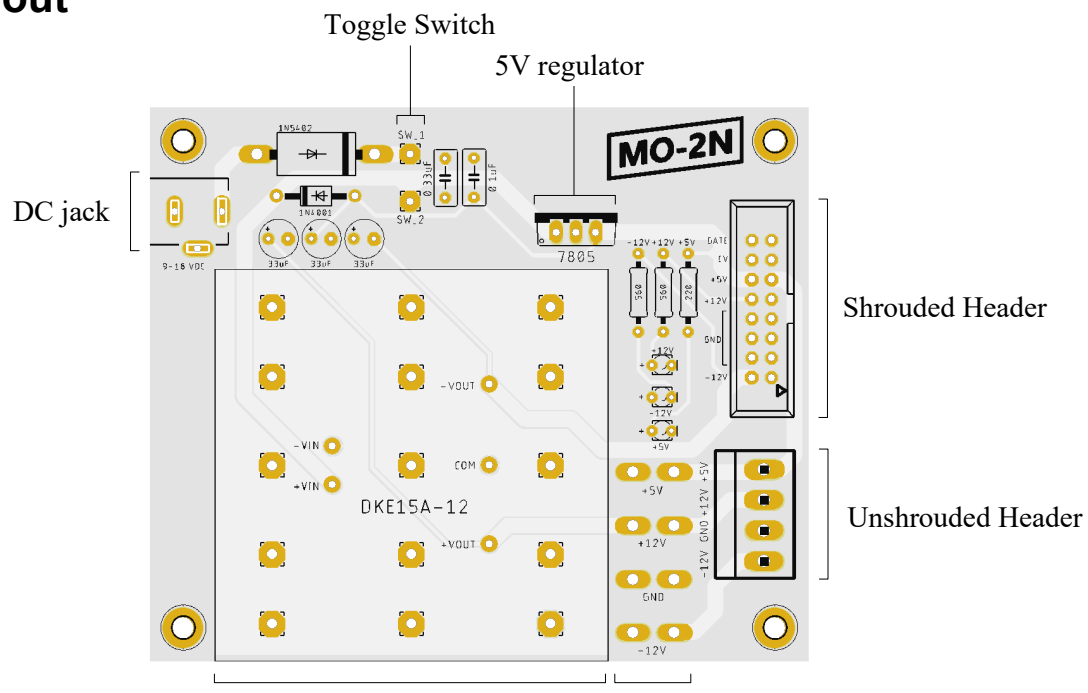
1 Bill of Materials

Mouser No.	Manufacturer No.	Manufacturer	Description	Qty.
709-DKE15A-12	DKE15A-12	MEAN WELL	Isolated DC/DC Converter	1
603-CFR-25JR-52220R	CFR-25JR-52-220R	Yageo	Resistor 220ohm 5% 1/4W	(1)
603-CFR-50JT-52-560R	CFR-50JT-52-560R	Yageo	Resistor 560ohm 5% 1/4W	(2)
859-LTL-307EE	LTL-307EE	Lite-On	Red LED	(3)
863-1N5402RLG	1N5402RLG	ON Semiconductor	Diode 200V 3A	1
863-1N4001RLG	1N4001RLG	ON Semiconductor	Diode 50V 1A	(1)
810-FG24X7R1H334KNT0	FG24X7R1H334KNT00	TDK	Ceramic Capacitor 0.33uF	(1)
594-K104M15X7RF53L2	K104M15X7RF53L2	Vishay	Ceramic Capacitor 0.1uF	(1)
710-860020672012	860020672012	Wurth Elektronik	Electrolytic Capacitor 33uF	(3)
595-UA7805CKCT	UA7805CKCT	Texas Instruments	Linear Voltage Regulator 5V	(1)
710-694108301002	694108301002	Wurth Elektronik	DC Power Connector 5A	1
710-61201621621	61201621621	Wurth Elektronik	Shrouded 16P Header 3A	(1)
571-6404454	640445-4	TE Connectivity	Unshrouded 4P Header	(1)
538-19705-4303	19705-4303	Molex	Quick Connect Tab 0.25”	(4)
612-200MSP6T4B5M1QE	200MSP6T4B5M1QE	E-Switch	Toggle Switch 3A	(1)

Note: Many of the parts listed are optional depending on the desired configuration of the board. These are indicated above and below as quantities in parentheses. Read the rest of this guide before purchasing parts.

