Demonstration System EPC9534 Quick Start Guide

$^{1}/_{16}{}^{th}$ Brick Test Fixture

Revision 1.0

EFFICIENT POWER CONVERSION

DESCRIPTION

The EPC9534 board is a 60 V maximum input voltage, 16 V maximum output voltage and 25 A maximum output current, 16th brick motherboard. The EPC9534 features:

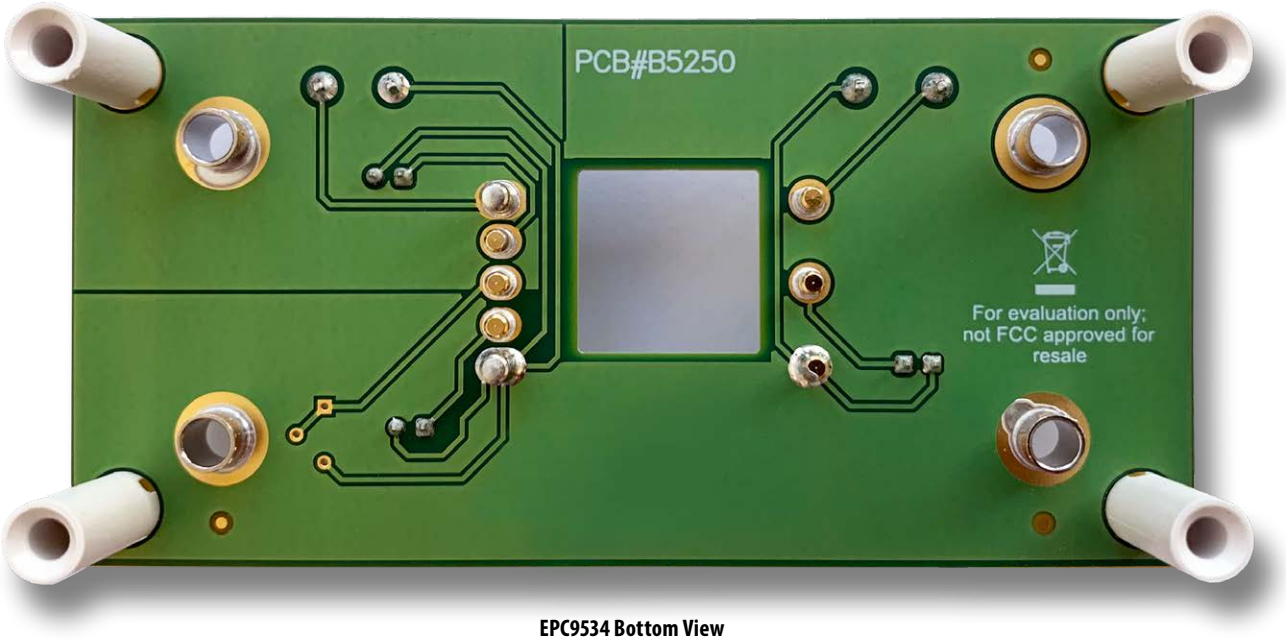
- Measurement: input voltage, output voltage (kelvin connection)
- Control/Adjustment: power good output, output voltage trimming resistor, disable jumper, remote voltage sense

Table 1: Performance Summary (T_A = 25°C) EPC9534

Symbol	Parameter	Min	Typ	Max	Units
V_{IN}	Input Voltage			60	V
V_{OUT}	Output Voltage			16	
I_{OUT}	Output Current			25	A
I_{IN}	Input Current			12	
PG	Power Good			5	V
FB	Output Voltage Adjust			100*	kΩ
V_{Sense}	Voltage Sense		12*	16*	V

* Value differs depending on the specific $^1/_{16}^{th}$ brick module

EPC9534 Top View



EPC9534 Bottom View

QUICK START PROCEDURE

Figure 1 shows an example configuration and measurement setup.

