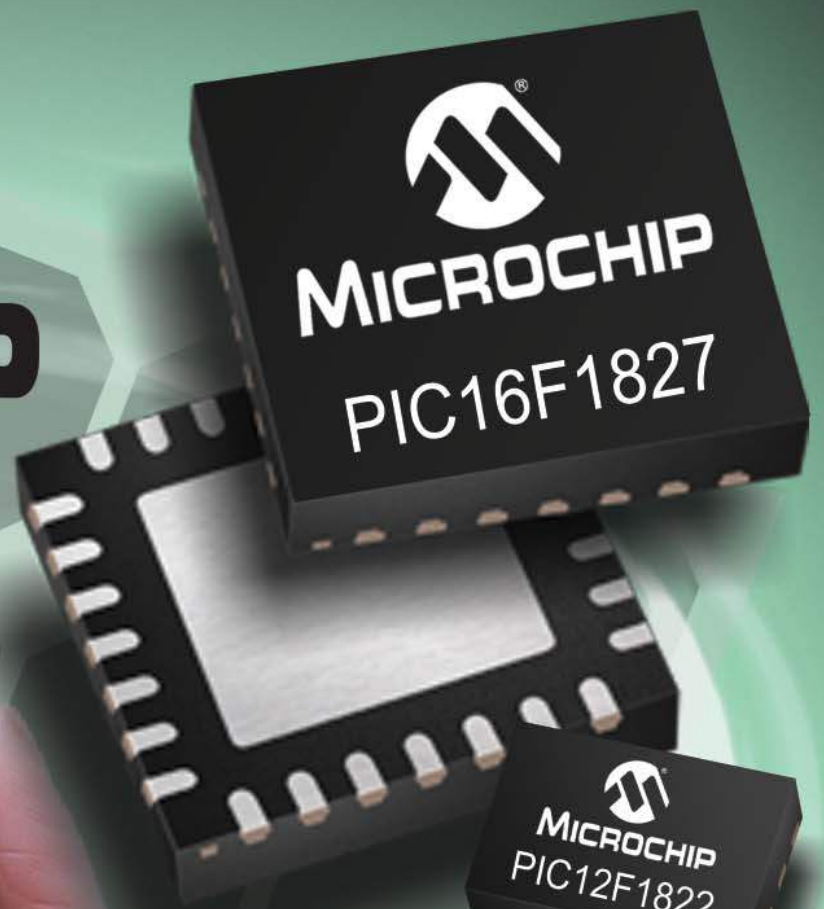
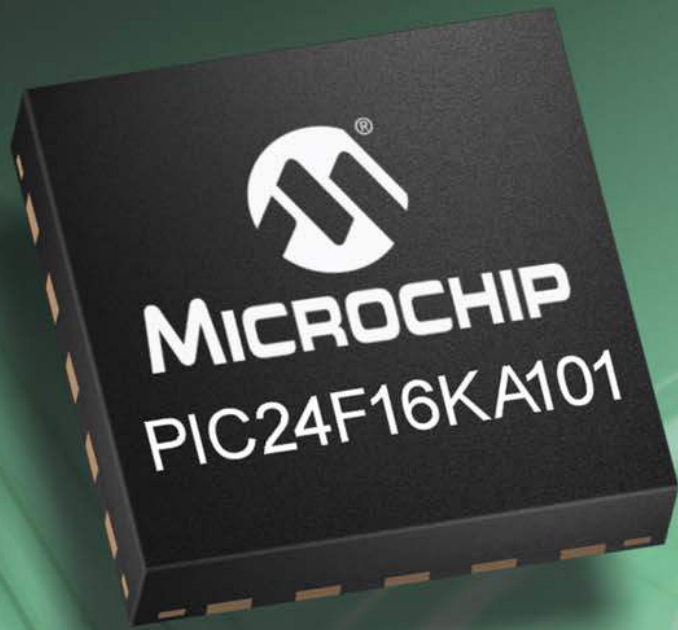




