IRMDKG6-400W

The reference design power board is designed to showcase IR DPAK IGBT in a motor drive application.

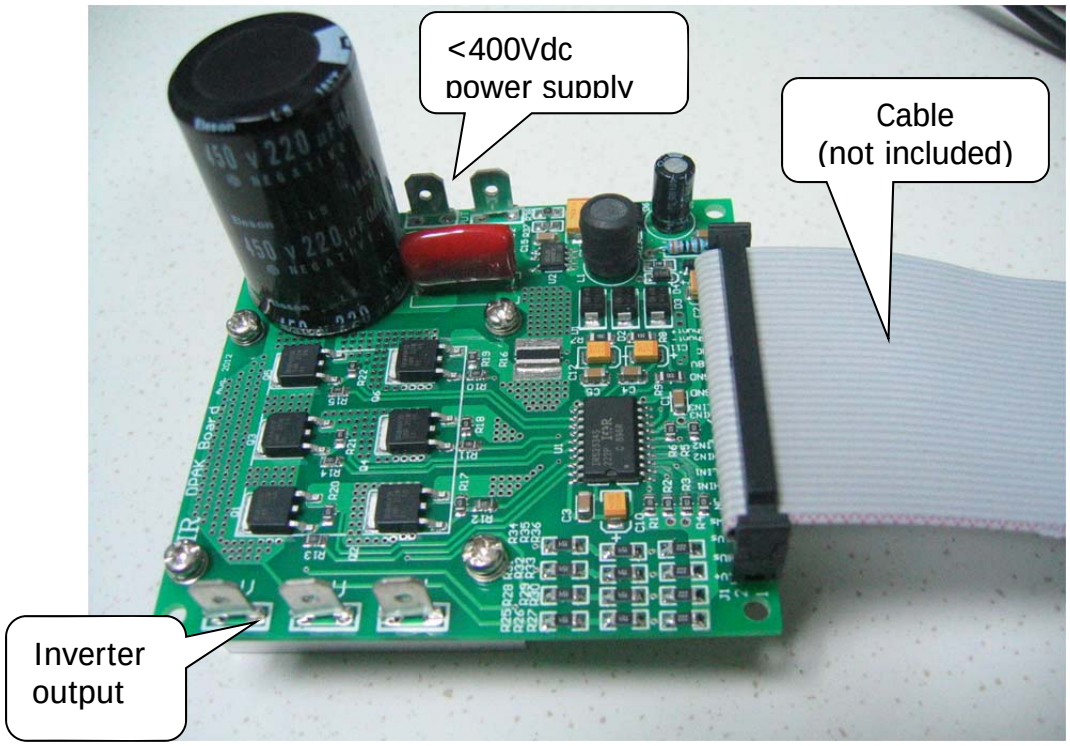

Figure 1 - Connection of control signals to the Dpak/D2PAK board

Pin No.	Definition
1, 2,	Vbus sense
3,4	Phase U sense
5,6	Phase V sense
7,8	Phase W sense
9,10	Null
11,12	UHIN
13,14	ULIN
15,16	VHIN
17.18	VLIN
19,20	WHIN
21,22	WLIN

23,24,25,26, 29,30	GND
27,28	VCC
31.32	Shunt-
33,34	Shunt+

Running the system

1. Connect the system as in Figure 1
2. Power on the Vdc power supply (<400Vdc)
3. Start the control signal generator

Test conditions:

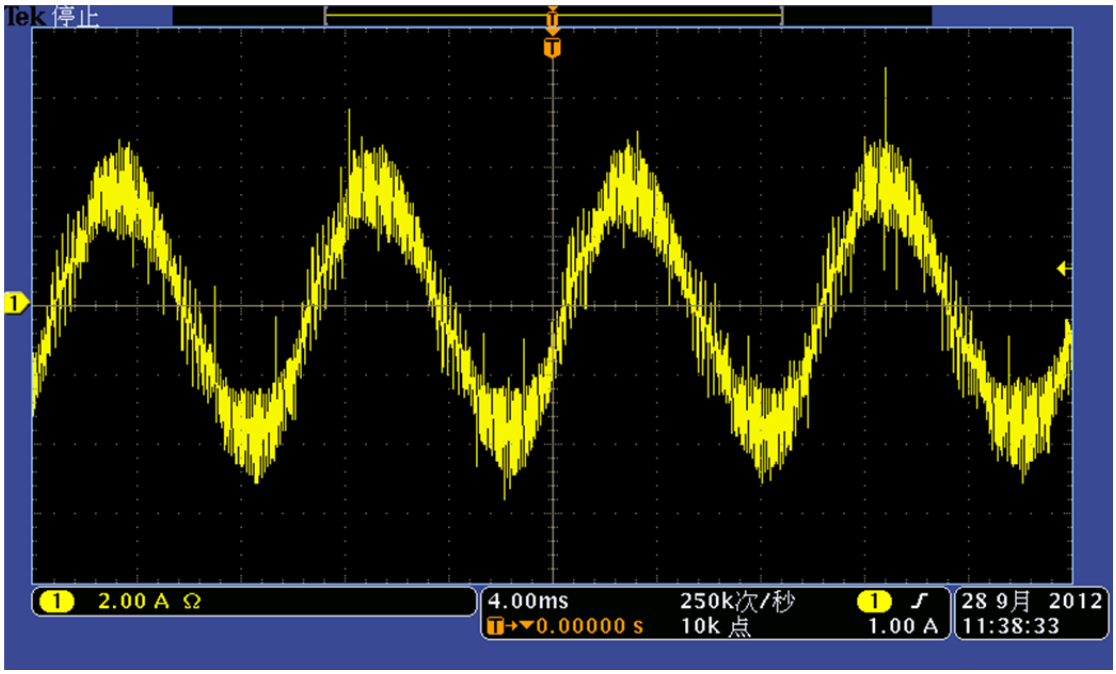

Figure 2 - Example of the inverter phase current for sinusoidal motor

- PWM: IRMCF171 control board. Carrier frequency:5KHz Load: motor test bench.
- Load: motor test bench
- Motor: GK6063-6AF31-WE(KE=63V/1000r/min, normal 3000rpm, max 3500rpm,Io=13.5A)
- Power Board: DPAK board rev 2
- IGBT: IRGR4045D

Test Results

The board can work up to 300W without the heatsink under the PCB bottom, 440W with the heatsink.

Running with the attached heatsink will result in lower temperature for the same load conditions.

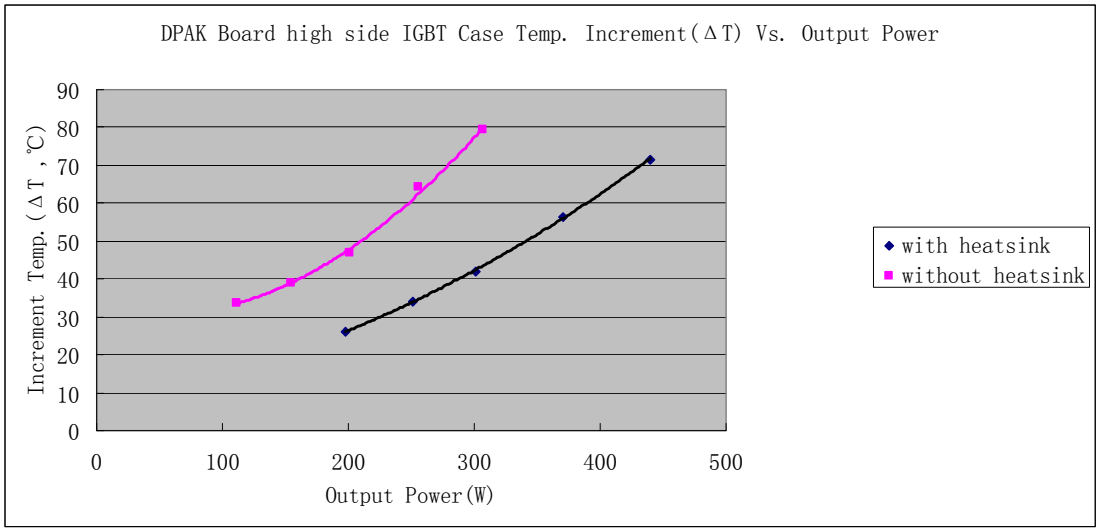

Figure 3 - High side IGBT case temperature increase vs. input power curve

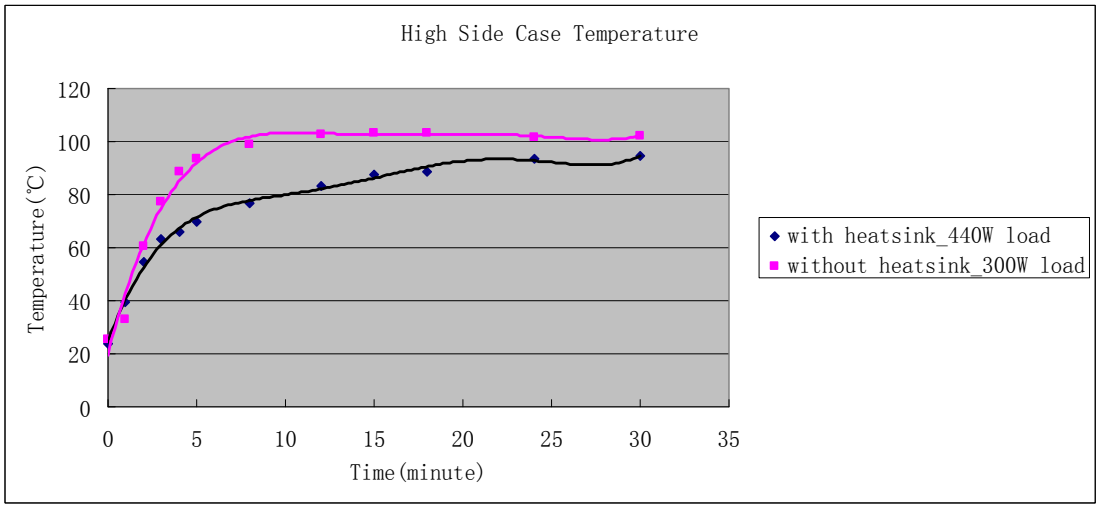

Figure 4 - High side IGBT case temperature increase vs. time