*Design Guide: TIDA-011034*

# *TIDA-011034 High-Performance IO-Link Master Module Reference Design*

## Description

This reference design implements an 8-port IO-link master using four TIOM2212 IO-link master transceivers with TPS274C65 power switches, valuable across TI processors (MSPM0G3507, AM261x, AM243x) by an 80-pin BoosterPack™ interface. This reference design uses three port tiers (high, medium, and low-cost) to showcase how the TIOM2212 scales from full-featured to cost-optimized applications. The design also supports IO-Link COM3 at a 400µs minimum cycle time.

This reference design supports 2A output on L+ and CQ, also enabling a 1A digital output with digital input function on pin 2.

## Resources

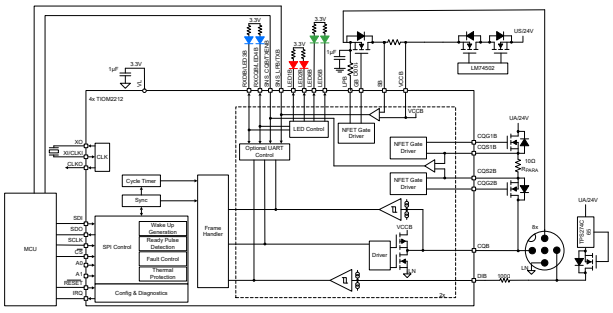
| | |
|---|---|
| TIDA-011034 | Design Folder |
| LP-MSPM33C321A, TIOM2212 | Product Folder |
| TPS274C65, LM74502 | Product Folder |
| TPS274C65, CSD18543Q3A | Product Folder |
| TVS3300, TSM36A | Product Folder |
| CSD19538Q2, TLVM23615 | Product Folder |
| CSD18540Q5B | Product Folder |

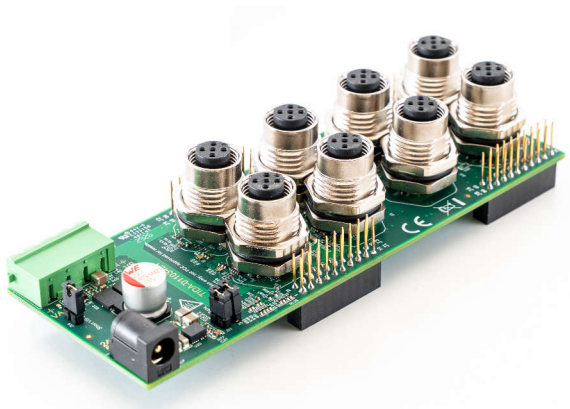
## Features

- Eight Ports, 4× TIOM2212 IO-Link master transceivers with integrated frame handler, SPI up to 40MHz
- Up to 2A drive current on both L+ and CQ lines, plus eight digital inputs and six digital outputs for direct actuator and sensor control without external circuitry
- 3× NFET drivers per TIOM port, enabling reverse-current blocking and lower system cost than PFET-based designs
- 2 RGB LEDs per port (six LED drivers/port) for port status indication
- Current sensing on L+, CQ, and digital I/O lines
- BoosterPack form factor compatible with MSPM0, MSPM33, AM261x, and AM243x LaunchPads

## Applications

- Communication Module
- Stand-alone Remote IO







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