

Specific CAN-controlled brushless motor evaluation board based on SPC560P and L9908 with BLDC motor included



Features

- Hosts an automotive-grade **L9908** gate driver to control 6 N-channel FETs and **SPC560P** Pictus 32-bit automotive microcontroller
- Works with 12 V, 24 V and 48 V battery bus
- Independent encoder inputs and Hall sensors
- Gate driver configurable through dedicated SPI bus
- Dedicated PWM input pin for each gate driver
- CAN bus interface for remote control
- BLDC motor included in the package:
 - Rated power 65 W
 - Rated torque 13 Ncm
 - Rated current 3.26 A
 - Rated voltage 24 V
 - Rated speed 4840 rpm

Description

The **AEK-MOT-3P9908M** evaluation board is based on the **SPC560P** Pictus 32-bit MCU and the **L9908** gate driver allowing the control of 6 N-channel FETs for brushless motors in automotive applications.

The **AEK-MOT-3P9908M** supports independent encoder inputs and Hall sensors to detect and control motor speed.

The **L9908** independently controls each N-channel FET through a dedicated PWM input pin. **L9908** configuration, protection and diagnostic functions are controlled via SPI by the **SPC560P** microcontroller.

Firmware is preloaded and can be externally driven via CAN bus. The **STSW-AUTODEVKIT** contains a CAN bus driving example based on **SPC58** Chorus 4M, named “**SPC58ECxx_RLA_MainEcuForBLDCCControl-L9908 - Test Application**”. In the project folder, a readme file explains how to use the demo which works only with a BLDC motor with Hall sensors.

To change the motor characteristics or the control firmware on the **SPC560P50L5**, you need to install the **SPC5-MCTK-LIB** motor control plug-in in **SPC5Studio**.

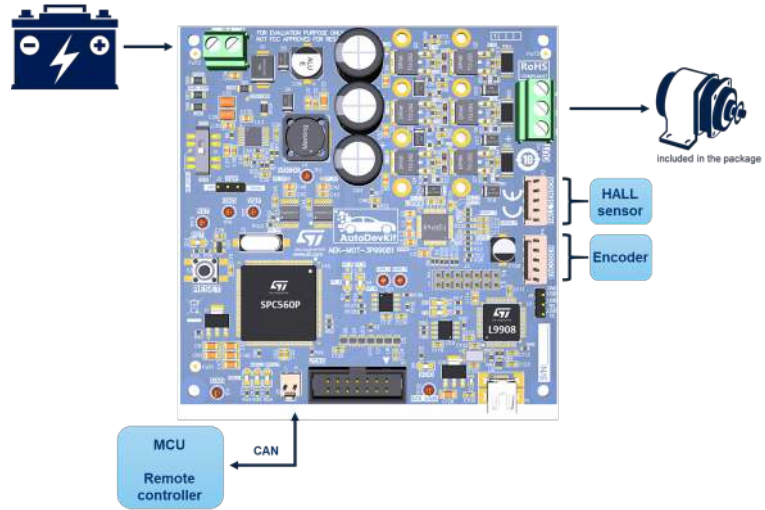
Once the motor control plug-in is installed, select the “**SPC560Pxx_RLA_AEK_MOT_3P99081_3Phase_Motor_Control_L9908_via_CAN**” demo and make your customizations in the Motor Control Component section.

Update the Motor Settings section according to the motor used and, if the motor sensing is not based on Hall sensors, update also the type of sensor used in the Speed Sensor Selection menu of the Drive Management section.

