



# FAN7311B

## LCD Backlight Inverter Drive IC

### Features

- High-Efficiency Single-Stage Power Conversion
- Wide Input Voltage Range: 5V to 25.5V
- Backlight Lamp Ballast and Soft Dimming
- Reduced Number of Required External Components
- Precision Voltage Reference Trimmed to 2%
- ZVS Full-Bridge Topology
- Soft-Start Capability
- PWM Control at Fixed Frequency
- Analog and Burst Dimming Function
- Programmable Striking Frequency
- Open-Lamp Protection
- Open-Lamp Regulation
- 20-Pin SOIC

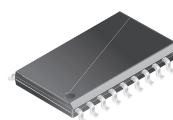
### Applications

- LCD TV
- LCD Monitor

### Description

The FAN7311B provides all the control functions for a series parallel resonant converter as well as a pulse width modulation (PWM) controller to develop a supply voltage. Typical operating frequency range is between 30kHz and 250kHz, depending on the cold cathode fluorescent lamp (CCFL) and the transformer's characteristics. The FAN7311B uses a new patent-pending phase-shift control.

20-SOIC



### Ordering Information

| Part Number | Package | Pb-Free | Operating Temperature Range | Packing Method |
|-------------|---------|---------|-----------------------------|----------------|
| FAN7311BM   | 20-SOIC | Yes     | -25°C to 85°C               | Rail           |
| FAN7311BMX  | 20-SOIC | Yes     |                             | Tape & Reel    |

**Protected by U.S. Patent: 5,652,479; 7,158,390.**

## Typical Application Circuits

| Application         | Lamps | Input Voltage |
|---------------------|-------|---------------|
| 19-inch LCD Monitor | 4     | 13V           |

### 1. Schematic

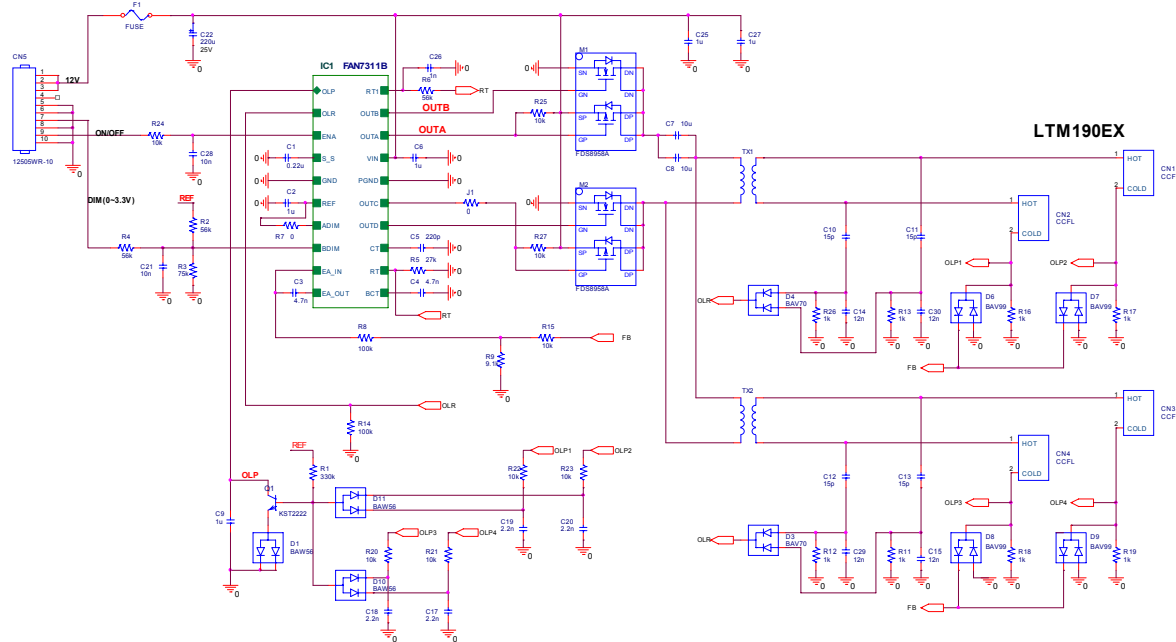


Figure 10. Typical Application Circuit

### 2. Transformer Schematic Diagram

- Supported by Namyang electronics (<http://www.namyangelec.co.kr>)

