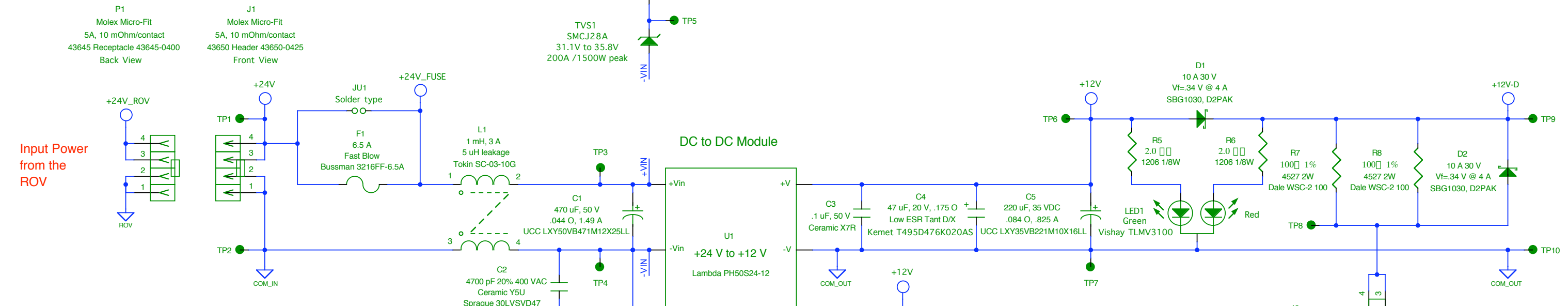


**Input Transient Protection**



Notes: (1) Input reverse power protection is provided by TVS1 and F2 up to their reverse current capability.

(2) Install jumper JU1 for deployment at sea to bypass the input fuse F1.

(3) Do not run traces under L1. Install the common mode choke with a small amount of RTV.

(4) The fuse F2 protects the input components and wiring if TVS1 fails shorted.

It is unlikely that TVS1 will fail since it can take a peak power of 1500 W (45.4 V \* 33.0 A) for transients < 1 uS.

If TVS1 shorts, C1 can circulate  $I_{max} = 24 \text{ Volts} / (.044 \text{ Ohms} + .0085 \text{ Ohms}) = 457 \text{ Amperes}$  through F2

which will cause it to open in under 1 mS.

F2 should be tested to see if it will vaporize when blown so the failure is obvious.

Inspect the fuse or measure the voltage at TP5 before launch to verify that the transient protection is operational.

Make TP5 easily accessible.

Installation of the input transient protection F2 and TVS1 is optional.

(5) Space C1 and C5 off the board with a nylon shoulder washer. Install the capacitors with a small amount of RTV.

(6) Connect C2 to the baseplate with as short a path as possible.

(7) The DC-DC module has the following pin definitions:

+Vin = positive input voltage (18 to 36 Volts)

-Vin = negative input voltage

CNT = CoNTrol: remote on/off; low = true

+V = positive output voltage (with respect to -V)

-V = negative output voltage (floating)

TRM = TRiM: Vout adjust pin; If no voltage adjustment is required, leave TRM floating.

(8) Trimpot R2 is optional. Install R2 or R3 but not both.

(9) For D1 and D2 substitute the MBRD1040-T in the DPAK package if the layout will support the heat sink area.

The Output Current Max. = 50 Watts / 12 Volts = 4.2 Amperes

(10) The LED operation truth table is:

DC-DC Converter    Gravimeter Power

Green                      Red

Off                      Off                      No operation.

On                      Off                      CAUTION: The DC-DC converter is operating but there is no power to the gravimeter.

Off                      On                      Normal operation under battery power.

On                      On                      Normal operation under ROV or external power. Dual LED appears orange.

(11) If possible make JU2 and JU3 accessible for noise testing.

(12) If necessary to save space, the input and battery power connector configurations can be switched or the battery connector can be a 2 rather than 4 circuit type.

(13) Try mounting the DC-DC module with a Lambda thermal pad instead of heatsink compound. Torque the screws to 4.75 in-lbs.

**ROVDOG  
DWG 1038**

CG-5 Gravimeter
Power System
DC-DC Converter Upgrade Filtering added to 50 Watt 12 Volt converter to suppress noise
Page 1 of 1                      Drawing 14
Lloyd Green                      October 2004

**Output Power to the Gravimeter**