

Development Board EPC9147E Quick Start Guide

Motor Drive Controller Interface Board

Revision 1.0

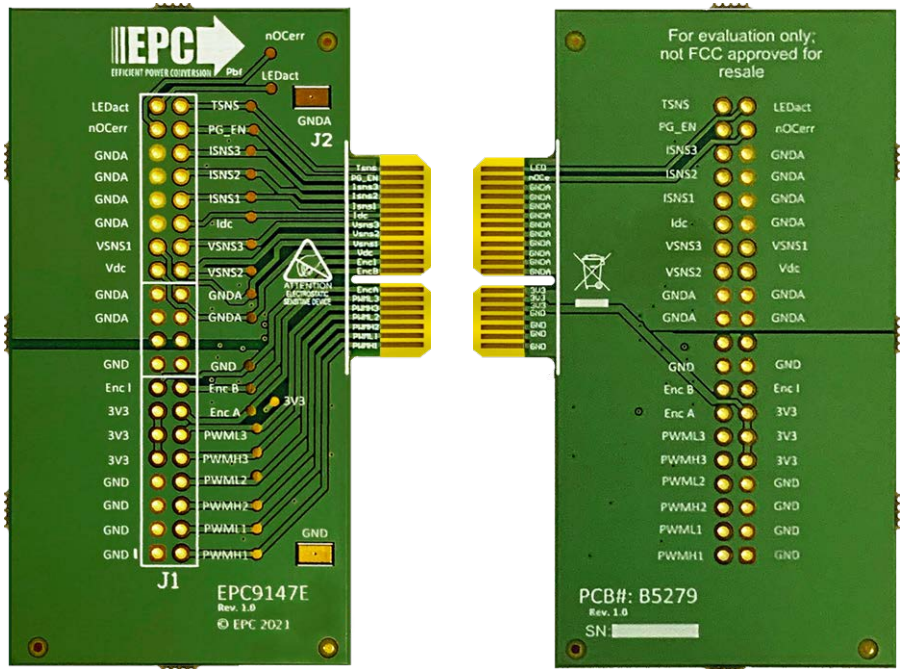


DESCRIPTION

The EPC9147E board is an interface board that interfaces to a 3-phase eGaN® FET/IC motor drive inverter board. This interface board allows users to connect to a custom controller of choice using fly wires or ribbon cable. It can also be used for debug by probing control signals.

Figure 1 shows a photo of the EPC9147E board showing the two connectors J1 and J2, and various test points and separate ground for analog and digital signals.

The EPC9147E includes a 40-pin connector (J1) and motor drive connector(J2) that interfaces the PWM, analog feedback signal, errors states and 3.3 V power to the motor drive inverter board as shown in figure 2. Wires can be soldered to J1 to connect to a custom controller board. The digital and analog signals are grouped separately so it also allows two 16-pin 100 mil ribbon cable connectors to be connected as shown in Figure 1.