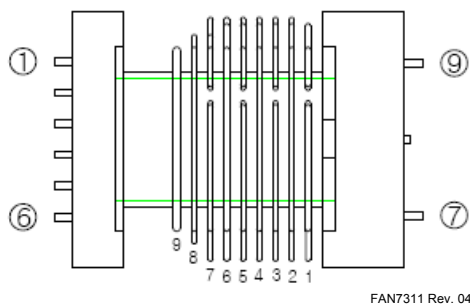


Figure 11. Transformer Schematic

### 3. Core & Bobbin

- Core: EFD2124
- Material: PL7
- Bobbin: EFE2124

## FAIRCHILD SEMICONDUCTOR TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

|                                                  |                                 |                                 |                              |                     |
|--------------------------------------------------|---------------------------------|---------------------------------|------------------------------|---------------------|
| ACE <sub>x</sub> <sup>™</sup>                    | FACT Quiet Series <sup>™</sup>  | OCX <sup>™</sup>                | SILENT SWITCHER <sup>®</sup> | UniFET <sup>™</sup> |
| ActiveArray <sup>™</sup>                         | GlobalOptoisolator <sup>™</sup> | OCXPro <sup>™</sup>             | SMART START <sup>™</sup>     | VCX <sup>™</sup>    |
| Bottomless <sup>™</sup>                          | GTO <sup>™</sup>                | OPTOLOGIC <sup>®</sup>          | SPM <sup>™</sup>             | Wire <sup>™</sup>   |
| Build it Now <sup>™</sup>                        | HiSeC <sup>™</sup>              | OPTOPLANAR <sup>™</sup>         | Stealth <sup>™</sup>         |                     |
| CoolFET <sup>™</sup>                             | I <sup>2</sup> C <sup>™</sup>   | PACMAN <sup>™</sup>             | SuperFET <sup>™</sup>        |                     |
| CROSSVOL <sup>™</sup>                            | i-Lo <sup>™</sup>               | POP <sup>™</sup>                | SuperSOT <sup>™</sup> -3     |                     |
| DOME <sup>™</sup>                                | ImpliedDisconnect <sup>™</sup>  | Power247 <sup>™</sup>           | SuperSOT <sup>™</sup> -6     |                     |
| EcoSPARK <sup>™</sup>                            | IntelliMAX <sup>™</sup>         | PowerEdge <sup>™</sup>          | SuperSOT <sup>™</sup> -8     |                     |
| E <sup>2</sup> CMOS <sup>™</sup>                 | ISOPLANAR <sup>™</sup>          | PowerSaver <sup>™</sup>         | SyncFET <sup>™</sup>         |                     |
| EnSigna <sup>™</sup>                             | LittleFET <sup>™</sup>          | PowerTrench <sup>®</sup>        | TCM <sup>™</sup>             |                     |
| FACT <sup>®</sup>                                | MICROCOUPLER <sup>™</sup>       | QFET <sup>®</sup>               | TinyBoost <sup>™</sup>       |                     |
| FAST <sup>®</sup>                                | MicroFET <sup>™</sup>           | QS <sup>™</sup>                 | TinyBuck <sup>™</sup>        |                     |
| FAST <sub>r</sub> <sup>™</sup>                   | MicroPak <sup>™</sup>           | QT Optoelectronics <sup>™</sup> | TinyPWM <sup>™</sup>         |                     |
| FPS <sup>™</sup>                                 | MICROWIRE <sup>™</sup>          | Quiet Series <sup>™</sup>       | TinyPower <sup>™</sup>       |                     |
| FRFET <sup>™</sup>                               | MSX <sup>™</sup>                | RapidConfigure <sup>™</sup>     | TinyLogic <sup>®</sup>       |                     |
|                                                  | MSXPro <sup>™</sup>             | RapidConnect <sup>™</sup>       | TINYOPTO <sup>™</sup>        |                     |
| Across the board. Around the world. <sup>™</sup> |                                 | μSerDes <sup>™</sup>            | TruTranslation <sup>™</sup>  |                     |
| The Power Franchise <sup>®</sup>                 |                                 | ScalarPump <sup>™</sup>         | UHC <sup>®</sup>             |                     |
| Programmable Active Droop <sup>™</sup>           |                                 |                                 |                              |                     |

## DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

## LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

## PRODUCT STATUS DEFINITIONS

### Definition of Terms

| Datasheet Identification | Product Status         | Definition                                                                                                                                                                                                   |
|--------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advance Information      | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.                                                                           |
| Preliminary              | First Production       | This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design. |
| No Identification Needed | Full Production        | This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.                                                       |
| Obsolete                 | Not In Production      | This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.                                          |

Rev. I22