

new product
information

LX1691/91A ENHANCED MULTIMODE CCFL CONTROLLER

New Product Information and Sales Kit

Manufactured by:

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More than solutions – enabling possibilities

INTRODUCTION

CONFIDENTIAL INFORMATION

This new product introduction guide is intended for use only by Microsemi's sales people and authorized representatives and distributors. This material can be adapted for customer presentations, but the sales strategy and summary [pricing, availability, etc.] is confidential and should not be shown to customers

DESCRIPTION

The LX1691/91A is an **enhanced multi-mode** direct drive CCFL (Cold Cathode Fluorescent Lamp) Controller. LX1691/A 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 minimum and maximum lamp currents with resistors.

The LX1691/91A has **fault shutdown feature** is enhanced to include regulation and shutdown for over voltage and over current conditions. The LX1691/91A includes the Microsemi proven and patented strike method that allows significant efficiency gains while guaranteeing strong striking power at all operating temperatures.

The **LX1691A version 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 a 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.

The LX1691/91A are available in a **16 pin TSSOP** package and is **Pb-free device**.

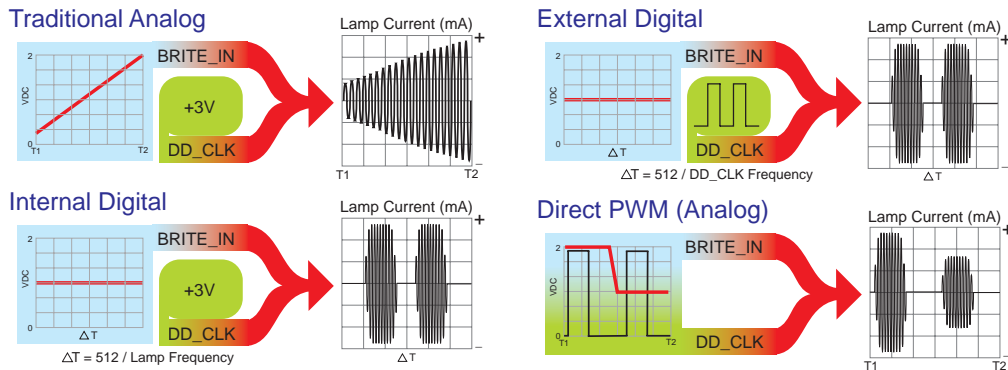
SUMMARY

The LX1691 and LX1691A are compact highly flexible CCFL controllers.



KEY PRODUCT INFORMATION

PRODUCT HIGHLIGHT



This illustrates four of the six modes of operation; the additional two modes include the reversal of polarity of the input signal

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
- Very Stable Oscillator with On-Chip timing capacitor
- Enhanced Digital Dimming Resolution
- Wide Input Voltage Range using LX1691A version with full bridge circuitry
- 16 Pin TSSOP Package