Front view

Back view

EPC9147E Development board

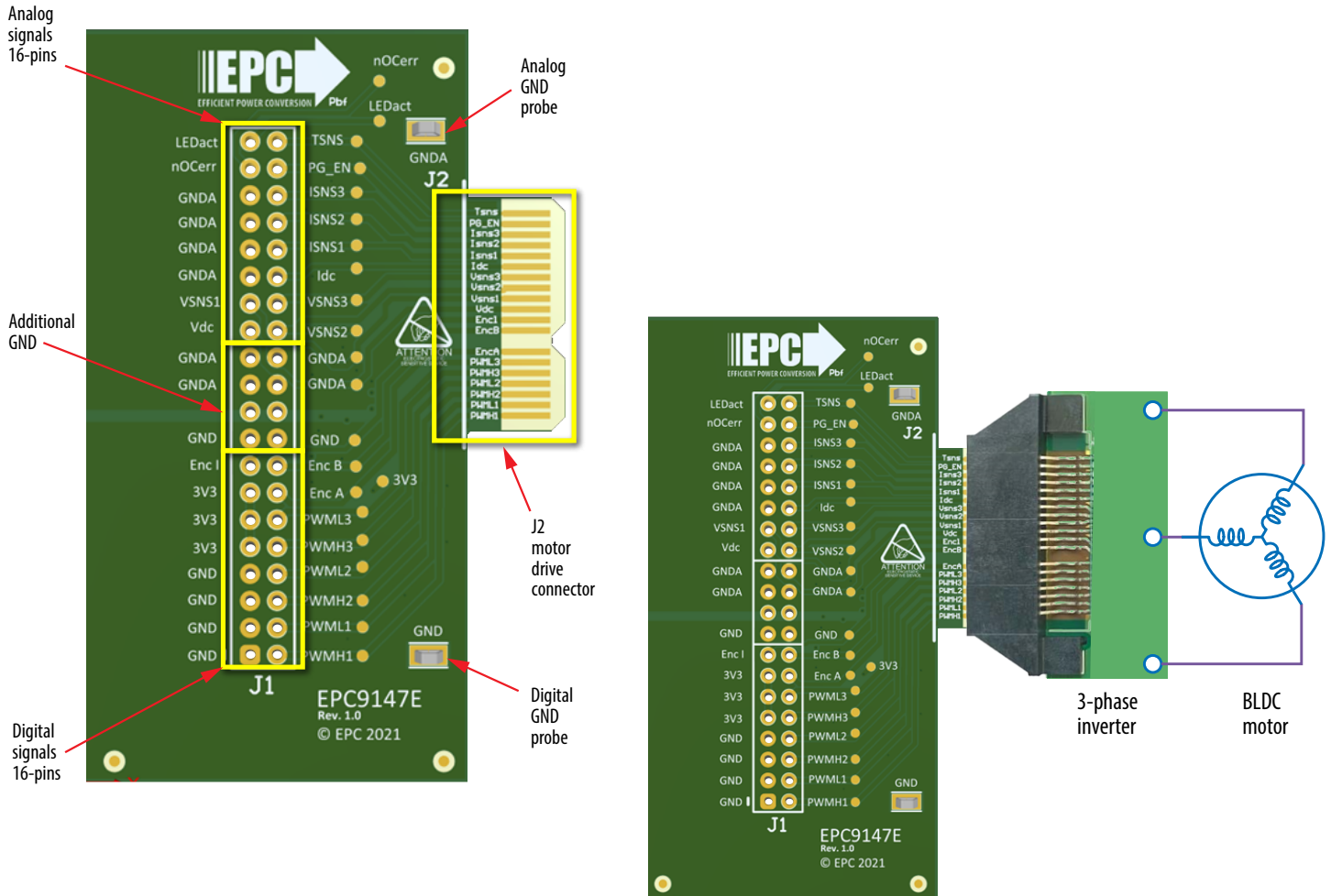


Figure 1. Overview of the EPC9147E board and connection to inverter

Test Points

Several test-points are available for measurement of various analog, error and PWM signals. Analog signals include voltage and current readings, input DC voltage to the drive, and current sense amplifier voltage reference. The operator is encouraged to read the motor drive inverter drive QSG carefully to determine the correct scaling factors. All three phases of the PWM signals are available as test points. An over-current error signal is also available as a test point. Two locations for ground connections for measurement purposes are available.

Compatible Motor Drive Inverters

A list of compatible motor drive inverter to the EPC9147E is given in table 1.

Table 1: Compatible eGaN FET/IC motor driver inverters to the EPC9147E

Motor Drive Inverter Board Number	Basic Specifications	Web Link
EPC9146 Rev. 2.1	400 W, 3-phase BLDC Inverter using EPC2152	EPC9146 – 400 W Motor drive demo board

Connector pin assignment

Tables 2 and 3 provide the pin map for J1 and J2.