2 Board Layout



Note: TOP side of board shown

3 Components

Many components are optional on this board. These can be omitted depending on the desired functionality of the board. Solder the components in the order listed (smallest – largest):

Resistors

The resistors on this board are optional components. Use only if indicator lights are desired for each power supply rail (+12V, -12V, +5V). Higher resistor values can be used to lower the brightness of the LEDs. Do not use lower values than those listed below.

Value	Name on Board	Qty
220	220	(1)
560	560	(2)

LEDs

The LEDs on this board are optional components. Use only if indicator lights are desired for each power supply rail (+12V, -12V, +5V). The LEDs are designed to be mounted externally to the board.

Value	Qty
RED	(3)

Diodes

The large diode (1N5402) is necessary for the board to function properly. The small diode (1N4001) is an optional component, only use if a +5V power rail is desired.

Value	Name on Board	Qty
1N5402	1N5402	1
1N4001	1N4001	(1)

Capacitors

The ceramic capacitors (0.33uF, 0.1uF) are required only if a +5V power rail is desired. The electrolytic capacitors (33uF) are optional to filter noise at the power supply output.

Value	Name on Board	Qty
0.33uF (330n)	0.33uF	(1)
0.1uF (100n)	0.1uF	(1)
33uF	33uF	(3)

DC-DC Converter

This is the large brick component. It must be placed on the TOP side of the board (shown in Section 2 above) in the large square marked “DKE15A-12”.

This component can be difficult to solder due to its size and the large thermal pad directly under it. Hold the iron on the pins for several seconds to sufficiently heat them before applying solder for a proper connection.

Value	Name on Board	Qty
DKE15A-12	DKE15A-12	1

DC Power Jack

Either a 2- or 3-pin jack can be used. Place on top left of board, marked “9-18 VDC”. As indicated, connect only 9-18 VDC to this jack.

External Connectors

Several connection types are available to power your devices. These are labeled in Section 2 above. Use only your preferred connector, though several can be used if desired.

Either a 16-pin or 10-pin shrouded header can be used on this board. The key (and marked arrow) should be facing outward from the board as indicated on the board.

Value	Qty
Shrouded 16/10-Pin Header	(1)
Unshrouded 4-Pin Header	(1)
Quick Connect Tab	(4)

5V Regulator		
Only use if a +5V power rail is desired. Attaching a heat sink to the regulator is recommended due to the high input voltage required for the DC – DC converter.		
Value	Name on Board	Qty
LM7805 or UA7805	7805	(1)

Power Switch
This is optional. A SPST On/Off switch is recommended, though others can be used if desired. Connect the switch with two long wires to “SW_1” and “SW_2” as marked on the board to be mounted externally. If a power switch is not desired, connect a jumper between “SW_1” and “SW_2”.

4 Final Check

Before powering the device on, check that all of the components are in the right place and in the right direction, and have solder flowing through each hole to both sides of the board. Also check for any unwanted connections between pads/pins.

When absolutely sure everything is correct, plug 9-18 VDC into the power jack and turn the device on, without connecting the device to any modules. Any connected LEDs should turn on. Use a multimeter to check for +12V, -12V and +5V (if the regulator is used) on the output terminals before using the device to power any modules. Finally, wait to see if any components get unusually warm. If they do, power the device off immediately and re-check each connection.

5 Mounting the Board

Mount the board to a rack using standoffs in the 4 mounting holes on each corner. Note that these mounting holes are connected to the device’s ground plane.

The board can be mounted in any orientation. However, note that the board’s design will pull heat towards the bottom side of the board to improve cooling. It is recommended (but not necessary) to not mount the bottom side directly to a surface, but rather on standoffs to improve airflow underneath the board and prolong component life.