HIGHLIGHTS

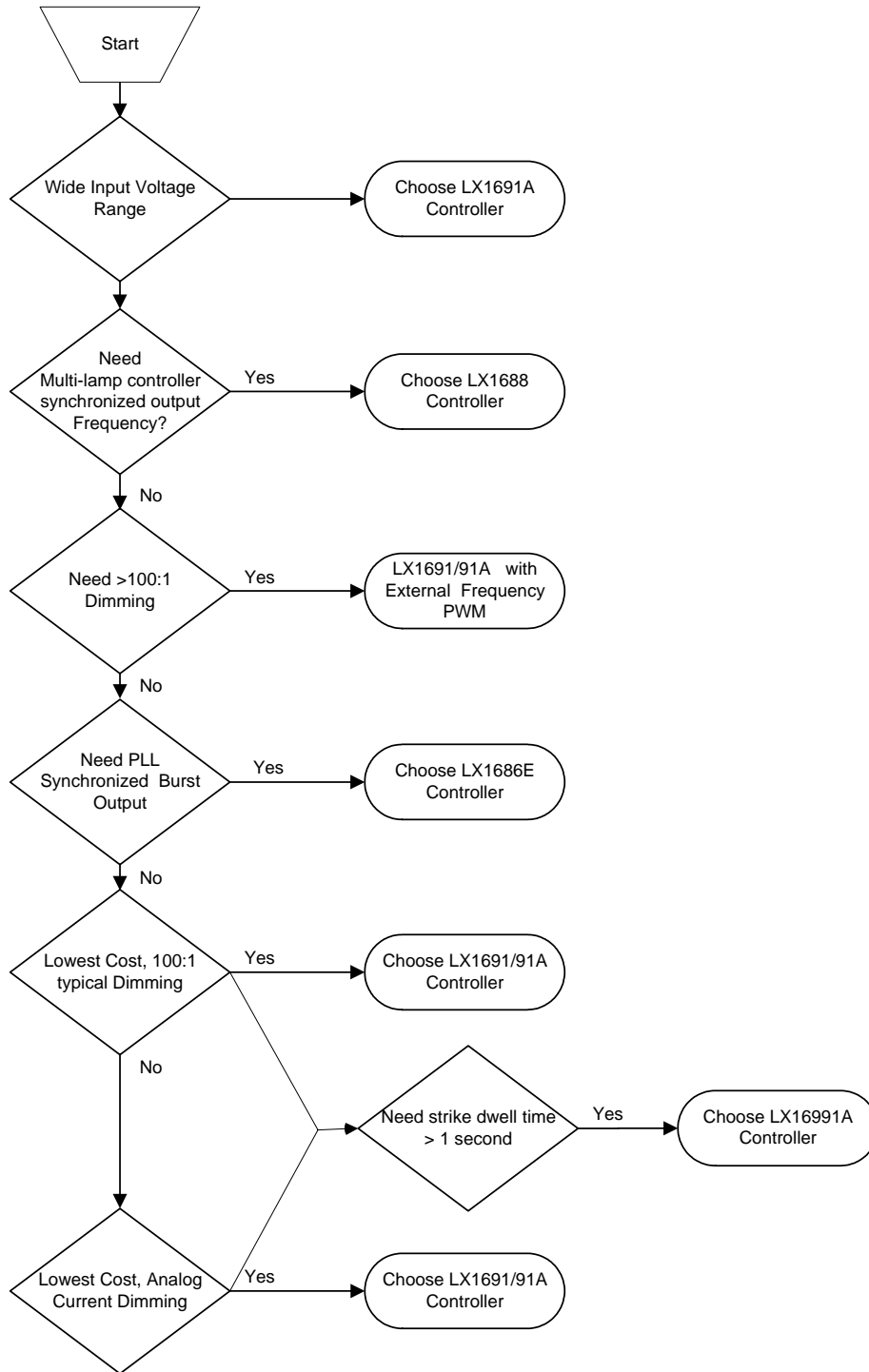
- Low Component Count / Module Cost / And Size
- High “Nits/Watt” Efficiency
- Operates Directly From a Single Li-Ion Cell
- Industries Safest And Highest Performing Strike Voltage Generation (Patented)
- Tight Operating Frequency Tolerance For Easier System Level RFI Control
- Wide input voltage range using LX1691A version with full bridge circuitry

APPLICATIONS

- CCFL Lamps
- LCD Displays, POS, Monitors, ATM
- Battery Powered LCD products
- Automotive LCD Displays



SHOULD I RECOMMEND THE LX1691, LX1691A OR ANOTHER BACKLIGHT CONTROLLER?



COMPETITIVE ANALYSIS

LX1691/91A

Competitor	Device	Package	Topology	Input Range	Output Frequency	Temperature Range	Notes
Microsemi	LX1691	16 TSSOP	Single Stage	3 – 5.5V	50 - 100 KHz	- 40 to 85°C	
Microsemi	LX1691A	16 TSSOP	Single Stage	3 – 5.5V	50 - 100 KHz	- 40 to 85°C	Not pin to pin compatible with LX1691
O ² Micro	OZ964I	20 TSSOP OR SSOP	Single Stage	4.6 - 5.5V	40 - 150 KHz	-40 to 85°C	Not pin to pin compatible
MPS	MPS1015	20 TSSOP	Single Stage	6 - 22V	20 - 150 KHz	-20 to 85°C	Not pin to pin compatible

Alternative Microsemi Solutions

Device	Description	Notes
LX1686E	Backlight Controller	<ul style="list-style-type: none"> Replacement for legacy LX1686 Built in PLL
LX1688	Multi Lamp Controller	<ul style="list-style-type: none"> Multi-lamp Synchronization
LX1689	Highly Integrated Backlight Controller	<ul style="list-style-type: none"> Direct High voltage input with two LDO's High integration reduces external parts count

SALES STRATEGY

Find Sockets

- CCFL Lamps
- LCD displays, POS, Monitors, ATM
- Battery powered LCD products
- Automotive LCD displays

Positioning

- Look for customers who are designing CCFL inverters
- Look for CCFL inverter designs that need wide dimming range
- Cost reduced designs and low voltage <5V inverter designs

Important Facts to Remember

- The LX1691/91A is a proprietary pin-out
- The LX1691A changes the function of pin 12 from the LX1691
- Can be a cost reduction to current LX1689 designs, especially if user has a less than or equal to 5V supply
- Wider dimming range than similar LX1689 based design

SUMMARY

Pricing

Device	Package	Quantity	
		DC	1000+
LX1691/91AIPW	16 pin TSSOP	\$1.24	\$1.43

Availability

Samples: LX1691IPW or LX1691AIPW Available Now

Production: Now

Options

Temperature: I Industrial -40 to 85°C

Packages: PW 16-Pin Tape & Reel [MOQ 2500pcs]

Technical Support

Datasheet: See Microsemi's Website

Application Note: See Datasheet

Evaluation Board: N/A

Factory Contacts

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