Quadrature Encoder Interface without 5V regulator

Shaft encoder connection
Quadrature with Index
Supports optical and hall

Source Selection

© Copyright EPC 2021
Temperature sense using AD590 with separate AGND

-55°C scale to 1.7V
-25°C scale to 2.3V
-15°C scale to 3.3V

**Components:***
- **U40**: AD590JCPZ-R5
- **R40**: 0805 0.125W
- **R41**: 0805 7.87kE 0.25W
- **C40**: 0805 100nF 50V
- **C41**: 0805 100nF 50V

**Note:**
- Voltage levels and temperature scales are approximate and subject to the specific characteristics of the AD590 component.
High Power Motor Drive DcBus Capacitors

48 V DcBus Capacitors

File: EPC9186_BusCapacitors_Rev1_0.SCHDOC
Date: 2023

© Copyright EPC 2023
5 V to 3.3 V LDO power supply

© Copyright EPC 2021
Bi-Directional Over Current Detection

© Copyright EPC 2021
Phase Shunt and phase voltage sense

OPT 1 - If INA240A2 (50 x gain) is used, there is 100 uE shunt (2 in parallel) - gain is 5 mV/A
OPT 2 - If ACS72981 is used, do not mount the 2 shunt resistors

112.93V scale to 3.3V
29.2 mV/112.93 V maximum

© Copyright EPC 2023
Bi-Directional Current Sense options

© Copyright EPC 2023
Bi-Directional Current Sensor IC - no shunt required

Offset Voltage = 1.65 V

200μs minimum i±200 A range

© Copyright EPC 2023
Bi-Directional 80 V Current Sense Amplifier

Offset Voltage = 1.65 V

INA240A2PWR Gain 50V/V

© Copyright EPC 2023
NOTE: this sheet is temporary only for release R1.1
for future releases (i.e. R2.0) use the sheet without this note
Changed diode for better performance - BAT46WJ115 in SOD-323
in PCB R1.0 the footprint is smaller: SOD-523 but can accommodate SOD-323
D61

The 0 ohm resistor can be modified to filter spikes from
the comparators lines.

VddPullup is connected to 3.3V or to 5V depending on microcontroller voltage.

STDRIVEG600 Half Bridge Gate Driver

© Copyright EPC 2023