1. 1. With power off, carefully insert the 16th brick module into EPC9534 and make sure it is properly seated.
   a. Ensure that the mounting holes on the EPC9534 line up with the pins on the 16th brick module
   b. Carefully insert the module into the mounting holes.
   c. Ensure all pins insert the mounting holes uniformly
      i. With your hands, apply a slight pressure to the corners of the 16th brick module. Apply only enough pressure such that the 16th brick module sits as flat as possible in the mounting holes.
      ii. Apply pressure alternately (one side at a time) in order to wiggle the 16th brick module into place and make sure it is firmly connected to the fixture.
2. With power off, connect the power supply, load, and multimeters according to figure 1:
   a. Vin (J1) and GND (J2) banana jacks
   b. Vout (J3) and GND (J4) banana jacks
   c. Kelvin sensing: Vin (TP1) and GND (TP2), Vout (TP3) and GND (TP4)
   d. (Optional) Vout sense (J13) to load terminals, shown as dashed lines in figure 1.
3. Turn on the input power supply to the required value (do not exceed the absolute maximum voltage of 60 V on Vin. The output voltage is preset on the 16th brick module. During operation, check to make sure the circuit is operating correctly and that the output voltage does not exceed the absolute maximum voltage of 16 V.
4. For shutdown, please follow steps in reverse.
5. To remove the 16th brick module:
   a. Carefully grab the module from the top and bottom (not the side with the pins), and remove the module.
   b. If the module is difficult to remove, apply alternating pressure to the top and bottom of the module until it loosens.
   c. Do not use any tools to remove the module, as it can cause damage to the module or test fixture.

