LCD Backlight Driver

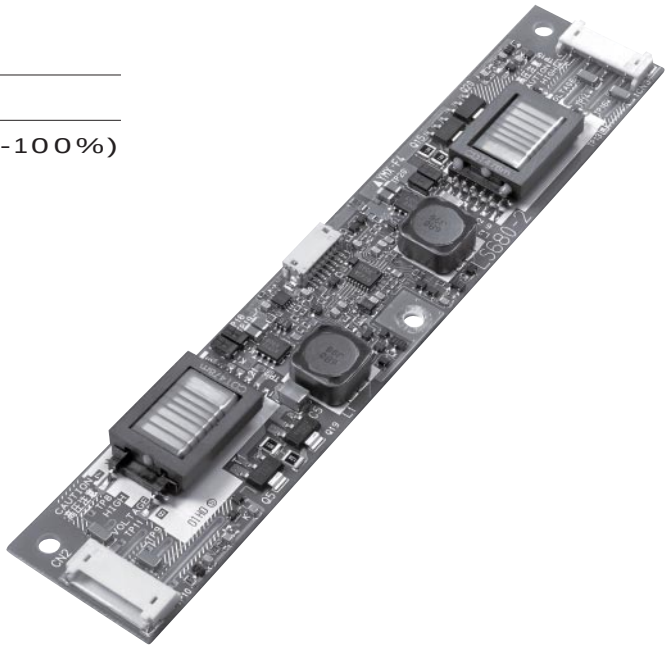
Model

LS680-1

12 Volt Input

Four Tube CCFT Inverter (8W)

Brightness Control (PWM Dimming 30-100%)



Physical Specifications

Dimensions:	160mm x 30mm x 10mm (6.299" x 1.181" x 0.39")
Operating Temp:	0 to 60°C, convection cooling
Relative Humidity:	20% to 90%, non-condensing
Storage:	-20 to 85°C/5-95% RH
Impact Resistance:	50G half wave per 2 msec
Vibration Resistance:	10-55-10 Hz/min @ 1.5mm

Input Specifications*

Item	Condition	Standard
Input Voltage Rated Tolerance	— Continuous Operation Starting Condition (Discharge Starting Voltage)	12 Vdc 10.8 Vdc - 13.2 Vdc 10.8 Vdc - 13.2 Vdc
Max. Input Current	V_{IN} = 12 Vdc Luminance @ Max.	2.0 A
Max. Input Power	V_{IN} = 12 Vdc Luminance @ Max.	24 W
On/Off Input Current	On V_{CONT} = 2.0 – Vcc Off V_{CONT} = GND-0.8 Vdc	I_{MAX} = 4.0 mA I_{MAX} = 50 µA

*Above Specifications Occur @ 25 ± 5ºC

Output Specifications*

Item	Condition	Standard MIN	TYP	MAX
Output Voltage (Vrms)	V_{IN} = 10.8 Vdc	1500	1650	—
Tube Current for 2 Lamps (mArms)	Luminance @ Max.(V_{CONT} = 3.8 V) Luminance @ Min. (V_{CONT} = 2.0 V)	12.5 —	14.0 7.5	15.5 —
Max. Power Output for 2 Lamps (W)	V_{IN} = 12 Vdc/Luminance @ Max.	—	—	8.0
Ignition Frequency (kHz)	Luminance @ Max.	50	60	70

*Above specifications occur @ 25 ± 5ºC & V_{IN} = 10.8 - 13.2 Vdc.

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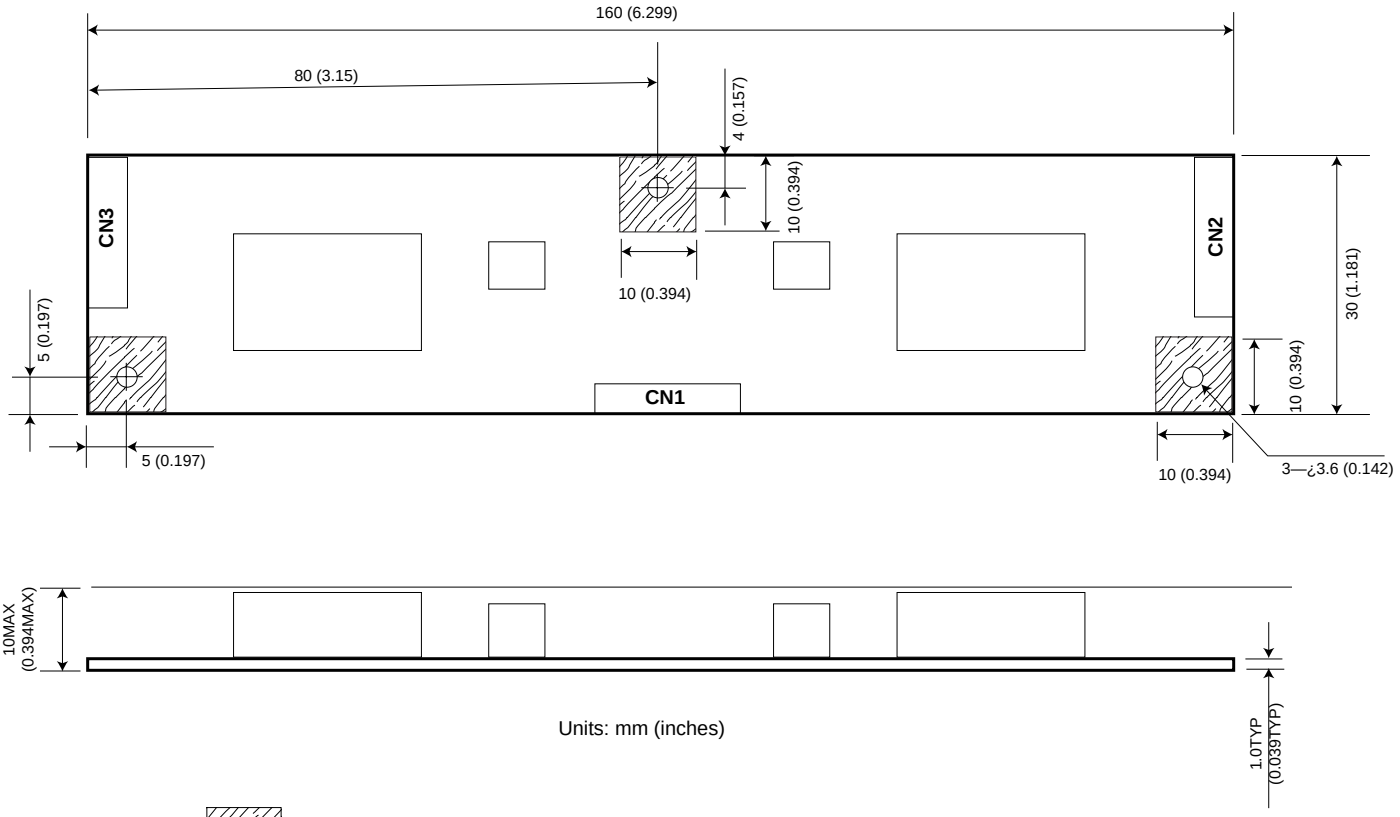
Luminance Variance

