Title: METHOD AND CONTROL CIRCUITRY FOR IMPROVED-PERFORMANCE SWITCH-MODE CONVERTERS

Abstract: A system and method for supplying power to a load (R_L) and for controlling the power factor presented to the power line. Output voltage (V_o) is controlled by a digital, outer, control loop (Digital), and inner, analog, control loop (Analog) causes the input current (I_in) to be substantially proportional to the input voltage (V_in) at any particular point in the power line cycle. Thus, the system presents a load (R_L) to the power line that appears to be purely resistive. The use of an analog multiplier is not required, nor is sampling of input voltage. Limiting of input current provides for brown-out protection and soft-start.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC:  G05F 1/10(2006.01). I/40(2006.01)
         H02M 5/42 (2006.01)
   USPC: 323/222,271,283
   According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
   Minimum documentation searched (classification system followed by classification symbols)
   Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
   Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
   EAST: power factor correction, digital, analog

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 5,631,550 A (CASTRO et al) 20 May 1997. See Fig. 1</td>
<td>1-21</td>
</tr>
<tr>
<td>A</td>
<td>US 5,847,942 A (BAZINET et al) 8 December 1998. See Fig. 3</td>
<td>1-21</td>
</tr>
<tr>
<td>A</td>
<td>US 6,043,633 A (LEV et al) 28 March 2000. See Fig. 10</td>
<td>1-21</td>
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<tr>
<td>A</td>
<td>US 6,728,121 A (BEN-YAAKOV et al) 27 April 2004. See Fig. 7</td>
<td>1-21</td>
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<tr>
<td>A</td>
<td>US 7,015,682 A (SANTIN et al) 21 March 2006. See Fig. 1</td>
<td>1-21</td>
</tr>
</tbody>
</table>

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
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   “Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
   “K” document member of the same patent family

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Date of mailing of the international search report: 26 FEB 2007

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