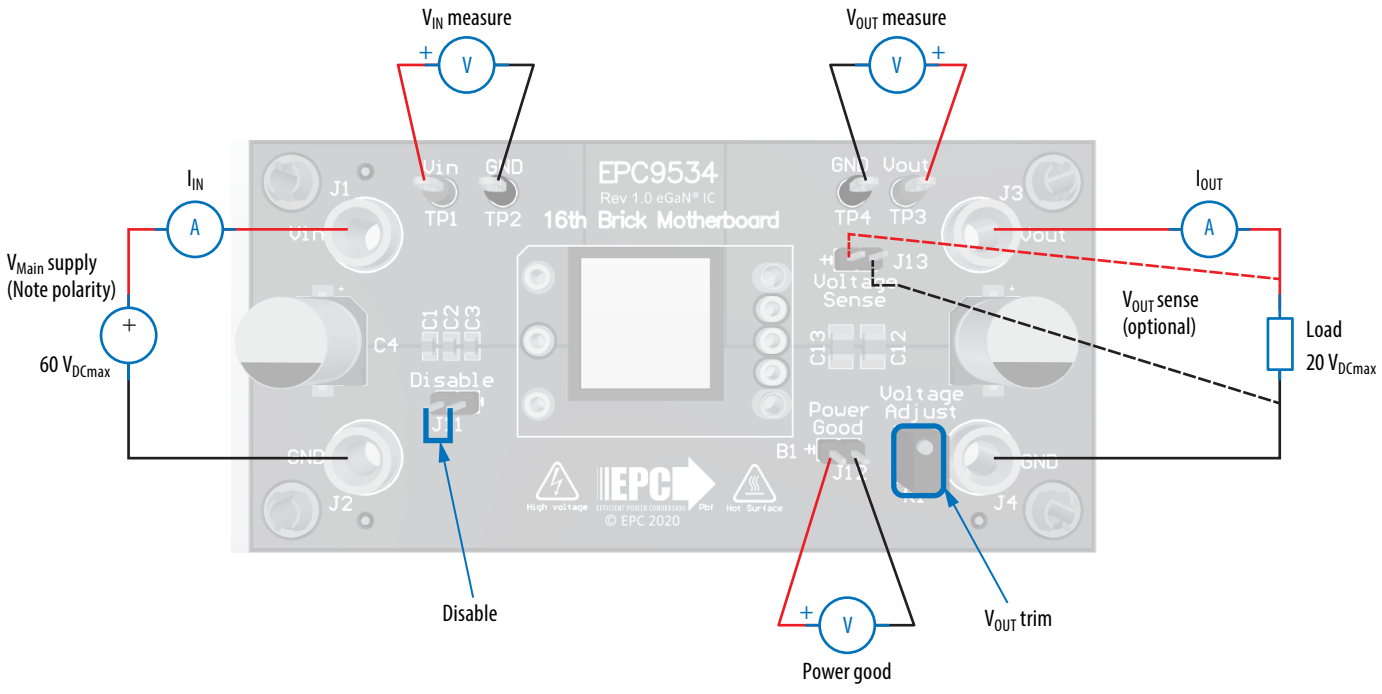


Figure 1. Example measurement setup: Top view of EPC9534

CONTROL / ADJUSTMENT

1. Power Good (J12) should have logic high level once the unit is operating.
2. The 16th brick module can be disabled by inserting a jumper into J11.
3. The output voltage of the 16th brick module can also further be trimmed by adjusting R_1. R_1 is connected between FB and GND, as shown in figure 2. Please refer to the 16th brick module documentation for details.

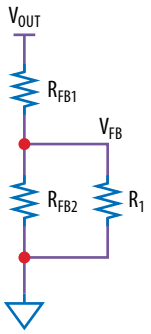


Figure 2. Output voltage adjustment R1 and connection to the 16th brick module voltage feedback circuitry

THERMAL CONSIDERATIONS

The EPC9534 is intended for bench evaluation with low ambient temperature and convection cooling. The recommended airflow direction for the board is shown in figure 3.

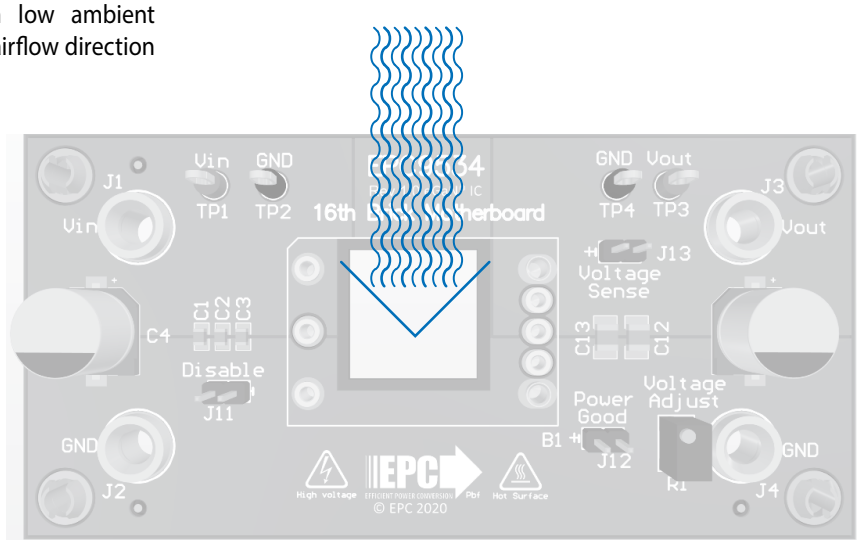


Figure 3. Recommended Airflow Direction

Table 2: Bill of Materials

Item	Qty	Reference	Part Description	Manufacturer	Part #
1	3	C1, C2, C3	Capacitor, 1 µF, 100 V	TDK Corporation	C2012X7S2A105M125AE
2	1	C4	Capacitor, 80 V, 47 µF	Panasonic	80SXV47M
3	1	C11	Capacitor, 25 V, 220 µF	KEMET	A765MU227M1ELAE050
4	2	C12, C13	Capacitor, 10 µF, 50 V	KEMET	C1210C106M5PACTU
5	4	J1, J2, J3, J4	Non-Insulated Std. Banana PCB socket	Keystone	575-4
6	3	J11, J12, J13	.1" Male Vert	Tyco	4-103185-0-02
7	2	TP1, TP3	Red Probe Hookup	Keystone	5010
8	2	TP2, TP4	Black Probe Hookup	Keystone	5011
9	4	SO1, SO2, SO3, SO4	Board Support Snap Fit	Keystone	8834
10	2	B1	Pin Receptacle Connector .062"	Mill-Max	0363-0-15-15-23-27-10-0
11	6	B1	Pin Receptacle Connector .04"	Mill-Max	0340-0-15-15-34-27-10-0

