



# connectivity

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*Exar Expands Multiprotocol Serial Transceiver Portfolio*

Internally Switched Cable Termination on SP338 Enables RS 232 and RS 485 422 Protocols to Share Same

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## XRA1402

8-Bit SPI GPIO Expander

### Features

### Applications

- 1.65V to 3.6V operating voltage
- 8 General Purpose I/Os (GPIOs)
- 5V tolerant inputs
- Maximum stand-by current of 1uA at +1.8V
- SPI bus interface
  - SPI Clock Frequency up to 26MHz
- Individually programmable inputs
  - Internal pull-up resistors
  - Polarity inversion
  - Individual interrupt enable
  - Rising edge and/or Falling edge interrupt
  - Input filter
- Individually programmable outputs
  - Output Level Control
  - Output Three-State Control
- Open-drain active low interrupt output
- Active-low reset input
- 3kV HBM ESD protection per JESD22-A114F
- 200mA latch-up performance per JESD78B

- Personal Digital Assistants (PDA)
- Cellular Phones/Data Devices
- Battery-Operated Devices
- Global Positioning System (GPS)
- Bluetooth

### Description

The XRA1402 is an 8-bit GPIO expander with an SPI interface. After power-up, the XRA1402 has internal 100K ohm pull-up resistors on each I/O pin that can be individually enabled.

In addition, the GPIOs on the XRA1402 can individually be controlled and configured. As outputs, the GPIOs can be outputs that are high, low or in three-state mode. The three-state mode feature is useful for applications where the power is removed from the remote devices, but they may still be connected to the GPIO expander.

As inputs, the internal pull-up resistors can be enabled or disabled and the input polarity can be inverted. The interrupt can be programmed for different behaviors. The interrupts can be programmed to generate an interrupt on the rising edge, falling edge or on both edges. The interrupt can be cleared if the input changes back to its original state or by reading the current state of the inputs.

The XRA1402 is available in 16-pin QFN and 16-pin TSSOP packages.

For technical support or to obtain an IBIS model for this product, please email [Exar's UART Technical Support group](#).

### Specifications

|                     |                  |
|---------------------|------------------|
| CPUInterface        | SPI              |
| No. ofGPIOs         | 8                |
| InterruptOutput Pin | Yes              |
| ResetInput Pin      | Yes              |
| 5VToIInputs         | Yes              |
| Sup V               | 1.65V - 3.6V     |
| Package Type        | QFN-16, TSSOP-16 |

### Documents



[Block Diagram](#)

#### • Datasheets

[Datasheet](#)  
Version 1.0.0  
September 2011  
403.68 KB

#### • Schematics

[Schematics](#)  
Version 1.0  
October 2011  
83.29 KB

#### • Manuals

[Evaluation Board User's Manual](#)  
Version 1.0.0  
October 2011  
245.45 KB

| Part Number       | Pkg Code                | RoHS | No. of GPIOs | Operating Temperature Range | Status | Buy Now | Order Samples |
|-------------------|-------------------------|------|--------------|-----------------------------|--------|---------|---------------|
| XRA1402IL16-0B-EB | <a href="#">Board</a>   |      |              |                             | Active |         |               |
| XRA1402IL16-F     | <a href="#">QFN16</a>   |      | 8            | -40°C to +85°C              | Active |         |               |
| XRA1402IL16TR-F   | <a href="#">QFN16</a>   |      | 8            | -40°C to +85°C              | Active |         |               |
| XRA1402IG16-0B-EB | <a href="#">Board</a>   |      |              |                             | Active |         |               |
| XRA1402IG16-F     | <a href="#">TSSOP16</a> |      | 8            | -40°C to +85°C              | Active |         |               |
| XRA1402IG16TR-F   | <a href="#">TSSOP16</a> |      | 8            | -40°C to +85°C              | Active |         |               |

### Part Status Legend

**Active** - the part is released for sale, standard product.

**EOL (End of Life)** - the part is no longer being manufactured, there may or may not be inventory still in stock.

**CF (Contact Factory)** - the part is still active but customers should check with the factory for availability. Longer lead-times may apply.

**PRE (Pre-introduction)** - the part has not been introduced or the part number is an early version available for sample only.

**OBS (Obsolete)** - the part is no longer being manufactured and may not be ordered.

**NRND (Not Recommended for New Designs)** - the part is not recommended for new designs.