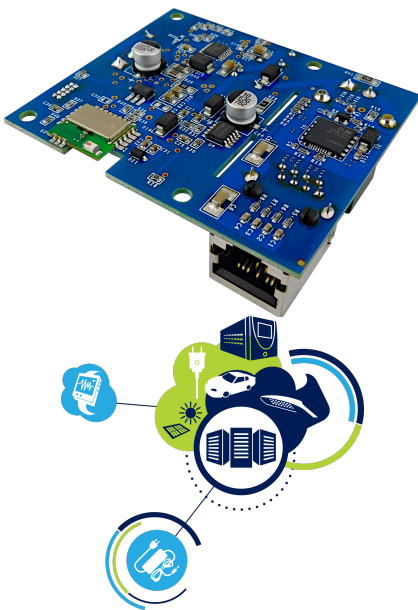


Power over Ethernet (PoE) powered 45 W LED driver with Bluetooth Low Energy (BLE) enabled control reference design



Features

- PoE-PD IEEE 802.3af/at/bt compliant
- Constant current output, working in buck topology
- Output current – 1.4 A with < 0.05% current regulation
 - Number of LEDs connected at output: 6 – 11 white LEDs (3.3 V each)
- Wireless ON/OFF and dimming control with [PoE_Lighting](#) Android application
- Digital dimming with 1% resolution
- LED driver input voltage range 37 – 57 V_{DC}
- Peak efficiency at maximum load > 95%
- Low standby power consumption < 100 mW
- Comprehensive set of protections:
 - open/no-load circuit protection
 - short/overload circuit protection
- RoHS compliant
- WEEE compliant

Description

The [STEVAL-POEL45W1](#) Power over Ethernet (PoE) powered LED driver reference design delivers a power output of 45 W and dims LEDs down to 1% of the maximum brightness without any flicker. The solution supports remote dimming control via Bluetooth with the [PoE_Lighting](#) Android application (available on [Google Play](#)).

You can use this reference design to develop complete indoor network-powered lighting solutions with IP-based Powered Devices (PDs), without additional AC power infrastructure, and extend the functionality to include remote data management via existing LAN networks.

The reference design features a highly integrated [PM8805](#) IEEE802.3bt-compliant Powered Device (PD) PoE interface, a high efficiency [LED6000](#) LED driver able to source up to 3 A_{DC} current, and a certified [SPBTLE-1S](#) Bluetooth Low Energy module, compliant with BT specifications v4.2 and BQE qualified.

For new designs, the [BLUENRG-M2SA](#) module for Bluetooth® low energy v5.2 is recommended.

[SPBTLE-1S](#) and [BLUENRG-M2SA](#) are pin to pin compatible.

The [STSW-POEL45FW](#) board firmware is programmed via the [STSW-BNRG1STLINK](#) utility.

Product summary	
Power over Ethernet (PoE) supplied, 45 W LED driver with Bluetooth Low Energy (BLE) enabled control reference design	STEVAL-POEL45W1
Firmware for the STEVAL-POEL45W1	STSW-POEL45FW
IEEE802.3bt PoE-PD interface with integrated dual-active bridge	PM8805
3 A, 61 V monolithic current source with dimming capability	LED6000
Very low power application module for Bluetooth Smart v4.2	SPBTLE-1S
Very low power application processor module for Bluetooth® low energy v5.2	BLUENRG-M2SA
Android app for STEVAL-POEL45W1 LED driver	PoE_Lighting

1 Schematic diagrams

Figure 1. STEVAL-POEL45W1 board schematic (1 of 2)

