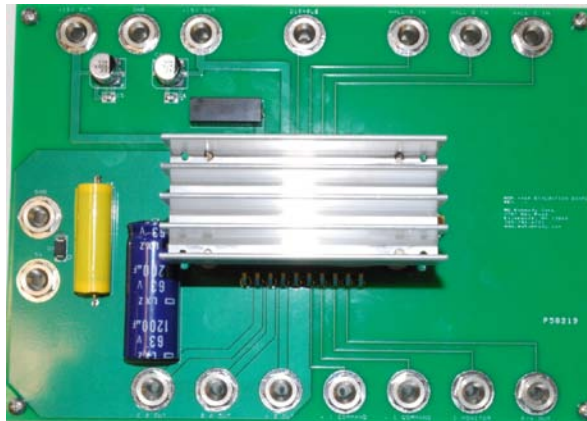


MSK4460 Evaluation Board User's Guide Rev A

By Bob Abel & Dan Williams, MS Kennedy Corp.; Revised 9/19/2013

**Introduction**

The MSK 4460 is a complete 3 Phase MOSFET Bridge Brushless Motor Control System in an electrically isolated low cost package. The hybrid is capable of 10 amps of output current and 55 volts of DC bus voltage. It has the normal features for protecting the bridge. Included is all the bridge drive circuitry, hall sensing circuitry, commutation circuitry and all the current sensing and analog circuitry necessary for closed loop current mode (torque) control. When PWM'ing, the transistors are modulated in locked anti-phase mode for the tightest control and the most bandwidth. Provisions for applying different compensation schemes are included. The MSK 4460 has good thermal conductivity of the MOSFET's due to isolated substrate/package design that allows direct heat sinking of the hybrid without insulators.

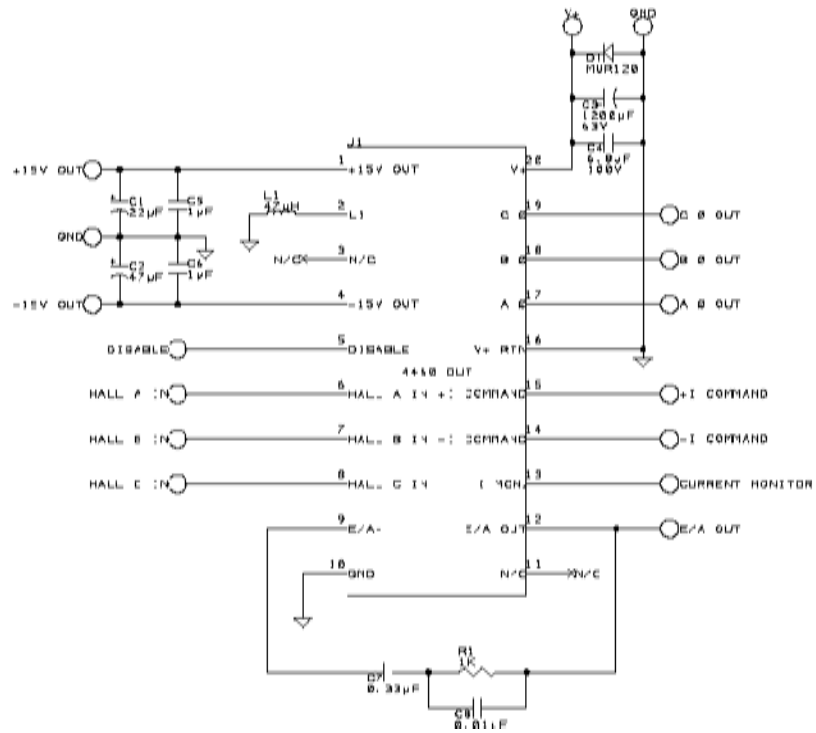
The evaluation board provides a platform from which to evaluate new designs with ample real estate to make changes and evaluate results. Evaluation early in the design phase reduces the likelihood instability, or other issues, from becoming a problem at the application PCB level.

This application note is intended to be used in conjunction with the MSK4460 data sheet, so please reference the data sheet for additional application information and specifications.

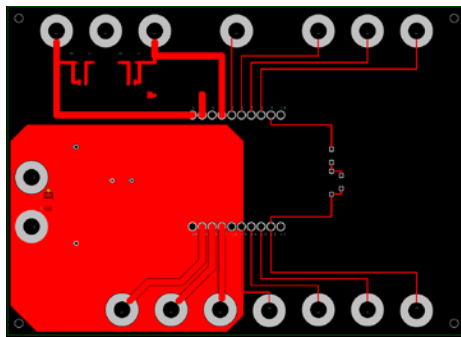
Setup

Use the standard 4mm banana jacks to interface with the assembly to connect to your power supply and motor assembly.

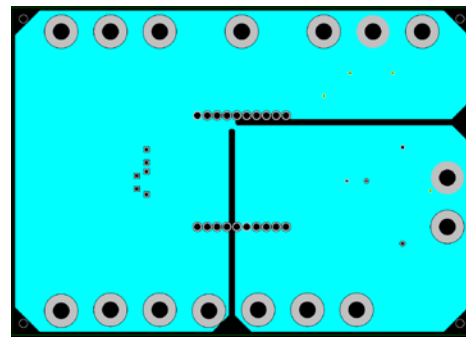
MSK4460 Evaluation Board Schematic



PCB Artwork



Top Side



Bottom Side

Bill of Materials

Qty.	Description	Manufacturer	Part Number
1	Motor Controller	MSK	MSK 4460
16	Banana Plugs	Emerson Johnson	108-0740-001
20	Pin Sockets	Mill Max	0634-0-15-15-13-14-10-
0			
6	Pin Sockets	Mill Max	0677-0-15-01-30-27-10-
0			
1	MUR120 Diodes	ON Semiconductor	MURS120T3G
2	1 μ F Capacitors C2012X7R1H105K125AB	TDK Corp	
1	22 μ F Capacitor	Panasonic	EEE-2AA220UP
1	47 μ F Capacitor	Panasonic	EEE-TK1V470P
1	6.8 μ F Capacitor	Illinois Capacitor	685MWR100K
1	1200 μ F Capacitor ELXZ630ELL122ML40S	United Chemi-Con	
1	47 μ H Inductor	API Delevan Inc	8532R-21L
1	0.01 μ F Capacitor		CK05BX103K
1	0.33 μ F Capacitor		C330C334K5R5TA
1	1K Resistor	Vishay	RN55D1001FB14
4	4-40 x 3/8" Screws		
4	4-40 Washers		
4	#4, 7/8" Standoffs		
4	6-32 x 3/8" Screws		
4	6-32 Washers		
1	Heat Sink	MSK	2219-12570