

**DESCRIPTION**

Microsemi's LX1691A is an enhanced Direct Drive CCFL (Cold Cathode Fluorescent Lamp) Controller. Its architecture is based on the LX1691.

LX1691A based inverter modules can be designed for virtually any CCFL appliance from digital cameras and PDA's to big screen monitors and driver viewable automotive displays.

New versatile dimming circuitry can accept digital and analog control inputs and provides six different dimming modes that control both lamp current amplitude and duty cycle, either simultaneously or separately. Designers can select normal or reverse polarity dimming and precisely program mini-mum and maximum lamp currents with resistors.

The LX1691A fault shutdown feature is enhanced to include regulation and shutdown for over voltage and over current conditions.

The LX1691A includes the Microsemi proven and patented strike method that allows significant efficiency gains while guaranteeing strong striking power at all operating temperatures.

Our method *sweeps* strike frequency smoothly up to the unloaded resonant frequency of the lamp and high voltage transformer. This, coupled with the LX1691A's active high output voltage regulation, produces just enough strike voltage without generating unpredictable high voltage spikes that cause arcing and component failures. Competitive devices that simply *switch* to a higher frequency for striking do not have this "real time" control over output voltage, and require much more attention to transformer design.

The LX1691A is optimized for wide input voltage applications. It is identical to the LX1691 except it has a guaranteed minimum lamp strike interval of one second to meet notebook and monitor panel manufacturer's specifications. The LX1691A includes feed forward compensation that provides improved regulation and transient response over an 7 – 24 volt input supply range. The LX1691A can also be used with a fixed input supply and will produce performance equal to that of the LX1691.

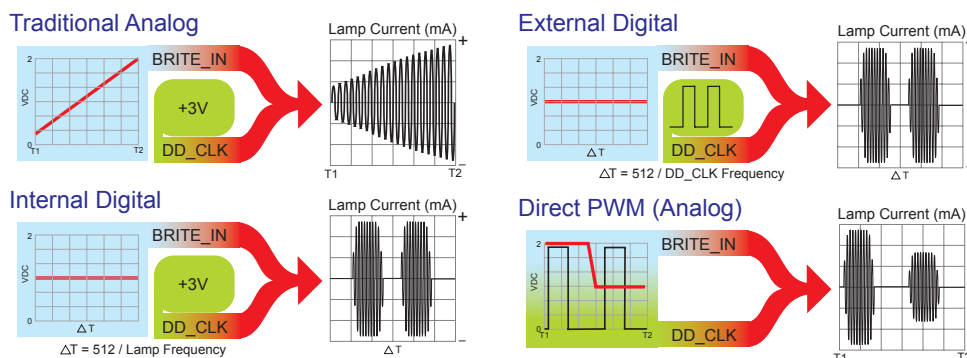
**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>  
Protected By U.S. Patents: 5,615,093; 5,923,129; 5,930,121; 6,198,234; Patents Pending

**KEY FEATURES**

- Simultaneous Amplitude And Duty Cycle Dimming Modes
- Resistor programmable min and max lamp currents
- Digital Dimming Can Synch To External Or Internal Clocks
- 120 ms Power On Delay
- Open Or Shorted Lamp Regulation & Shutdown
- "On Chip" Full Wave Lamp Current Rectifier
- 16 Pin TSSOP Package
- Very Stable Oscillator with On-Chip timing capacitor
- Enhanced Digital Dimming Resolution
- Wide Input Voltage Capable

**BENEFITS**

- Low Component Count / Module Cost / And Size
- High "Nits/Watt" Efficiency
- Operates Directly From a Single Li-Ion Cell
- Industries Safest And Highest Performing Strike Voltage Generation (Patented)
- Tight Operating Frequency Tolerance For Easier System Level RFI Control

**PRODUCT HIGHLIGHT**

**Four of Six Dimming Modes**
**PACKAGE ORDER INFO**

| T <sub>A</sub> (°C) | MIN V <sub>DDP</sub> | MAX V <sub>DDP</sub> | PW Plastic TSSOP 16-PIN<br>RoHS Compliant / Pb-free |
|---------------------|----------------------|----------------------|-----------------------------------------------------|
| -40 to +85          | 2.8V                 | 5.5V                 | <b>LX1691AIPW</b>                                   |

Note: Available in Tape & Reel. Append the letters "TR" to the part number. (i.e. LX1691AIPW-TR)



**Microsemi**

## INFORMATION

*Thank you for your interest in Microsemi® IPG products.*

The full data sheet for this device contains proprietary information.

To obtain a copy, please contact your local Microsemi sales representative. The name of your local representative can be obtained at the following link

<http://www.microsemi.com/contact/contactfind.asp>

**or**

Contact us directly by sending an email to:

[IPGdatasheets@microsemi.com](mailto:IPGdatasheets@microsemi.com)

Be sure to specify the data sheet you are requesting and include your company name and contact information and or vcard.

*We look forward to hearing from you.*