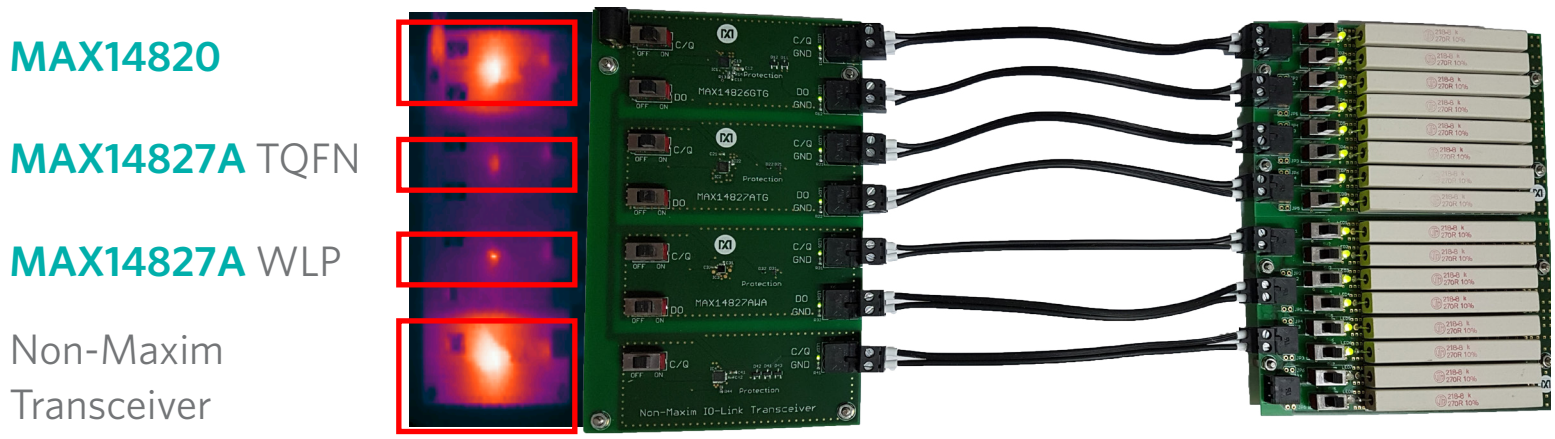
# IO-Link Device Transceivers

## IO-LINK TRANSCEIVERS OUTPERFORM UNDER FULL LOAD CONDITIONS

In IO-Link® applications, the transceiver acts as the physical layer interface to a microcontroller running the data-link layer protocol while supporting up to 24V digital inputs and outputs. Maxim transceivers have long supported all IO-Link specifications and feature the lowest power dissipation. Using a thermal camera picture, the Maxim Integrated transceivers performed better under full load conditions while the competition transceiver drove only half the load of the Maxim transceiver.

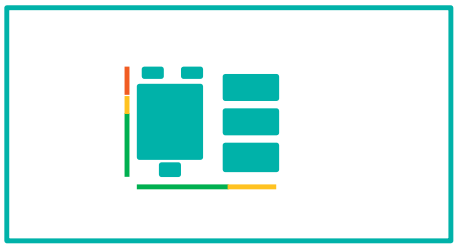



*Power dissipation in a single-channel 180mW transceiver (Maxim) vs. 500mW transceiver (Non-Maxim)*

- **MAX14820** – The first IO-Link transceiver in the family dissipates almost 900mW when drivers are under full load conditions
- **MAX14827A** – Provides 80% power savings over the other IO Link products in the market today.
- **MAX14828** – Features ultra-low-power driver (C/Q) with active reverse-polarity protection.