Product summary	
Evaluation board based on SPC560P Pictus 32-bit MCU and L9908 gate driver L9908 with BLDC motor included	AEK-MOT-3P9908M
AutoDevKit library plugin for SPC5-STUDIO	STSW-AUTODEVKIT
Code Generator, Quick resources configurator and Eclipse development environment for SPC5 MCUs	SPC5-STUDIO
32-bit Power Architecture MCU for Automotive Chassis and Safety Applications	SPC560P50L5
Applications	Motor Control

1 Block diagram

Figure 1. AEK-MOT-3P9908M block diagram



2 Schematic diagrams

Figure 2. AEK-MOT-3P9908M circuit schematic (1 of 5)

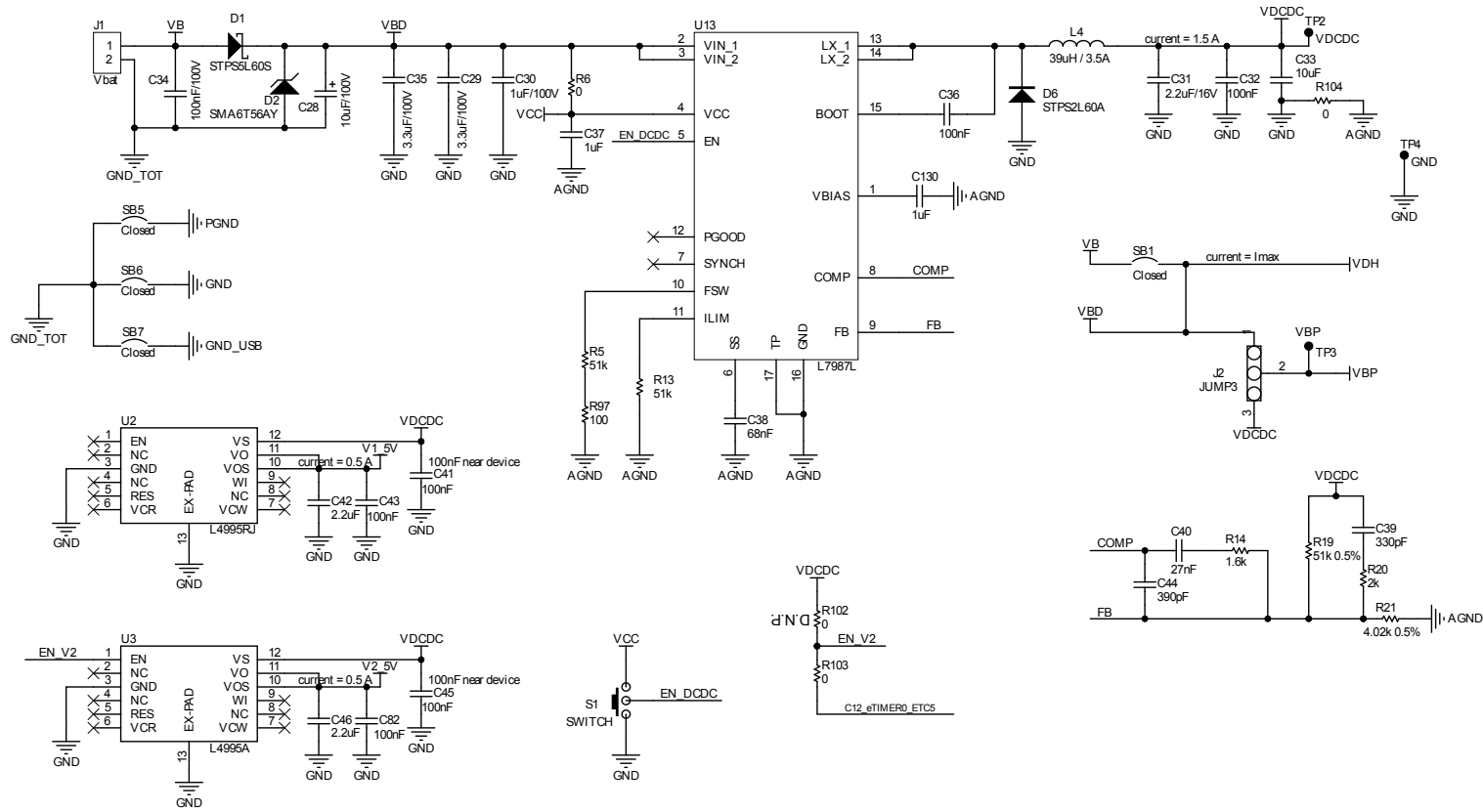


Figure 3. AEK-MOT-3P9908M circuit schematic (2 of 5)