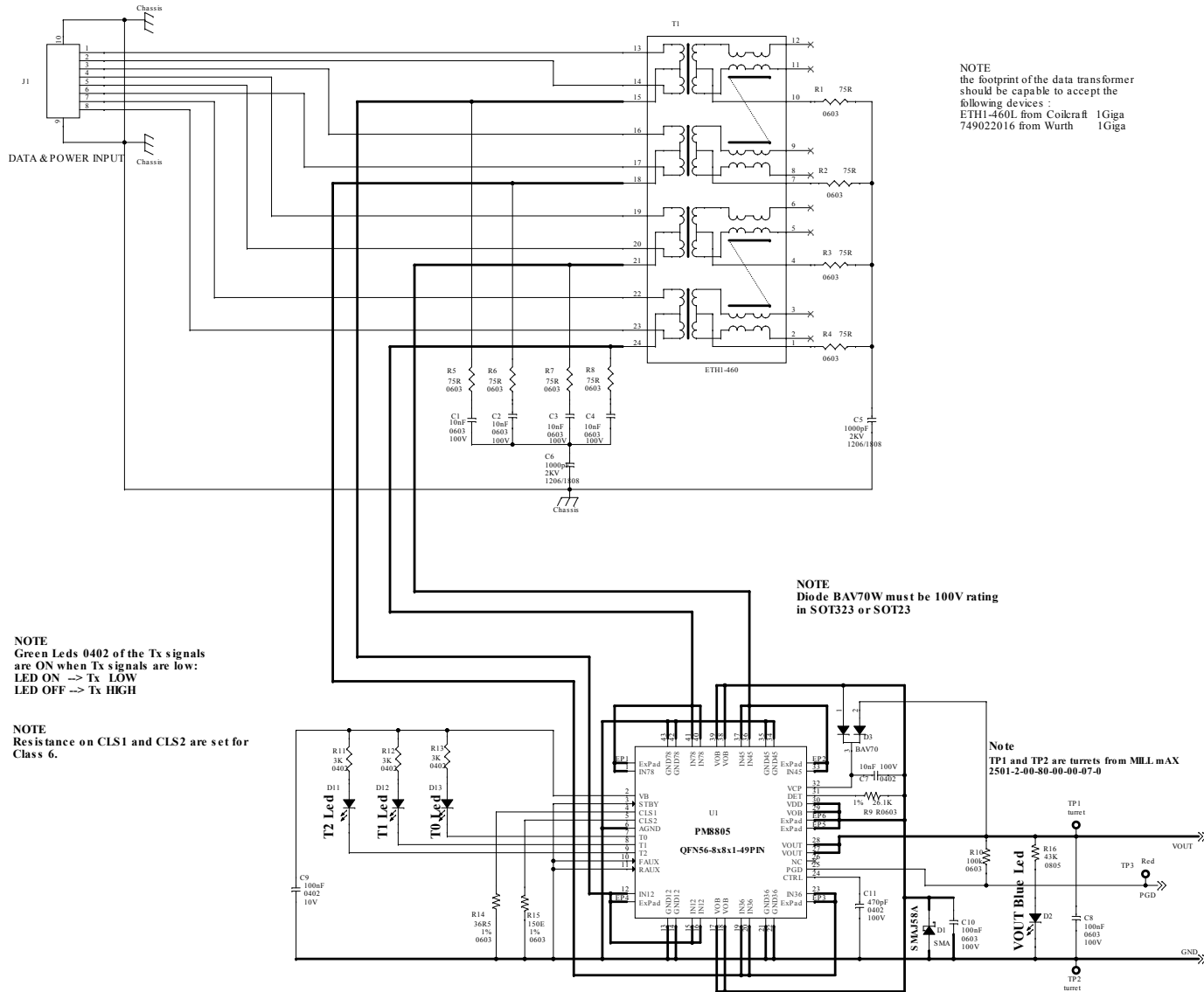
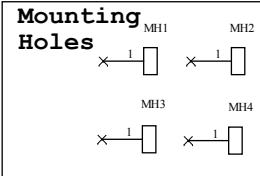
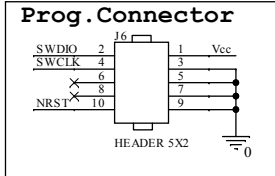
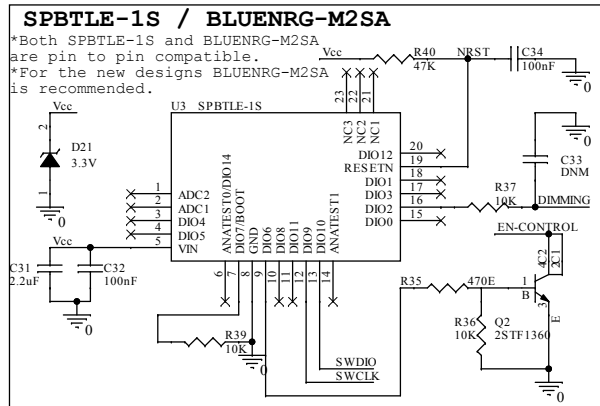
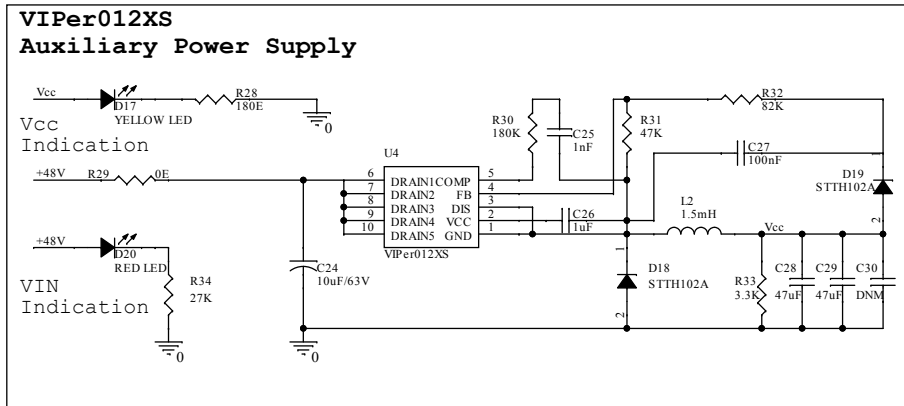
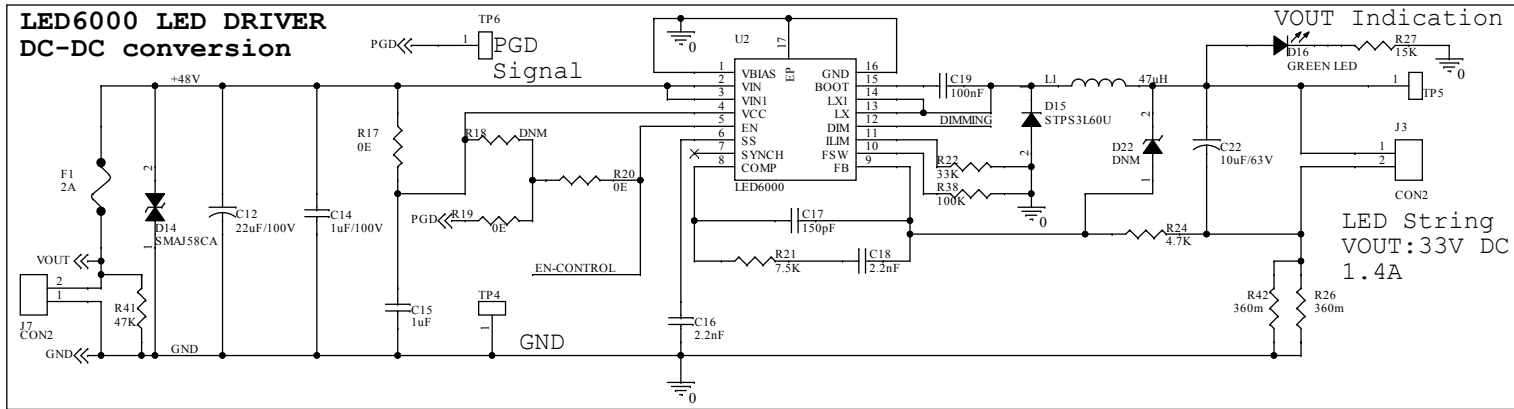


Figure 2. STEVAL-POEL45W1 board schematic (2 of 2)



Revision history

Table 1. Document revision history

Date	Version	Changes
10-Oct-2018	1	Initial release.
05-Mar-2019	2	Updated product summary table.
18-Apr-2019	3	Updated cover page title, image, product summary table, features and description.
25-Mar-2021	4	Added BLUENRG-M2SA compatibility information. Updated Section 1 Schematic diagrams .

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