

# 48Vin to 1V5 at 95 Amps

PRM48BH480x250A00  
 22 x 16.5 x 6.73mm.  
 Vin=38V to 55V.  
 -40 to 125C.  
 CIN, INT = 2uF,  
 COUT, INT = 2uF  
 Efficiency = 96.5% at 48vin, 5.21A & 100degC.  
 Vout ripple = 1V at 48vin, 5.21A, 0F.  
 load limit = 5.7A (min).  
 C ext <= 47uF (ALEL 0.1-IESR; Cer 0.002-0.2 ESR).  
 C\_cer max = 25uF.  
 C\_AIEI max = 47uF.  
 Load transient voltage deviation:-  
 10%-100% step,0F (cout), 10A/us, 4.8V  
 K factor = 1/32.  
 Page 31 of datasheet calculates capacitance

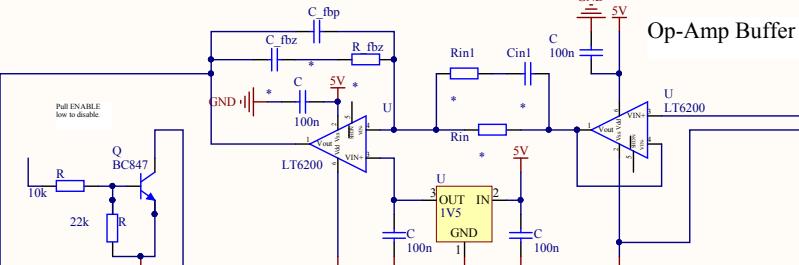
VTM48EF020T080A00  
 32.5 x 22 x 6.73mm  
 Vin=38V to 55V  
 Efficiency = 90.7% (48vin,115A,out,100degC)  
 Output Resistance = 1mohm (115A,100degC)  
 Ripple Vout = 150mV (0F,115A,48vin)  
 Cout\_INT = 420uF

A

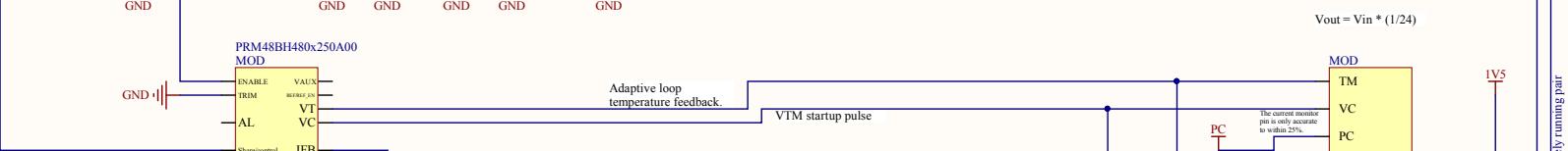
A

All VTM faults latch the VTM powertrain off. Input power to the system as a whole must be recycled or the PRM should be disabled and enabled by way of its ENABLE pin in order to restart the system.  
 It is recommended that the voltage on the factorized bus (inbetween PRM and VTM) return to zero before the PRM is re-enabled. Otherwise the soft start of the system may be compromised.  
 -So therefore just wait about 6 seconds for the post-PRM bus capacitance to discharge through the PRM's internal output divider.

## Error Amplifier



## Op-Amp Buffer



Vout = Vin \* (1/24)

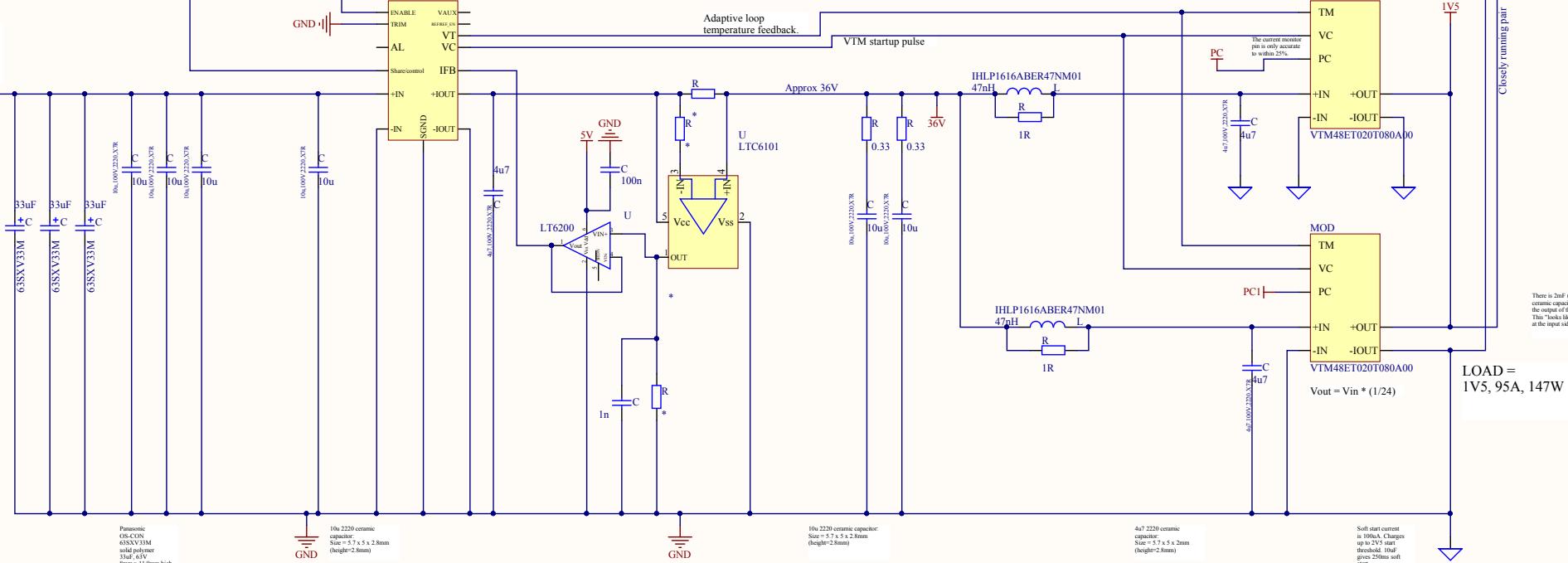
Closely running pair

B

B

The line resistance and the ESR must be less than the converter's input impedance, but not so small that input filter instability results.

If only a very small amount of low ESR ceramic input capacitors was used, (and no bulk caps), and also the line inductance was relatively large, then input filter instability could result. (as per equation (16) of the PRM datasheet. One way to mitigate this would be to add series resistors with the ceramic capacitors. However, the converter dynamic input impedance should be higher than the input line resistance or the capacitor ESR



There is 2mF (total) of ceramic capacitance at the input side of the VTM. This looks like 1.95uF at the input side.

Soft Start: There is a soft start on the PRM module (inbuilt). You can get this extended if you wish, just contact Vicor. There is no soft start on the VTM's, they just rely on the fact that the VTMs get started the same time as the PRM, and therefore their vout rises slowly as does the PRM output.

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