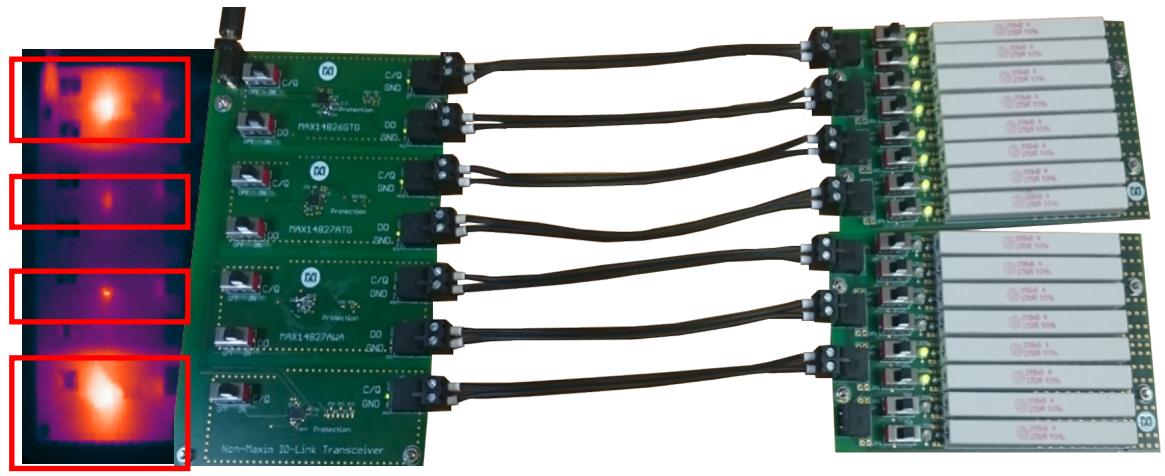
IO-Link Device Transceivers

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.

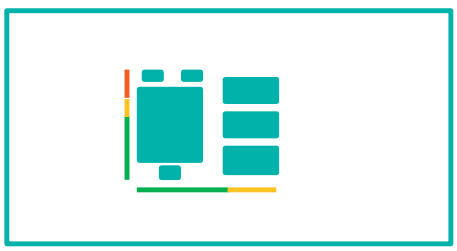


Power dissipation in a single-channel 180mW transceiver (Maxim) vs. 500mW transceiver (Non-Maxim)

- **MAX14820** – The first IO-Link transceiver in the family dissipates almost 900mW when drivers are under full load conditions
- **MAX14827** – Provides 80% power savings over the other IO Link products in the market today.

WHY CHOOSE MAXIM FOR SENSOR INTERFACE?

