1 Startup
The startup waveform is shown in the figures below. The input voltage is set to 12V. The output voltage is 1.0V with no load. The timebase is set to 1ms/Division.
Channel 1: Vout – Yellow (1V/Division)

2 Efficiency
The efficiency of PMP2064 is shown in the graph below. The input voltage is 12V.
3 Output Ripple Voltage
The output ripple voltage is shown in the figure below. The input voltage is set to 12V. The timebase is set to 5us. The output is 1.0V with a 150A load.
Channel 1: Vout – Pink (AC Coupled 20mV/Division)

4 Frequency Response
The figure below shows the loop response of PMP2064 with a 12V input, and 150A load on the output.
5 Transient Response

The transient response of the converter is shown in the figure below. The timebase is set to 1ms/Division. The load is stepped from 90A to 120A.
Channel 2 : Output Voltage – Pink (20mV/Division, AC – Coupled)

6 Short Circuit

The figure below shows the converter in short circuit. The timebase is set to 20ms/Division. The input supply is set to 12V. The DC current draw during short circuit is ~300mA.
7 Current Balance

The figure below shows the current balance of the 6 phases of the converter. At max load the highest phase current is 26.1A, the lowest phase current is 23.8A.

8 Switching Waveforms

The figures below show the 6 switching phases. The scope only has 4 channels, so two pictures are necessary. The input voltage is 12V, the output voltage is 1.0V, the output current is 150A.
9 Board Photos

The photos below show the 6 phase board and a single 2 phase board.
IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI’s terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal and regulatory requirements concerning their products and any use of TI products in such safety-critical applications. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

<table>
<thead>
<tr>
<th>Products</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>Communications and Telecom</td>
</tr>
<tr>
<td>Amplifiers</td>
<td>Computers and Peripherals</td>
</tr>
<tr>
<td>Data Converters</td>
<td>Consumer Electronics</td>
</tr>
<tr>
<td>DLP® Products</td>
<td>Energy and Lighting</td>
</tr>
<tr>
<td>DSP</td>
<td>Industrial</td>
</tr>
<tr>
<td>Clocks and Timers</td>
<td>Medical</td>
</tr>
<tr>
<td>Interface</td>
<td>Security</td>
</tr>
<tr>
<td>Logic</td>
<td>Space, Avionics and Defense</td>
</tr>
<tr>
<td>Power Mgmt</td>
<td>Transportation and Automotive</td>
</tr>
<tr>
<td>Microcontrollers</td>
<td>Video and Imaging</td>
</tr>
<tr>
<td>RFID</td>
<td>Wireless</td>
</tr>
<tr>
<td>RF/IF and ZigBee® Solutions</td>
<td><a href="http://www.ti.com/rfpr">www.ti.com/rfpr</a></td>
</tr>
</tbody>
</table>

TI E2E Community Home Page

e2e.ti.com

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2011, Texas Instruments Incorporated