

# Infrared Product Family

In focusing on connectivity solutions for our customers, Microchip now offers products to support infrared wireless communication. With the explosive growth of mobile phones, Personal Digital Assistants (PDAs) and other handheld electronic devices, the need for a simple, low cost wireless communication method has grown as well.

The **MCP2120** Infrared Encoder/Decoder is the first low-cost, easy-to-use infrared peripheral from a company that also has a broad range of microcontrollers and other related products specifically targeted for embedded systems. Utilizing this device and an off-the-shelf infrared transceiver, Microchip customers will now be able to add wireless communication capability to their designs.

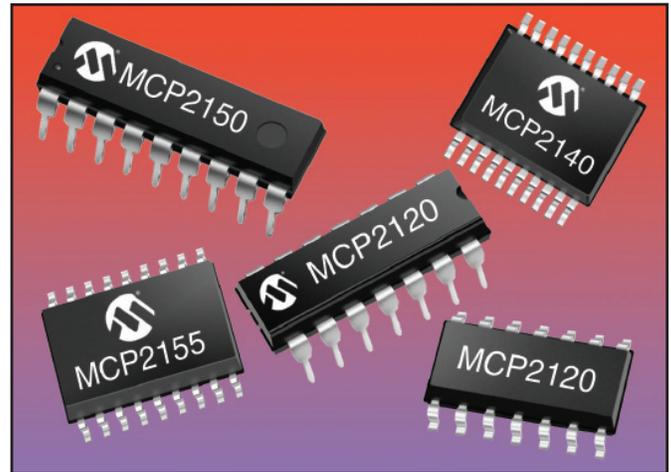
If interoperability with other infrared enabled devices is required in your design, Microchip again has your solution. The revolutionary **MCP2150** and **MCP2155** IrDA® protocol stack handler PLUS bit encoding/decoding devices are simply the smallest, and simplest way of adding IrDA functionality to embedded applications. In the past, supporting the complex IrDA protocol stack on the host microcontroller required a large amount of system resources and protocol stack knowledge. The MCP2150 and MCP2155 offload these requirements to a peripheral device, freeing up the system designer to focus on the design, not communication with the outside world.

In addition to the MCP2150 and MCP2155, Microchip offers the **MCP2140** Fixed Speed 9600 Baud IrDA Protocol Stack Controller for those high volume applications where costs are paramount. Additional benefits of the MCP2140 include an Automatic Low Power Mode, which keeps the device in a power-down state anytime there is no infrared activity. This function is ideal for minimizing current consumption and maximizing battery life.

Applications include wireless handheld data acquisition systems, modems, printers, digital cameras, mobile telephones or peripherals, hotel locks, Point-of-Sale (POS) terminals, wireless user interfaces, or any other application where a cost-effective method of transferring data without a cable is desired.

## MCP2120 Features:

- Supports IrDA Physical Layer Specification
  - (Baud rates up to 115.2k)
- Can support higher speeds than 115.2k bps with higher frequency crystal oscillator
- Available in 14-pin PDIP and 14-pin SOIC packages
- Connects to standard microcontroller UART peripherals
- Hardware and proprietary software baud rate selection
- Interfaces to industry standard infrared transceivers



## MCP2140, MCP2150 & MCP2155 Features:

- Implements IrDA protocol stack on small, low pin count devices
  - Includes support for Ir Link Access Protocol (IrLAP), Ir Link Management Protocol (IrLMP), Tiny Transport Protocol (Tiny TP), IrCOMM (9-wire cooked service class) and bit encoding/decoding portions of the IrPHY
- Available in 18-pin PDIP, 18-pin SOIC and 20-pin SSOP packages
- User-selectable baud rates of 9600, 19.2k, 57.5k and 115.2k bps (MCP2150 and MCP2155)
- Supports a fixed baud rate of 9600 (MCP2140)
- Automatic low power mode (MCP2140) where typical current consumption is <25  $\mu$ A
- Includes encoder/decoder capability to translate between UART bit streams and IrDA pulses
- Connects to standard microcontroller UART peripherals and optical transceivers

