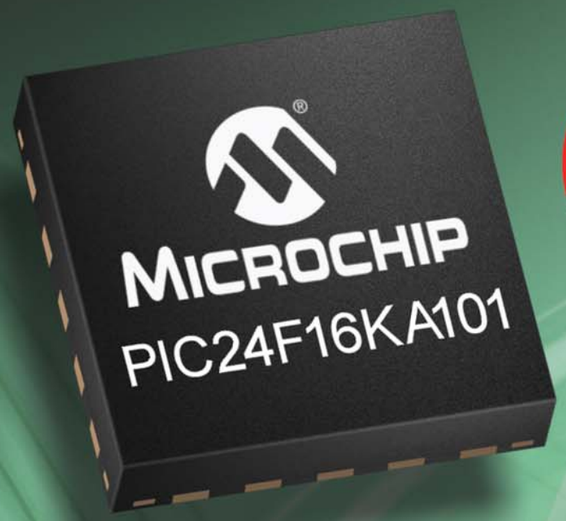
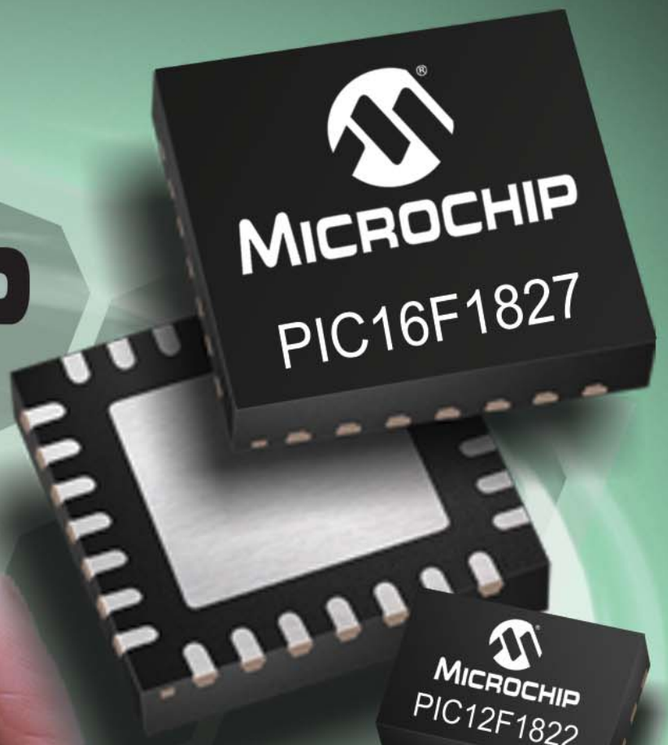
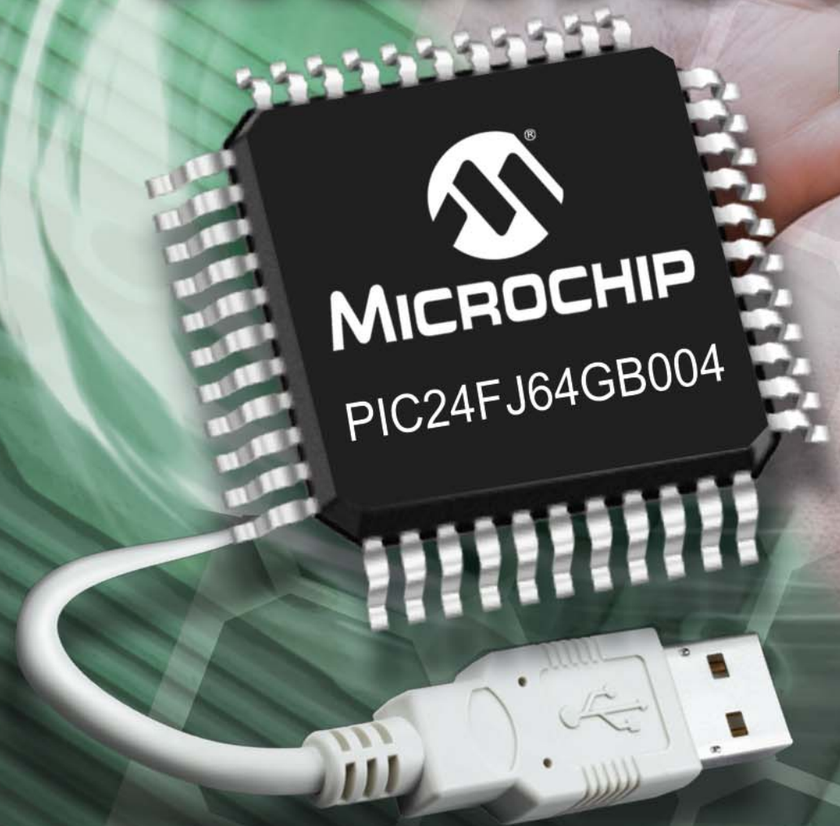
MICROCHIP

nanoWatt XLP Technology











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

Low Power Safety

Reliability is a primary concern for battery powered products. Integrated low power supervisory circuit benefits:

- Brown-out Reset guards against low batteries, power loss
- Watchdog Timer with on-chip clock source for dependable operation
- Real Time Clock/Calendar for precise time keeping

Low Power Design Support

Full support for your extreme low power design:

- Global Sales and Technical Support (24/7)
- Regional Training Centers
- Low Cost Development Tools
  - Free MPLAB® IDE and C Compiler
  - Free software stacks: USB, mTouch, ZigBee®, IrDA®
- On-line Design Center: www.microchip.com/XLP

Example XLP PIC® MCUs

Device	Flash Memory (KB)	Pins	Sleep (nA)	WDT* (nA)	RTC* (nA)	1 MHz Run (µA)
PIC16LF182X Cap Sense	3.5-7	8-28	20	300	600	50
PIC16LF72X Cap Sense	3.5-14	28/44	20	500	600	110
PIC16LF193X Cap Sense LCD	7-28	28/44	60	500	600	150
PIC18LF1XK50 Cap Sense USB	8-16	20	24	450	790	170
PIC18LF14K22 Cap Sense	8-16	20	34	460	650	150
PIC18LF4XK22 Cap Sense	8-64	28/44	50	600	500	250
PIC18F46J11 Cap Sense	16-64	28/44	13	813	813	272
PIC18F46J50 Cap Sense USB	16-64	28/44	13	813	813	272
PIC18F87K90 Cap Sense LCD	32-128	64/80	25	350	720	181
PIC24F04KA201 Cap Sense	4	14/20	20	370	470	195
PIC24F16KA102 Cap Sense	8-16	20/28	20	420	520	195
PIC24FJ64GB004 Cap Sense USB	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_{DD}, taken from the data sheet.

75 PRODUCTS

Example Applications

Battery

- Consumer
- Utility Metering
- Asset Tracking
- Electronic Locks
- Portable Medical
- Smoke/CO_2 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)

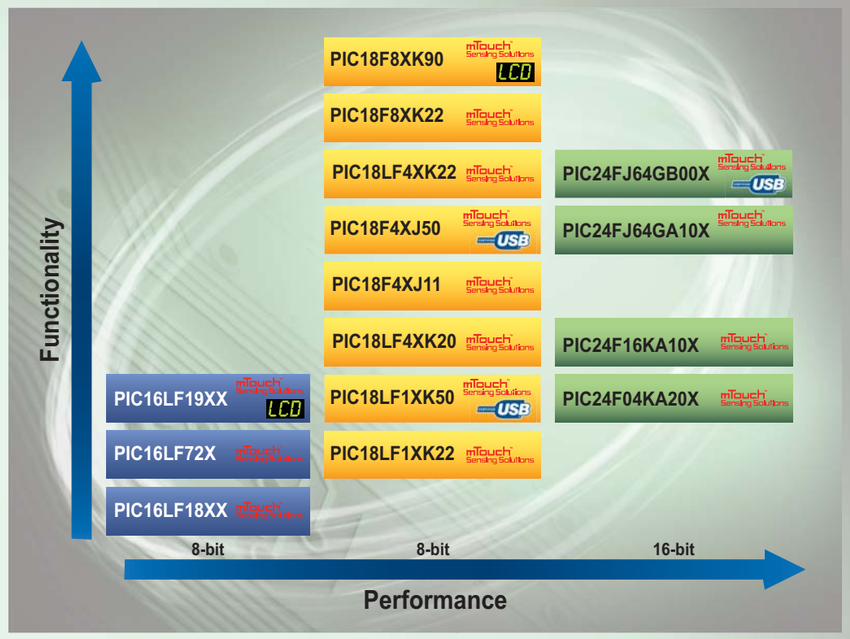


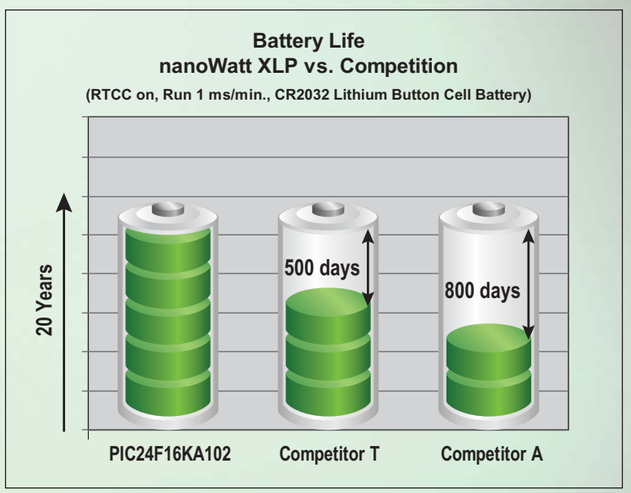
Designed with eXtreme Low Power in mind, this board enables development with the PIC24F family of 16-bit PIC XLP MCUs.

- 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





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