Non-Maxim Solution



- Single Channel
- 3 External Diodes Required

Older Maxim Solution

- Dual Channel
- 2 External Diodes Required

MAX14827 Solution

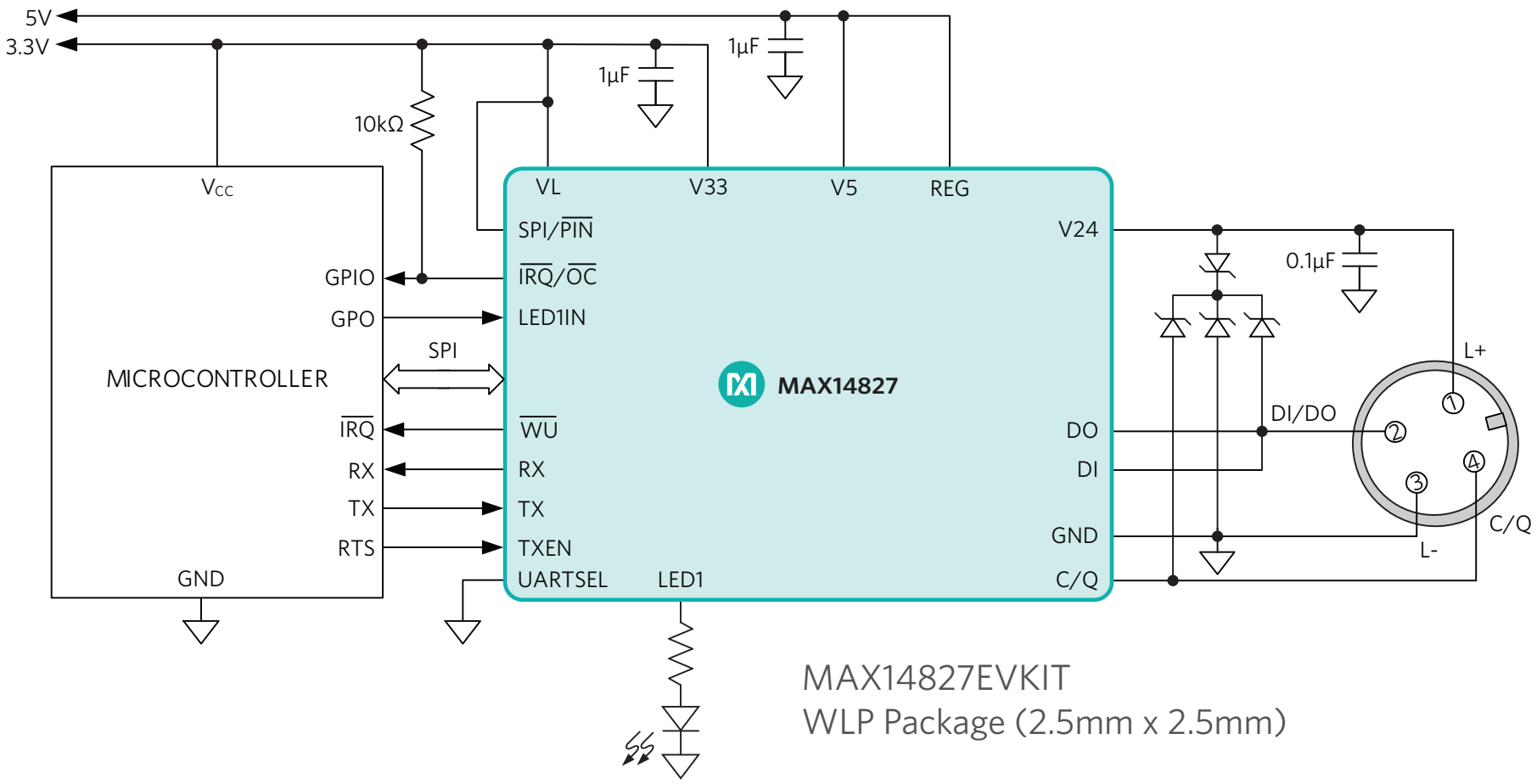
- Dual Channel
- WLP Lowers Footprint By 60%
- Dissipates 80% Less Power

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.

MAX14827 – DUAL 250mA IO-LINK TRANSCEIVER

Lowest power and smallest IO-Link transceiver



MAX14827EVKIT
WLP Package (2.5mm x 2.5mm)

The MAX14827 is the latest Maxim IO-Link transceiver, featuring the lowest power and the smallest size in a tiny WLP, meeting the demands of tiny sensors by providing 60% space savings. With a low R_{ON} of 2Ω (typ), it provides more than 80% savings in power dissipation (or voltage drop) to ensure sensors stay cooler and withstand harsh environments.

The MAX14827's 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 it with either a µC or as a stand-alone binary solution without a µC.

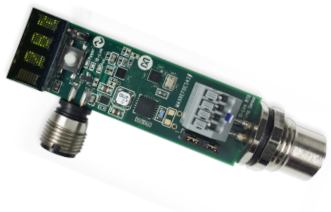
MAX14827 – DUAL 250mA IO-LINK TRANSCEIVER (CONT.)

Key Benefits	Applications

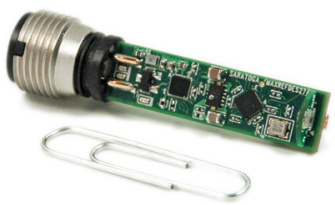
• Low 2.3Ω (typ) R_{ON} Saves 80% Power Dissipation
• Tiny WLP (2.5mm x 2.5mm)/24-Pin TQFN 4mm x 4mm Packages Save 60% Space
• High Integration and Configurability Reduce SKUs
  • C/Q, Auxiliary Digital Input/Digital Output
  • 3.3V/5V LDOs
  • SPI/Pin-Control Interface for Diagnostics/Monitoring
• Integrated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

INDUSTRIAL IO-LINK REFERENCE DESIGNS

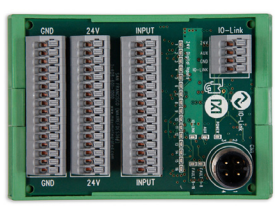
Inventing the next generation of IO-Link solutions



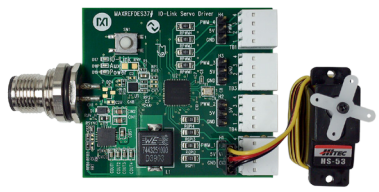
Temp Sensor



Proximity



16 Digital Input



Motion Control

Quad 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	
Master			
MAXREFDES79	IO-Link	4-Port IO-Link Master	