## WHY CHOOSE MAXIM FOR SENSOR INTERFACE?

### Non-Maxim Solution



- Single Channel
- 3 External Diodes Required

### Older Maxim Solution

- Dual Channel
- 2 External Diodes Required

### MAX14827A Solution

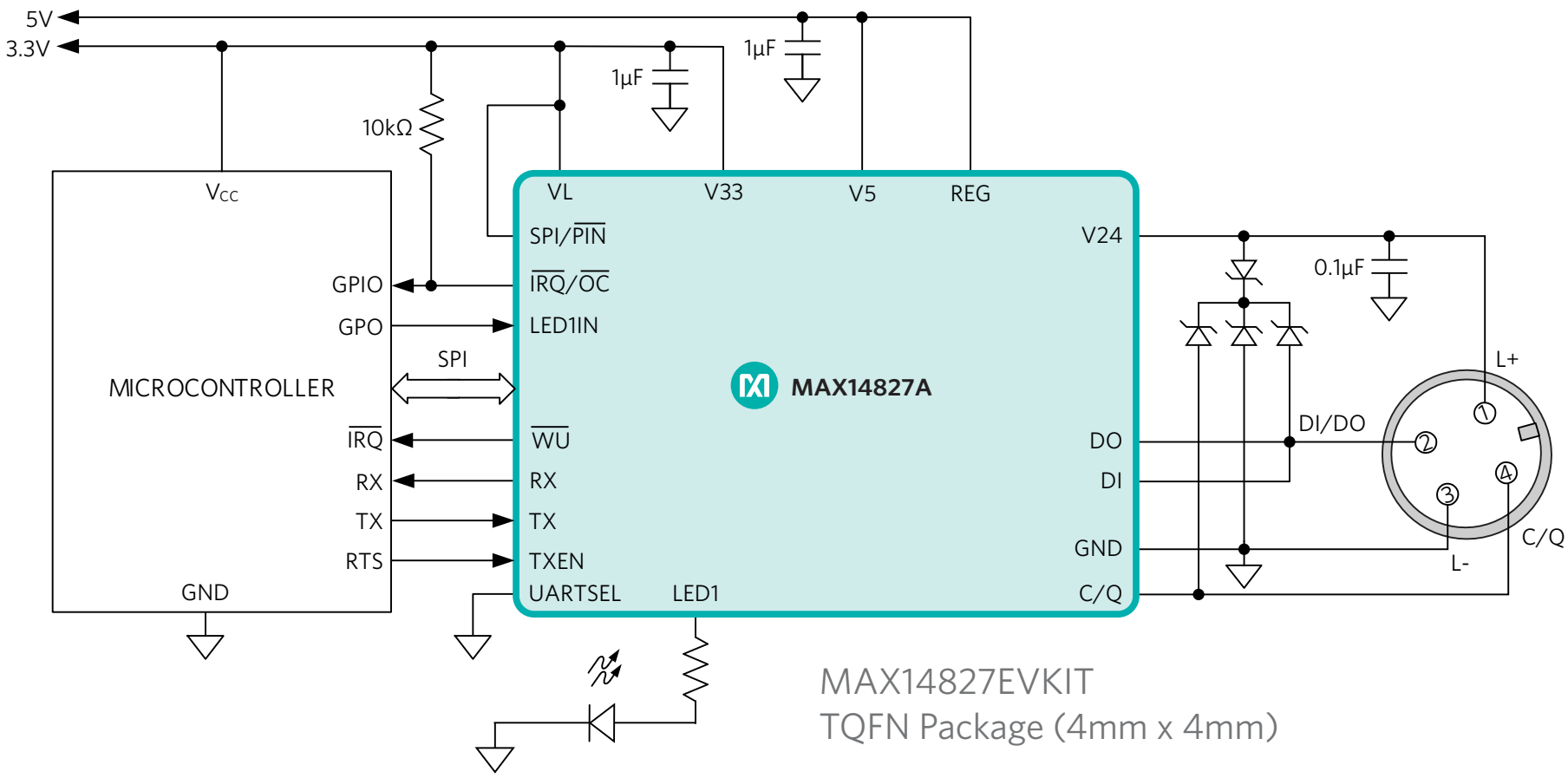
- Dual Channel
- WLP Lowers Footprint By 60%
- Dissipates 80% Less Power

## WHY CHOOSE MAXIM FOR SENSOR INTERFACE? (CONT.)

Maxim has a long and committed history with IO-Link featuring multi-generation transceivers that are small and only getting smaller. As the transceivers increase in robustness, less external protection is required and smaller footprint TVSs can be included. They also include integrated 3.3V and 5V LDOs that power external circuitry, reducing the need for an external LDO, keeping the overall solution size small.