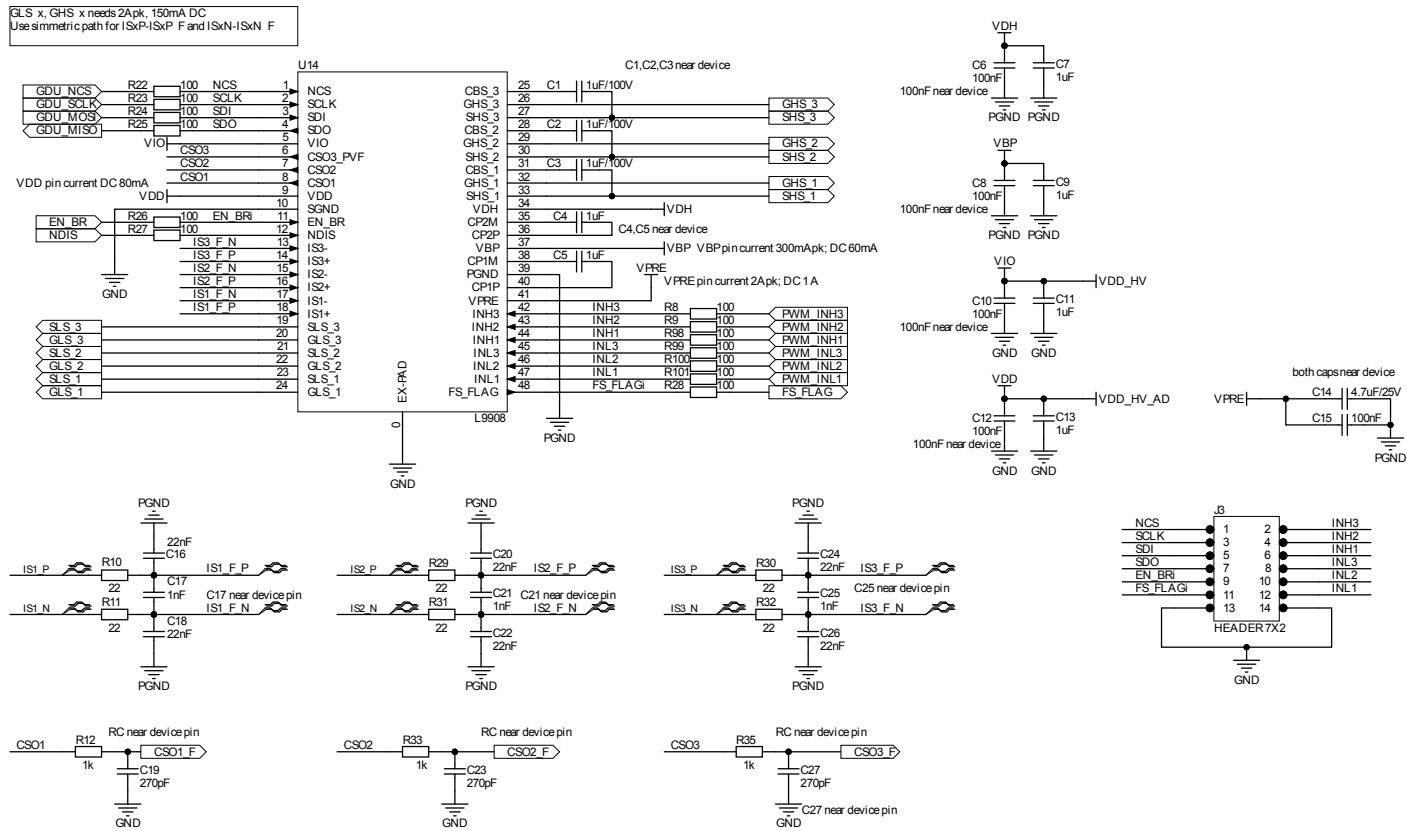


Figure 4. AEK-MOT-3P9908M circuit schematic (3 of 5)