**MICROCHIP**



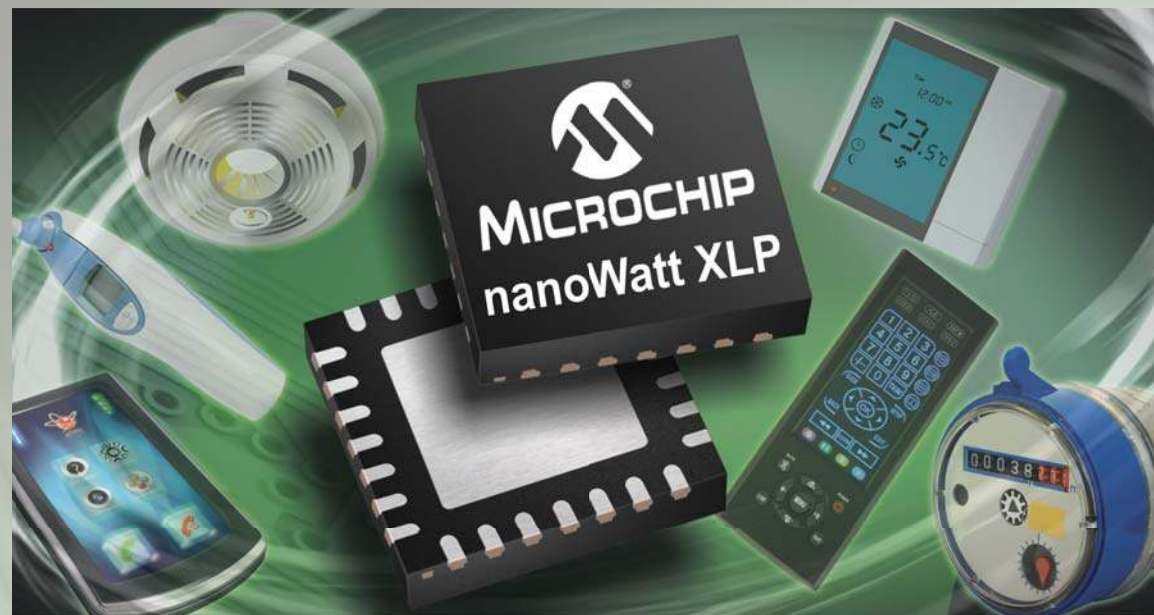
# nanoWatt XLP Technology



[www.microchip.com/XLP](http://www.microchip.com/XLP)



Products with nanoWatt XLP Technology offer the industry's lowest currents for Run and Sleep, where extreme low power applications spend 90-99% of their time.



### Looking Beyond Low Power MCUs

Microchip has introduced nanoWatt XLP eXtreme Low Power Technology to address the needs of your next product. Benefits include:

- Sleep currents below 20 nA
- Brown-out Reset down to 45 nA
- Watch-dog Timer down to 220 nA
- Real-time Clock/Calendar down to 470 nA
- Run currents down to 50 µA/MHz
- Full analog and self-write capability down to 1.8V

### Low Power Peripheral Integration

Today's low power products require integrated advanced peripherals. nanoWatt XLP MCUs are available with:

- USB Connectivity
- LCD Controllers
- Hardware RTCC
- mTouch™ Capacitive Touch Sensing

### Example XLP PIC® MCUs

Device	Flash Memory (KB)	Pins	Sleep (nA)	WDT* (nA)	RTC* (nA)	1 MHz Run (µA)
PIC16LF182X <small>CAP SENSE</small>	3.5-7	8-28	20	300	600	50
PIC16LF72X <small>CAP SENSE</small>	3.5-14	28/44	20	500	600	110
PIC16LF193X <small>CAP SENSE LCD</small>	7-28	28/44	60	500	600	150
PIC18LF1XK50 <small>CAP SENSE USB</small>	8-16	20	24	450	790	170
PIC18LF14K22 <small>CAP SENSE</small>	8-16	20	34	460	650	150
PIC18LF4XK22 <small>CAP SENSE</small>	8-64	28/44	50	600	500	250
PIC18F46J11 <small>CAP SENSE</small>	16-64	28/44	13	813	813	272
PIC18F46J50 <small>CAP SENSE USB</small>	16-64	28/44	13	813	813	272
PIC18F87K90 <small>CAP SENSE LCD</small>	32-128	64/80	25	350	720	181
PIC24F04KA201 <small>CAP SENSE</small>	4	14/20	20	370	470	195
PIC24F16KA102 <small>CAP SENSE</small>	8-16	20/28	20	420	520	195
PIC24FJ64GB004 <small>CAP SENSE USB</small>	32-64	28/44	20	220	520	250

\*Base sleep current included in WDT and/or RTC numbers. Typical I/O pin leakage current ±5 nA. All numbers are typical values at minimum V<sub>DD</sub>, taken from the data sheet.

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**75 PRODUCTS**

### Example Applications

#### Battery

- Consumer
- Utility Metering
- Asset Tracking
- Electronic Locks
- Portable Medical
- Smoke/CO<sub>2</sub> Detectors
- Irrigation Systems
- Security Systems/Sensors
- Remote Keyless Entry

#### Green Initiatives

- Compliance with Regulations
- Appliances
- Home Electronics

#### Energy Harvesting

- Wireless Switches
- Battery-free Sensors
- Wireless Sensor Networks
- RF Powered Sensors