## MAX14827A AND MAX14828 - DUAL/SINGLE IO-LINK TRANSCEIVERS

Lowest power and smallest IO-Link transceivers




MAX14827EVKIT
TQFN Package (4mm x 4mm)

The MAX14827A/MAX14828 are the latest Maxim IO-Link transceivers, featuring the lowest power and the smallest size in a tiny WLP or a TQFN, meeting the demands of tiny sensors by providing 60% space savings. With a low $R_{ON}$ of 2.3Ω/1.2Ω (typ) for the MAX14827A/MAX14828, respectively, they provide more than 80% savings in power dissipation (or voltage drop) to ensure sensors stay cooler and withstand harsh environments.

The MAX14827A/MAX14828 65V absolute maximum rating allows flexibility in selecting external TVS protection devices, enabling lower system costs and smaller solution sizes. Integrated protection (reverse polarity/short-circuit protection) and extensive diagnostics improve factory up-time and robustness. An SPI or pin-control interface enables applications to use them with either a microcontroller or as a stand-alone binary solution without a microconroller.

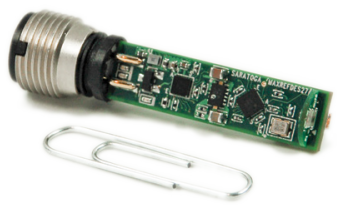
## MAX14827A AND MAX14828 – DUAL/SINGLE IO-LINK TRANSCEIVERS (CONT.)

| Key Benefits | Applications |
|---|---|
| • Low 2.3Ω or 1.2Ω (typ) $R_{ON}$ Saves 80% Power Dissipation<br>• Tiny WLP (2.5mm x 2.5mm)/24-Pin TQFN 4mm x 4mm Packages Save 60% Space<br>• High Integration and Configurability Reduce SKUs<br>  • C/Q, Auxiliary Digital Input/Digital Output<br>  • 3.3V/5V LDOs<br>  • SPI/Pin-Control Interface for Diagnostics/Monitoring<br>• Integrated Robustness for Harsh Environments<br>  • 65V Absolute Maximum Ratings for Smaller External Protection<br>  • Reverse Polarity/Short-Circuit Protection<br>  • -40°C to +125°C Operation | • Industrial Binary Sensors<br>• Proximity Switches<br>• Capacitive and Inductive Sensors<br>• Temperature Sensors |

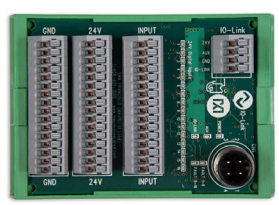
## INDUSTRIAL IO-LINK REFERENCE DESIGNS

Inventing the next generation of IO-Link solutions

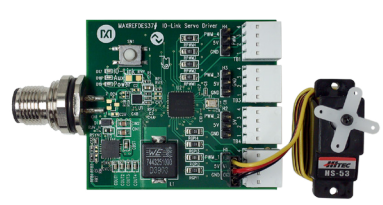
Temp Sensor



Proximity



16 Digital Input



Motion Control

8-Port IO-Link Master

| Product Line | Interface | Description | Order |
|---|---|---|---|
| **Sensor** | | | |
| MAXREFDES27 | IO-Link | Optical Proximity Sensor with IO-Link Interface | |
| MAXREFDES36 | IO-Link | 16-Channel Digital Input with IO-Link Interface | |
| MAXREFDES37 | IO-Link | IO-Link Quad Servo Driver | |
| MAXREFDES42 | IO-Link | RTD Temp Sensor with IO-Link Interface | |
| MAXREFDES163 | IO-Link | Industrial Magnetic Sensor | |
| **Master** | | | |
| MAXREFDES79 | IO-Link | 4-Port IO-Link Master | |
| MAXREFDES145 | IO-Link | 8-Channel IO-Link Master | |
| MAXREFDES165 | IO-Link | 4-Channel IO-Link Master | |