Table 3: Optional Components

Item	Qty	Reference	Part Description	Manufacturer	Part #
1	1	R1	100 kΩ	Murata	PV37Y104C01B00

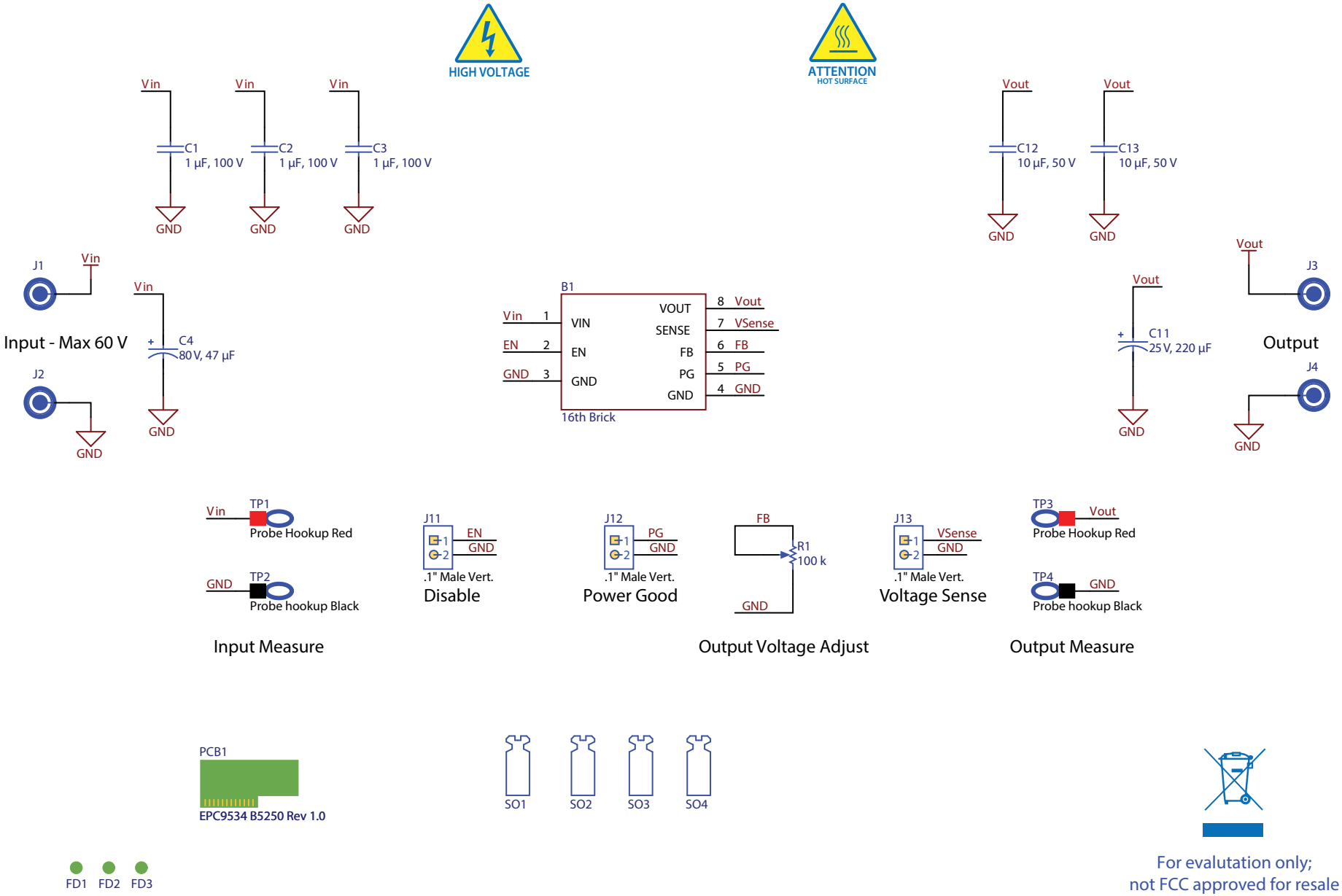


Figure 4: EPC9534 schematic

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