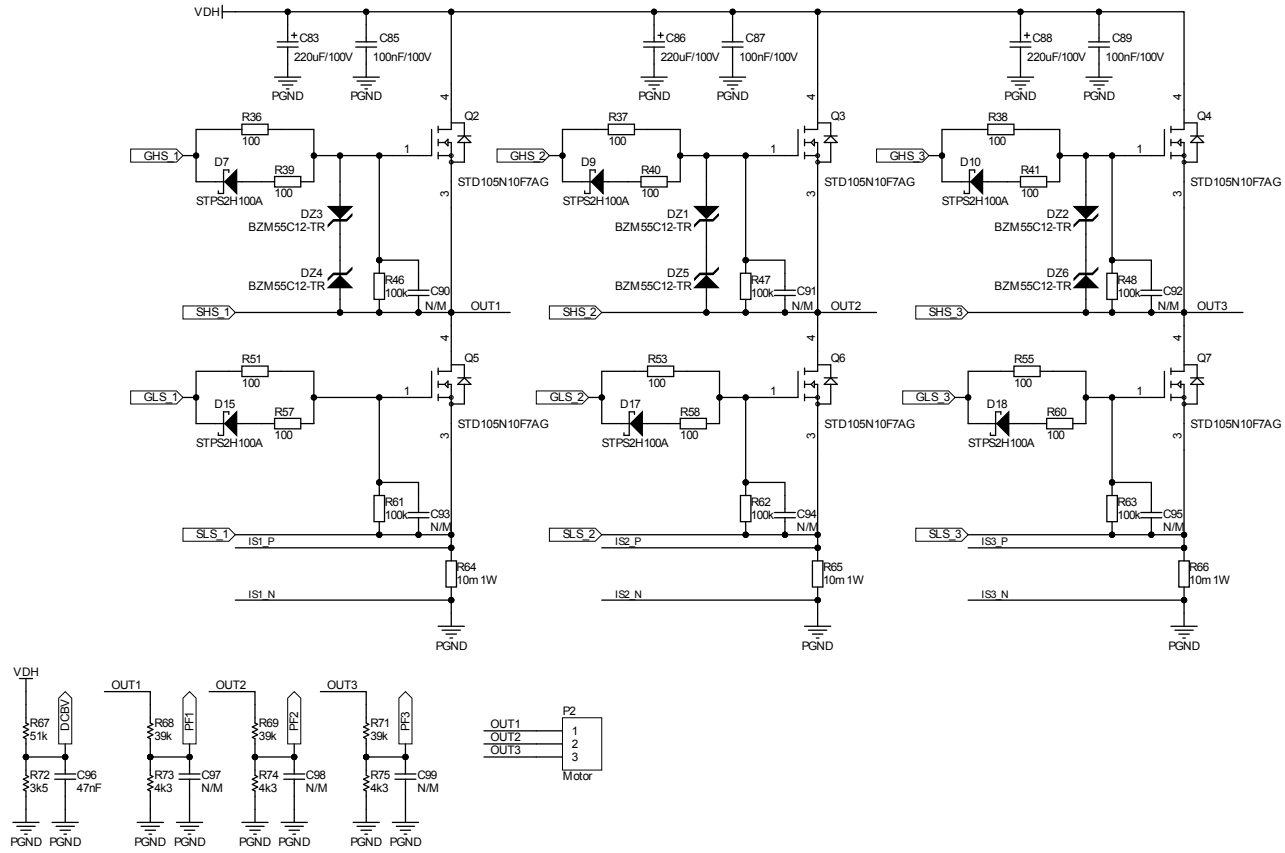


Figure 5. AEK-MOT-3P9908M circuit schematic (4 of 5)