Item	Condition	Applied Voltage	Output Current
Luminance @ Max.	Btwn. pin 4 & 6	Vcont = 3.8 V	14 mA (2 lamps)
Luminance @ Min.	Btwn. pin 4 & 6	Vcont = 2.0 V	7.5 mA (2 lamps)

Luminance can also be controlled by applying PWM signal to pin 5 (pin 4 must be connected to GND).



Units: mm (inches)

No Pattern and No Componet Area (except GND pattern)

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world leaders in materials and electronics technology

Taiyo Yuden (U.S.A.), Inc.
1770 La Costa Meadows Drive, San Marcos, CA 92069
(760) 510-3200 / Fax: (760) 471-4021
(800) 493-6835 www.t-yuden.com powerproducts@t-yuden.com

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LISTED PRODUCTION FACILITY PQAA REF.1612

ANSI-RAB QMS ACCREDITED BSI REGISTERED FM 32227

Model

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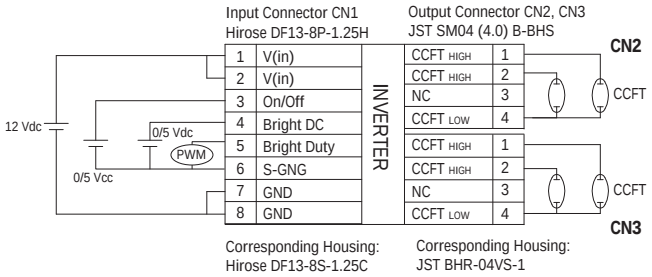
Tech Notes

Connection Diagram

LS680-1

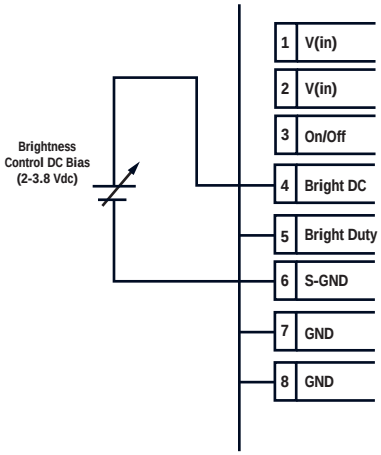


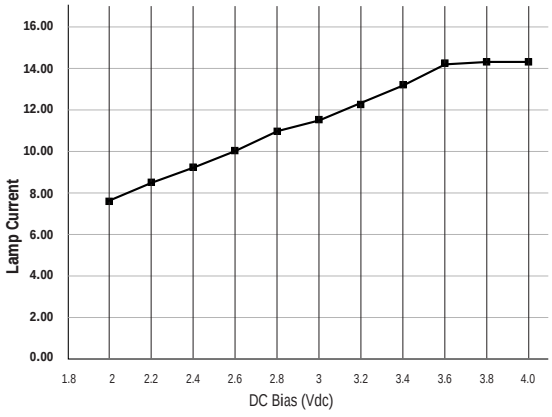
DC Bright Control Method

Maximum output current can be adjusted by applying bias voltage between brightness control pins as shown below.

Alternatively, brightness control can be done by applying PWM signal to pin 5 (pin 4 must be tied to GND).

DC Bias	Lamp Current (2 lamps)
2.0 V	7.51 mA
2.2 V	8.45 mA
2.4 V	9.28 mA
2.6 V	10.05 mA
2.8 V	11.05 mA
3.0 V	11.58 mA
3.2 V	12.30 mA
3.4 V	13.18 mA
3.6 V	14.16 mA
3.8 V	14.21 mA
4.0 V	14.21 mA





* Above specifications occur @ 25 ± 5ºC, with pin 5 connected to GND, and V_{IN} = 12 Vdc.

On/Off Control

The inverter is ON if one of the following conditions are met:
- Pin 3 (On/Off) is connected to pin 1/2 (V_{IN})
- Pin 3 (On/Off) = 2 Vdc —Vcc

The inverter is OFF if one of the following conditions are met:
- Pin 3 (On/Off) is connected to pin 7/8 (GND)
- Pin 3 (On/Off) ≤ 0.8 Vdc

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