Efficiency & Losses:
Model t4 of first PMP10364 build (TDK VLB10090-B2 330nH) tested Sept. 30 & Oct. 2, 2014
Cin is 4x22uF size 1210 with 470uF in series with 0.22 ohms
Inductor on top of TPS544C20 with R8 changed from 17.8k to 27.4k for 400 kHz target:
Tested without fan thru 20A and with fan (~200LFM) from 15A to full 30A load
12Vin, Vout set at 1.00V frequency set at 400kHz target Close in Vin (TP8-TP9) & Vout
(TP7-TP11) senses FLIR EX320 thermal camera with emissivity set at 0.94
Meters at Fluke 87V cal. Due March 2015; except for output shunt 3.991454mOhms

<table>
<thead>
<tr>
<th>Vin Volts DVM</th>
<th>lin A DVM</th>
<th>Vout Volts DVM</th>
<th>lout A</th>
<th>% Efficiency</th>
<th>Losses in W</th>
<th>Actual freq. kHz</th>
<th>Fan? /max temp / thermal image#</th>
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</table>
IR668 Inductor on top: 1V 20A and no fan
Hotspot is just below raised inductor where TPS544C20 can be seen

IR669: Inductor on top: 1V 15A and no fan
Now full 30A load with ~200 LFM fan:

And finally, no load without fan showing dominance of core losses at no load:
Main waveform at full 30A load: 12Vin 1vout 30A 404kHz operation:
scope calculated rise & fall times are for 10% to 90%. Hence full rise & fall times are
about 25% higher.

Input ripple at C14, same conditions as above full 30A load
Start up at no load: with control pin going high: Rise time is ~2.55msec with ~30mV overshoot; (rise times shown on scope are for 10 to 90% and for 20 to 80%)

Output ripple at no load and near full load is seen from the step load and load dump responses below and is about 20mV p-p.
Step load response: 12Vin, 1.00Vout 11 to 26A in 4usec (0 to 15A in 4 usec had same undershoot). This also shows near full load ripple of about 20mV p-p.

Load dump response: 1.0Vout 15A to 0A (in 4usec) shown (26A to 11A very similar) Also, ~40mV peak overshoot. This also shows no load ripple.
Details of step load across 20mOhms R18 tied to Vout: ~300mV (or 15A) in 3-4 usec. Scope ground on Vout side of R18, hence negative going voltage corresponds to current at 1A per 20mV.

And load dump: Also, about 300mV or 15A in 4usec.
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