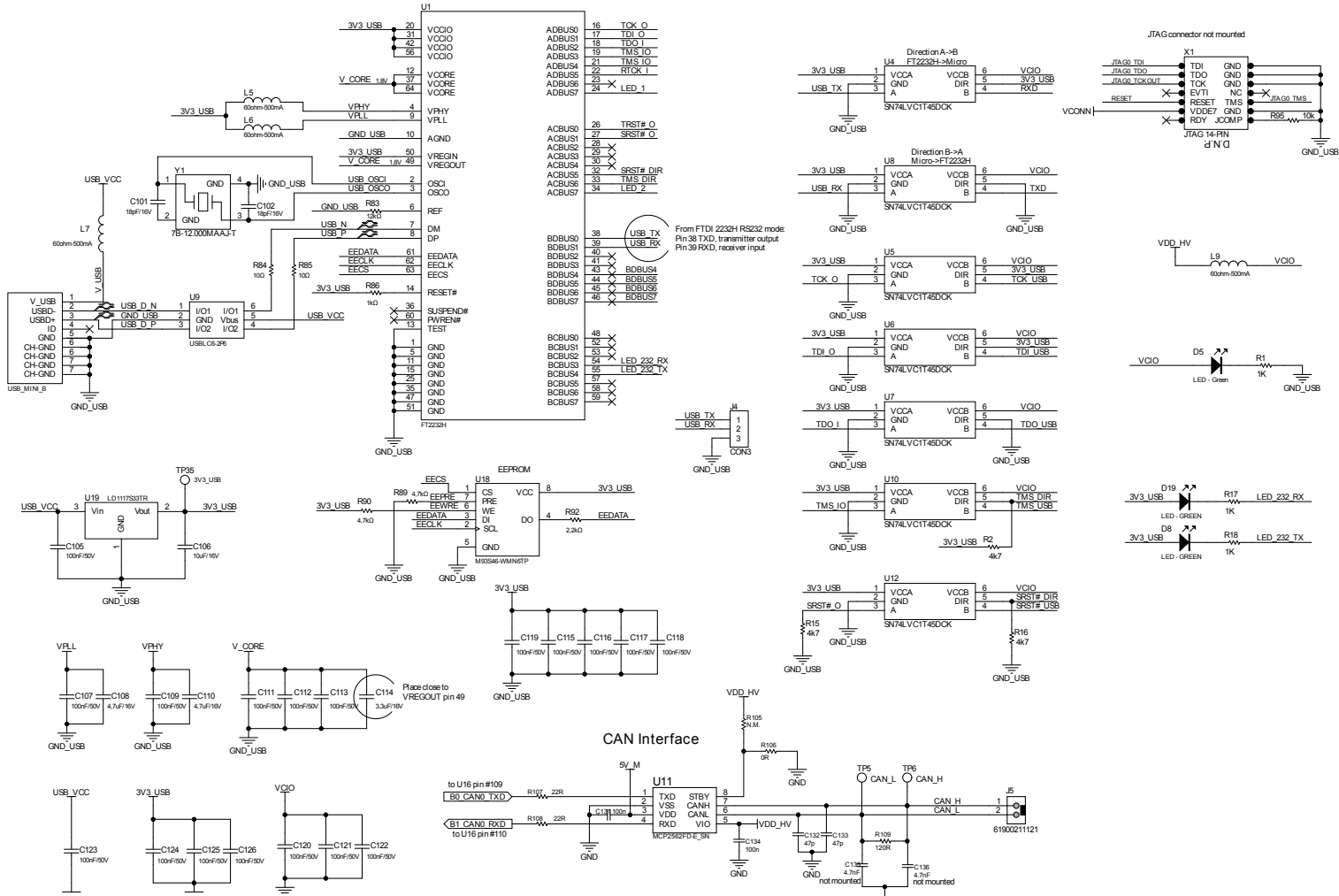
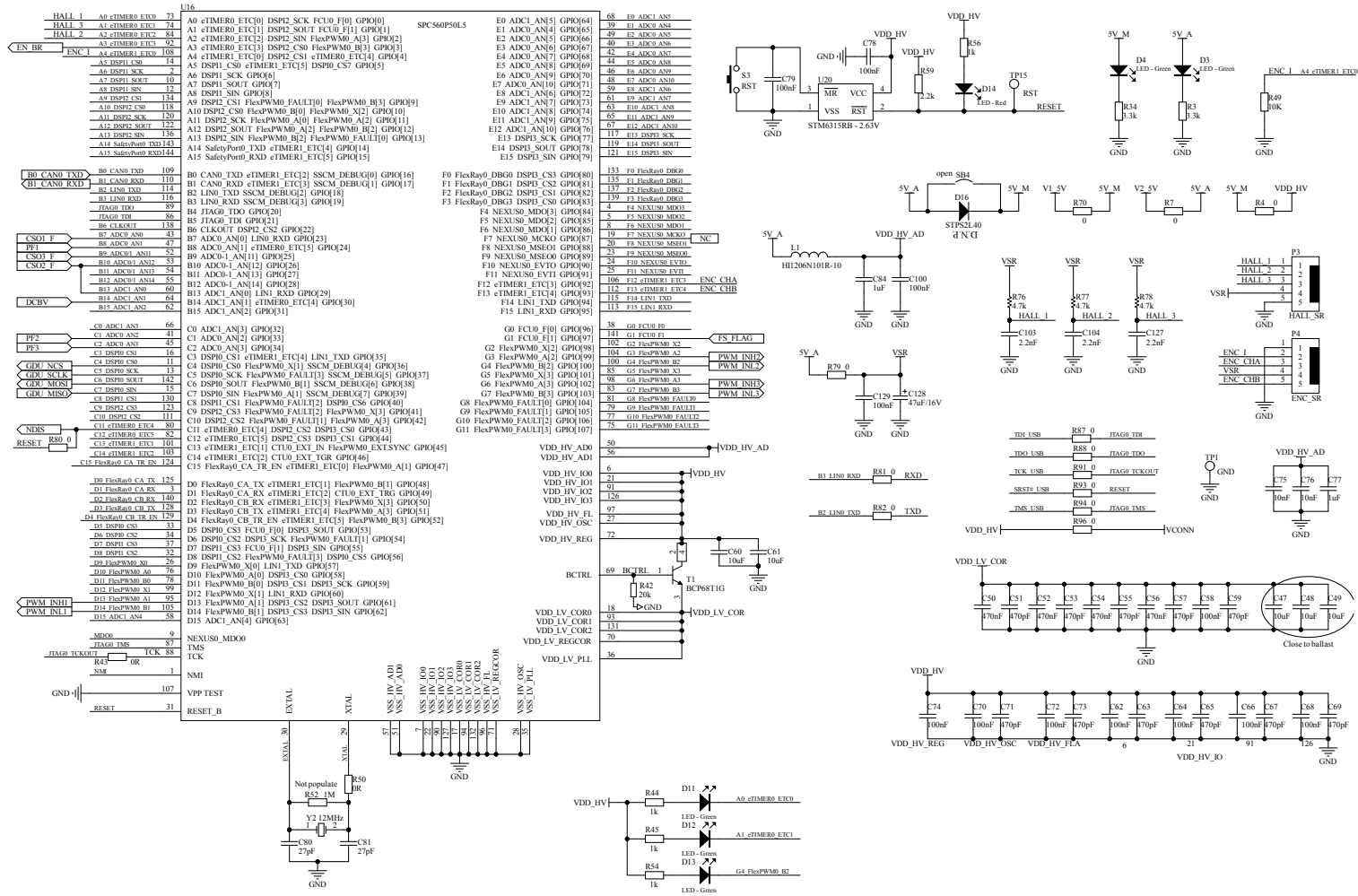


Figure 6. AEK-MOT-3P9908M circuit schematic (5 of 5)



Revision history

Table 1. Document revision history

Date	Revision	Changes
15-Sep-2021	1	Initial release.
11-May-2021	2	Updated title and features.

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