

**PRODUCT BRIEF**

# 5000W POWER COMBINER



**The Ideal Diode Power Combiner takes two power sources and combines them into one, creating redundancy without sacrificing efficiency.**

A power diode may drop a volt or more when carrying 80 Amps. This may not sound like a lot, but at 80 Amps this equates to 80W which is a lot of power to get rid of as heat. The Ideal Diode Power Combiner typically drops less than 100mV at the same current, equating to less than 8W.

**FEATURES**

- 65 VDC, 80 Amps (5000W max.)
- Inputs reverse polarity protected and tolerant of transients up to +100V.
- Robust mechanical enclosure
- Potted PCBA for ingress protection.
- Weight: 290g
- Dimensions: 92.5 x 86 x 22mm

**OPERATIONS**

The Ideal Diode Power Combiner works just like a pair of diodes with their cathodes connected together: power enters at the anodes and exits at the cathode. There is, however, a key difference to be aware of.

Unlike diodes – which do not need a ground connection to work correctly – the Ideal Diode Power Combiner must have a ground connection because it contains active devices. A ground terminal is provided for both of the input terminals and also for the output terminal. These are all connected together internally. At least one ground terminal must be connected.

### Use with ESCs

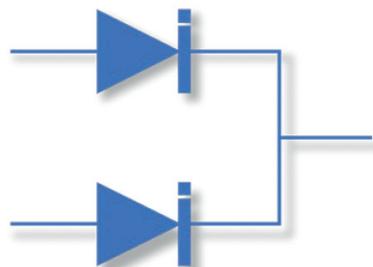
One possible application for this device is to power an ESC (Electronic Speed Controller) from a pair of batteries.

Be aware that regenerative braking only works if there is a path

for regenerated current to make its way back into the batteries, and any sort of diode – real or ideal – in the way will prevent this. Regenerative braking must be turned off in this situation or damage will occur.

### DIAGRAM

This is a greatly simplified diagram showing only the main power pathways. Diodes shown are symbolic;



Internal Architecture

### SPECIFICATIONS IN BRIEF

#### ELECTRICAL

Voltage	Operational: +12 to +65 VDC; Absolute max.: -65 to +66 VDC
Current	80 Amps continuous
Forward power handling	5000 Watts continuous
Forward voltage drop	200mV maximum
Quiescent current consumption	8mA typical

#### MISCELLANEOUS

Dimensions	92.5 x 86 x 22mm
Operating temperature range	-40°C to +55°C
Weight	290g
Mounting	4 x 3.2mm diameter holes (sized for M3 screws)
Connections	6x M5 threaded studs