## Related Literature:

- AN243 Discrete IrDA® Transceiver Design
- AN756 Using the MCP2120 for Infrared Communication
- AN758 Using the MCP2150 to add IrDA® Standard Wireless Connectivity
- TB91046 Connecting the MCP2150 to a Psion OS
- TB91047 Connecting the MCP2150 to a Windows® CE OS
- TB91048 Connecting the MCP2150 to a Windows® OS
- TB91049 Connecting the MCP2150 to a Palm OS®
- TB91059 Using the MCP2150 Developer's Board with the MCP2155



## Additional Information:

- Microchip's web site: [www.microchip.com](http://www.microchip.com)
- *Product Line Card*, Order No. DS00148
- *Analog & Interface Families Data Book 2002*, Order No. DS00207
- *2002 Technical Documentation Analog & Interface Product Families CD-ROM*, Order No. DS51205
- *Analog Design Pack CD-ROM*, Order No. DS51205
- *Embedded Control Handbook*, Order No. DS00092
- *Stand-Alone Analog and Interface Solutions Flyer*, DS21060
- *Microchip's Overview, Quality Systems and Customer Interface System*, Order No. DS00169
- *MCP2120/MCP2150 Developer's Kit User Guide*, DS51246
- *IrDA® Standard Protocol Stack Controller with Fixed 9600 Baud Communication Rate*, DS21788
- *MCP2120 Data Sheet*, DS21618
- *MCP2140 Data Sheet*, DS21790
- *MCP2150 Data Sheet*, DS21665
- *MCP2155 Data Sheet*, DS21690

### Development Tools Support

The MCP2120/MCP2150 Infrared Developer's Kit includes everything needed to create a system that communicates using infrared. The kit contains two MCP2120 developer's boards enabling a complete system (transmitter and receiver) to be implemented. Also included is an MCP2150 developer's board that can be used to set up a system to communicate with other IrDA® enabled devices. In addition, this MCP2150 developer's board can be easily modified to assist in developing DCE applications with the MCP2155. On these developer's boards, customers can configure input and output options. Input options include direct connection to a host UART or through on-board headers. Output options include an off-the-shelf transceiver and a minimal cost component solution that is jumper-selectable. All of this functionality is designed to get the user communicating via infrared in the shortest amount of time.

### Development Tools for Interface Products from Microchip

MCP2120/2150 Developer's Kit	Infrared Products Developer's Kit
MCP2510 CAN Developer's Kit	MCP2510 CAN Evaluation/Development Tool
MCP250XX CAN I/O Expanders Developer's Kit	MCP250XX Evaluation/Development Tool

### Infrared Product Family

Product	Description	Max Baud Rate	Xmit/Rec Formats Supported	Voltage Range	Temperature Range	# Pins/Packages
MCP2120	Infrared Encoder/Decoder	115.2k*	1.63 µs	2.7V to 5.5V	-40°C to +85°C	14P, 14SO
MCP2140	Fixed baud IrDA protocol handler PLUS bit encoder/decoder	9600	1.63 µs	3.0V to 5.5V	-40°C to +85°C	18P, 18SO, 20SS
MCP2150	IrDA protocol handler PLUS bit encoder/decoder for DTE applications	115.2k	1.63 µs	3.0V to 5.5V	-40°C to +85°C	18P, 18SO, 20SS
MCP2155	IrDA protocol handler PLUS bit encoder/decoder for DCE applications	115.2k	1.63 µs	3.0V to 5.5V	-40°C to +85°C	18P, 18SO, 20SS

\* Can run up to 312.5k bps with higher frequency clock input

**Package Key:** P = PDIP SO = SOIC SS = SSOP

Visit our web site at [www.microchip.com](http://www.microchip.com) for additional product information and your local sales office.

Microchip Technology Inc. • 2355 W. Chandler Blvd. • Chandler, AZ 85224-6199 • (480) 792-7200 • Fax (480) 792-9210