Texas Instruments

PMP4484 Test Procedure

Asia Power Design Service

REV A

06/29/2015
1 GENERAL

1.1 PURPOSE
To provide detailed data for evaluating and verifying the PMP4484

1.2 REFERENCE DOCUMENTATION
Schematic: PMP4484 SCH
Assembly: PMP4484 PCB
BOM

1.3 TEST EQUIPMENTS
Power-meter: YOKOGAWA WT210
Multi-meter(current): Fluke 3345A
Multi-meter(voltage): Fluke 187
AC Source: Chroma 61530
LED load: Chroma 63110A module

2 INPUT CHARACTERISTICS

2.1 POWER FACTOR

<table>
<thead>
<tr>
<th>Vin(Vac)</th>
<th>Freq(Hz)</th>
<th>PF</th>
<th>Pass/Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>60</td>
<td>0.98</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>60</td>
<td>0.98</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>60</td>
<td>0.977</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>60</td>
<td>0.972</td>
<td></td>
</tr>
<tr>
<td>180</td>
<td>50</td>
<td>0.964</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>50</td>
<td>0.956</td>
<td></td>
</tr>
<tr>
<td>230</td>
<td>50</td>
<td>0.939</td>
<td></td>
</tr>
<tr>
<td>260</td>
<td>50</td>
<td>0.918</td>
<td></td>
</tr>
<tr>
<td>280</td>
<td>50</td>
<td>0.903</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>50</td>
<td>0.889</td>
<td></td>
</tr>
</tbody>
</table>

Power factor VS Input voltage

![Power factor VS Input voltage graph](image-url)
2.2 EFFICIENCY

<table>
<thead>
<tr>
<th></th>
<th>Vin=110Vac</th>
<th></th>
<th>Vin=230Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>Vo (V)</td>
<td>Io (A)</td>
<td>Vo (V)</td>
</tr>
<tr>
<td>R1</td>
<td>30.48</td>
<td>0.146</td>
<td>R1</td>
</tr>
<tr>
<td>G1</td>
<td>30.3</td>
<td>0.165</td>
<td>G1</td>
</tr>
<tr>
<td>B1</td>
<td>30.11</td>
<td>0.126</td>
<td>B1</td>
</tr>
<tr>
<td>R2</td>
<td>29.95</td>
<td>0.141</td>
<td>R2</td>
</tr>
<tr>
<td>G2</td>
<td>30.57</td>
<td>0.161</td>
<td>G2</td>
</tr>
<tr>
<td>B2</td>
<td>30.2</td>
<td>0.128</td>
<td>B2</td>
</tr>
<tr>
<td>RS485</td>
<td>10.16</td>
<td>0.1</td>
<td>RS485</td>
</tr>
<tr>
<td>MCU</td>
<td>3.3</td>
<td>0.1</td>
<td>MCU</td>
</tr>
<tr>
<td>Pin (W)</td>
<td>32.69</td>
<td></td>
<td>Pin (W)</td>
</tr>
<tr>
<td>Eff. (%)</td>
<td>84.4</td>
<td></td>
<td>Eff. (%)</td>
</tr>
</tbody>
</table>

3 OUTPUT CHARACTERISTICS

3.1 TURN ON DELAY AND RIPPLE CURRENT

<table>
<thead>
<tr>
<th>CONDITIONS</th>
<th>Delay time (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vin (Vac)</td>
<td>Load</td>
</tr>
<tr>
<td>110</td>
<td>Full load</td>
</tr>
<tr>
<td>230</td>
<td>Full load</td>
</tr>
</tbody>
</table>

Vin:110Vac  Io: full load
Ch1: The voltage after bridge diode
Ch3: R1 LED current
Ch4: G1 LED current
Vin: 230Vac  Io: full load
Ch1: The voltage after bridge diode
Ch3: R1 LED current
Ch4: G1 LED current

3.2 OUTPUT LED Ripple

Vin: 230Vac  Io: LED Lamp load
Ch3: R1 LED current
Ch4: G1 LED current
Vin: 230 Vac Io: LED Lamp load
Ch3: B1 LED current
Ch4: R2 LED current

Vin: 230 Vac Io: LED Lamp load
Ch3: G2 LED current
Ch4: B2 LED current

3.3 LED PWM Dimming
Vin: 110 Vac  Io: LED Lamp load
Ch1: DIM_R1 voltage, Duty=1%
Ch2: DIM_G1 voltage, Duty=1%
Ch3: R1 LED current
Ch4: G1 LED current
Vin: 110Vac    Io: LED Lamp load
Ch1: DIM_R1 voltage, Duty=90%
Ch2: DIM_G1 voltage, Duty=90%
Ch3: R1 LED current
Ch4: G1 LED current

Vin: 110Vac    Io: LED Lamp load
Ch1: DIM_B1 voltage, Duty=1%
Ch2: DIM_R2 voltage, Duty=1%
Ch3: B1 LED current
Ch4: R2 LED current
Vin: 110V ac  Io: LED Lamp load  
Ch1: DIM_B1 voltage, Duty=50%  
Ch2: DIM_R2 voltage, Duty=50%  
Ch3: B1 LED current  
Ch4: R2 LED current
Vin:110Vac    Io: LED Lamp load
Ch1: DIM_G2 voltage, Duty=1%
Ch2: DIM_B2 voltage, Duty=1%
Ch3: G2 LED current
Ch4: B2 LED current

Vin:110Vac    Io: LED Lamp load
Ch1: DIM_G2 voltage, Duty=50%
Ch2: DIM_B2 voltage, Duty=50%
Ch3: G2 LED current
Ch4: B2 LED current
Vin: 110 Vac Io: LED Lamp load
Ch1: DIM_G2 voltage, Duty=90%
Ch2: DIM_B2 voltage, Duty=90%
Ch3: G2 LED current
Ch4: B2 LED current

4 Thermal Test

Vin: 110 Vac Io: full load
Top View

Vin: 230 Vac Io: full load
Bottom View
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