1. **Revision Information**

<table>
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<tr>
<th>Date</th>
<th>Revision</th>
<th>Description</th>
<th>Comment</th>
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<tbody>
<tr>
<td>2010/10</td>
<td>V1.0</td>
<td>Initial Release</td>
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2. **PAM2804 General Description**

The PAM2804 is a step-down current mode LED driver. When the input voltage down to lower than LED forward voltage, then PAM2804 run into LDO mode.

The PAM2804 supports a range of input voltages from 2.5V to 6.0V, allowing the use of a single Li+/Li-polymer cell, 3AA or 4AA cell, USB, and other stand power sources.

The FB voltage is only 0.1V to achieve high efficiency.

PAM2804 employ internal power switch and synchronous rectifier to minimize external part count and realize high efficiency.

During shutdown, the input is disconnected from the output and the shutdown current is less than 1µA.

Other key features include under-voltage lockout to prevent deep battery discharge of the Li+ battery.

3. **Key Features**

- Efficiency up to 93%
- 180µA (typ) Quiescent Current
- Output Current: Up to 1A
- Internal Synchronous Rectifier
- 1.5MHz Switching frequency
- Soft Start
- Under-Voltage Lockout
- Short LED Protection
- Open LED Protection
- Thermal Shutdown
- 5-pin Small SOT23-5 Package
- Pb-Free Package
4. EV Board Schematic

5. EVB PAM2804 EB09AA Description

PAM2804 EB09AA is an evaluation board for the PAM2804, a LED driver. The board is targeted to be used in providing a simple and convenient evaluation environment for the PAM2804. Requires parts on the board makes it easy to be evaluated.

6. EV Board View

**EV Board Operational Sequence:**
1. Connect LED+ to anode of the power LED, the cathode connect to LED-
2. Connect VIN and GND to power supply.
7. EV Boards BOM List

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Type</th>
<th>Rating</th>
<th>Description</th>
<th>Vender and Part No.</th>
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<tbody>
<tr>
<td>Cin</td>
<td>10µF</td>
<td>X5R/X7R, Ceramic/0805</td>
<td>10V</td>
<td>Input coupling CAP</td>
<td>JMK212BJ106MA</td>
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<tr>
<td>Co</td>
<td>10µF</td>
<td>X5R/X7R, Ceramic/0805</td>
<td>10V</td>
<td>Input coupling CAP</td>
<td>JMK212BJ106MA</td>
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<tr>
<td>R1</td>
<td>0.3ohm</td>
<td>1206</td>
<td>1%</td>
<td>ILED=0.1/R1</td>
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<tr>
<td>L1</td>
<td>4.7µH</td>
<td>3.7mm*3.0mm</td>
<td>1.2A</td>
<td>Inductor</td>
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<td>IC1</td>
<td>PAM2804</td>
<td>SOT-23-5</td>
<td>1.2A</td>
<td>Power management IC</td>
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<td>PAM2804 EB09AA</td>
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8. External Components Selection

Input & Output Capacitors (Cin, Co)

1. For lower output ripple, low ESR is required.
2. Low leakage current needed, 10µF, X5R/X7R ceramic recommended.

Output Voltage Programmer Resistors (R1)

1. For programmer output current.
2. For accurate output current, 1% tolerance is required.

Inductor (L1)

1. Low DCR for good efficiency.
2. Inductor rated Current must higher than the output current.

9. PCB Layout Example

Top Layer

Bottom Layer

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