### XLP 16-bit Development Board (DM240311)

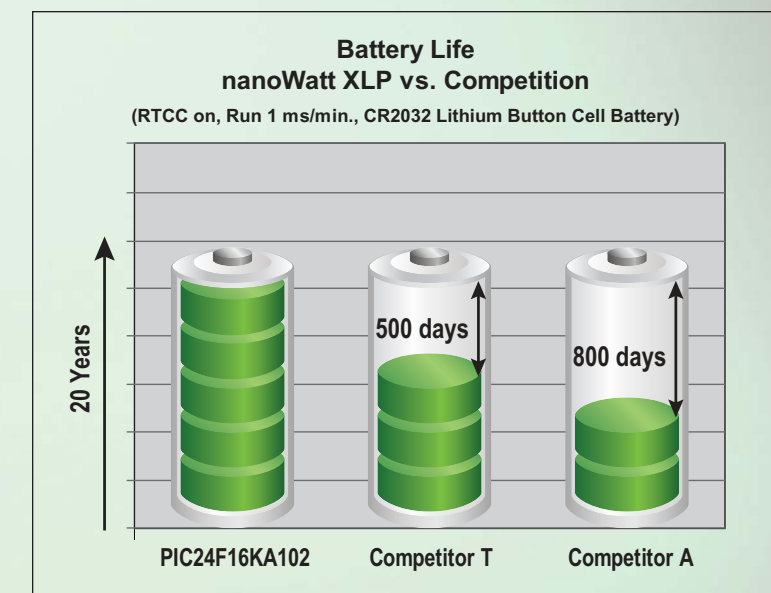
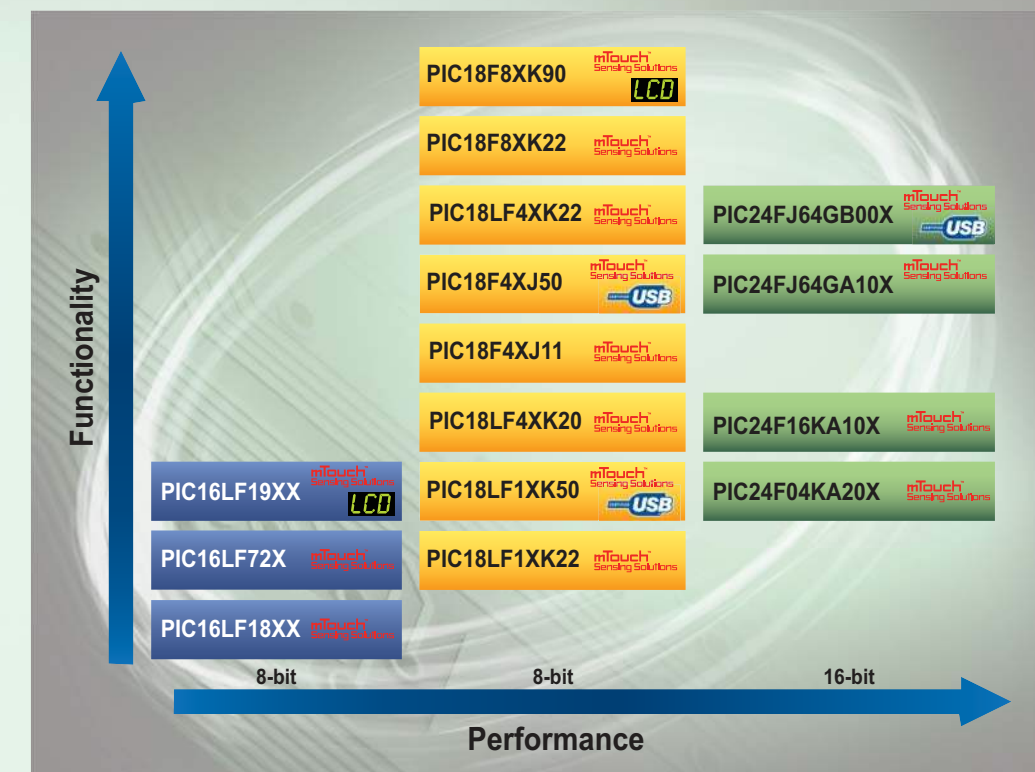


Designed with eXtreme Low Power in mind, this board enables development with the PIC24F family of 16-bit PIC XLP MCUs.

- Supports 20-/28-pin devices
- Flexible power options
  - CR2032 coin cell
  - 2xAAA lithium\*\* or alkaline cells
  - Energy harvesting: solar, vibration, RF, etc.
  - External/USB
- Easy Prototyping:
  - PICTail™ connector supports RF Modules, SD/MMC storage, speech playback modules and more
  - LEDs, capacitive and mechanical buttons, resistive pot, temperature sensor and EEPROM
  - Generic prototyping area
  - USB communication to PC

\*\* Microchip recommends Energizer® Ultimate Lithium AAA Batteries for the XLP 16-bit Development Board.

## Broad Low-Power Product Offering



[www.microchip.com/XLP](http://www.microchip.com/XLP)