Table 2: Motor interface connection (J1) pin allocation map

Pin #	Pin Name		Pin #
2	PWMH1	GND	1
4	PWML1	GND	3
6	PWMH2	GND	5
8	PWML2	GND	7
10	PWMH3	3V3	9
12	PWML3	3V3	11
14	EncA	3V3	13
16	EncB	Encl	15
18	GND	GND	17
20	No Connect	No Connect	19
22	GND A	GND A	21
24	GND A	GND A	23
26	V2	Vdc	25
28	V3	V1	27
30	Idc	GND A	29
32	I1	GND A	31
34	I2	GND A	33
36	I3	GND A	35
38	EN/Pgood	LEDerr	37
40	Tsns	LEDact	39

Table 3: Motor interface connection (J2) pin allocation map

Pin #	Pin Name		Pin #
2	PWMH1	GND	1
4	PWML1	GND	3
6	PWMH2	GND	5
8	PWML2	GND	7
10	PWMH3	3V3	9
12	PWML3	3V3	11
14	EncA	3V3	13
Index			
18	EncB		17
20	Encl	GND A	19
22	Vdc	GND A	21
24	V1	GND A	23
26	V2	GND A	25
28	V3	GND A	27
30	Idc	GND A	29
32	I1	GND A	31
34	I2	GND A	33
36	I3	GND A	35
38	EN/Pgood	nOCerr	37
40	Tsns	LEDact	39

Table 4: Optional Components

Item	Qty	Reference	Part Description	Manufacturer	Part #
1	2	J1	16-pin male connector	Samtec	TST-108-01-G-D

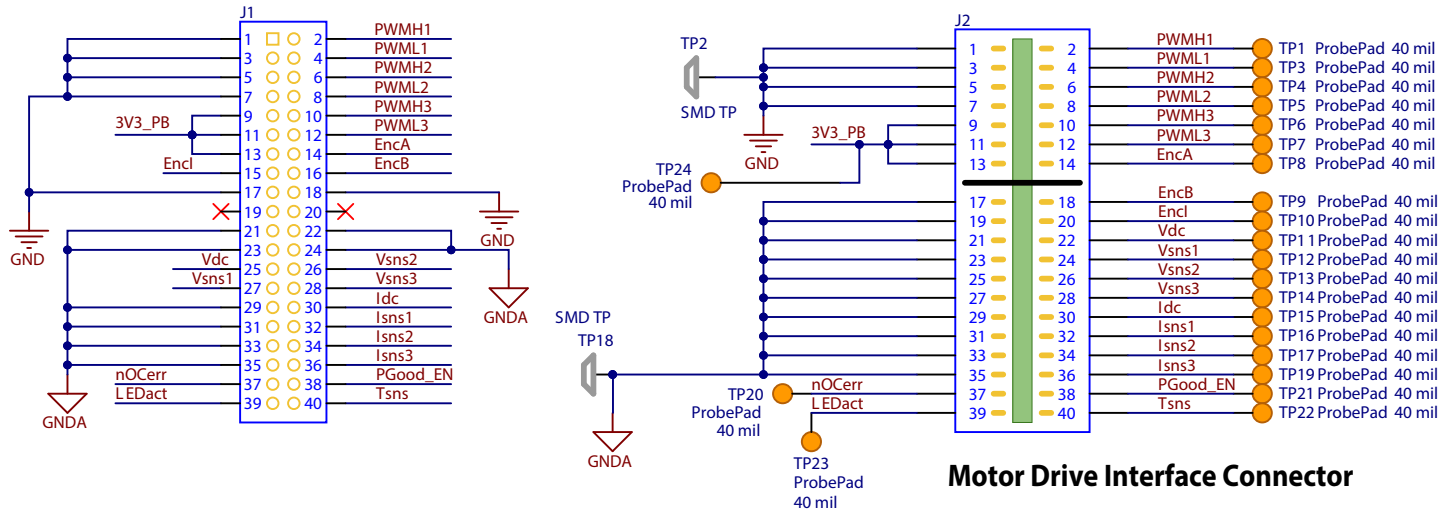


Figure 2: EPC9147E schematic

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The EPC9147E board is intended for product evaluation purposes only. It is not intended for commercial use nor is it FCC approved for resale. Replace components on the Evaluation Board only with those parts shown on the parts list (or Bill of Materials) in the Quick Start Guide. Contact an authorized EPC representative with any questions. This board is intended to be used by certified professionals, in a lab environment, following proper safety procedures. Use at your own risk.

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