TAIYO YUDEN

LCD Backlight Driver

Model

LS720A-RH

RoHS COMPLIANT

12 Volt Input

Dual Tube CCFT Inverter (8W)

Brightness Control (PWM Dimming 20-100%)



Physical Specifications

Dimensions:	25mm x 125mm x 10mm (0.98" x 4.92" x 0.39")
Operating Temp:	0 to 60°C, convection cooling
Relative Humidity:	20% to 90%, non-condensing
Storage:	-20 to 80°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} = 10.8 Vdc Luminance @ Max.	1.0 A
Max. Input Power	V_{IN} = 12 Vdc Luminance @ Max.	12 W
On/Off Input Current	On V_{CONT} = 2.0-Vcc Vdc Off V_{CONT} = -0.3 Vdc to +0.8 Vdc	 I_{MAX} = 4.0 mA I_{MAX} = 50 µA
DC-Bright	I_{OUT} = Max I_{OUT} = Min	3.8 V 2.0 V
PWM Bright Duty Ratio	t_{ON} / t_{BC} Max t_{ON} / t_{BC} Min	1.00 0.30
PWM Bright Pulse Frequency	1 / t_{BC}	400 Hz 380 ~ 420 Hz

*Above Specifications Occur @ 25 ± 5°C

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_{IN} = 12.0 Vdc) Luminance @ Min. (V_{IN} = 12.0 Vdc)	10.4 —	12.0 7.0	13.6 —
Max. Power Output for 2 Lamps (W)	V_{IN} = 12 Vdc/Luminance @ Max.	—	—	8.0
Ignition Frequency (kHz)	Luminance @ Min.-Max., V_{IN} = 12.0 Vdc	50	60	70

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

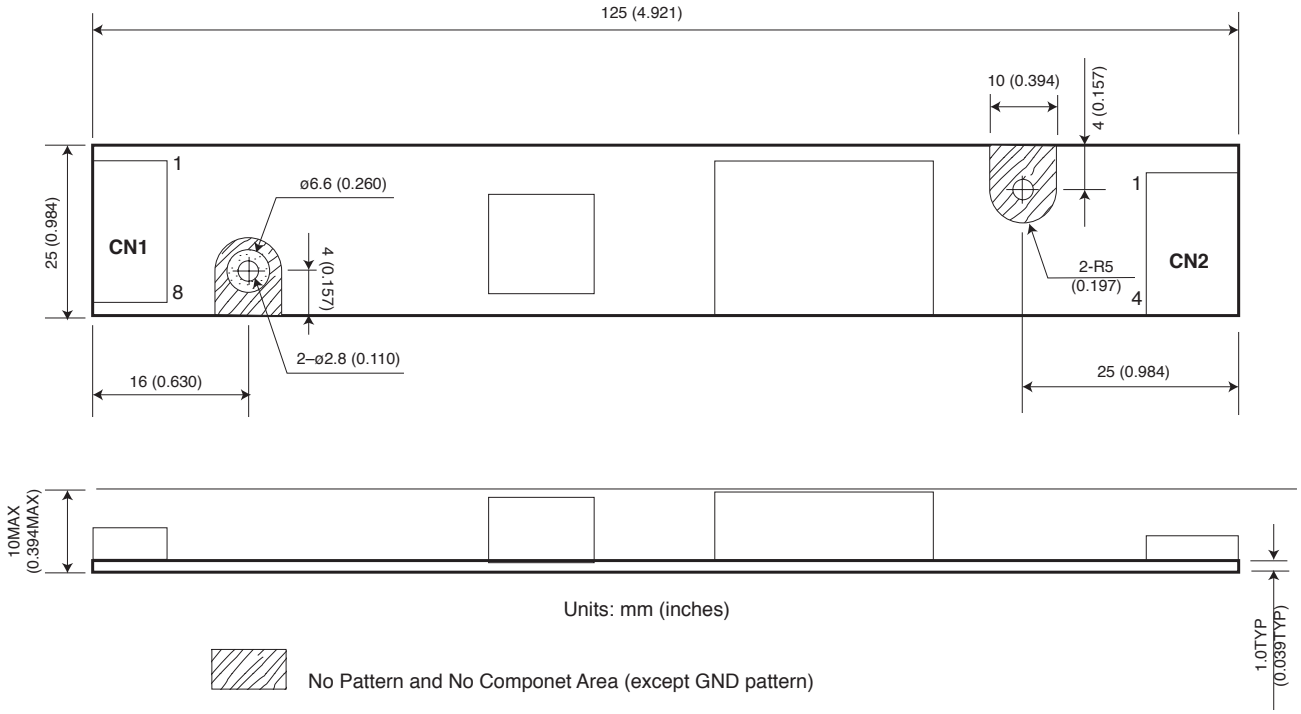
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Luminance Variance

Item	Condition	DC Bias Control	Output Current
Luminance @ Max.	Btwn. pin 4 & 6	Vcont = 3.8 V	12 mA (2 lamps)
Luminance @ Min.	Btwn. pin 4 & 6	Vcont = 2.0 V	6.5 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)

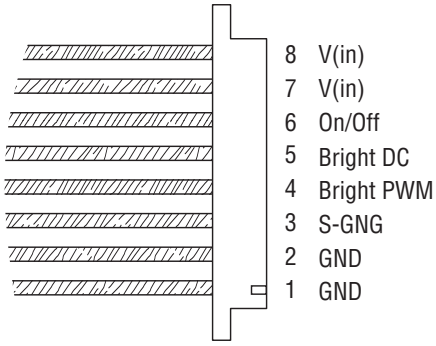
No Pattern and No Componet Area (except GND pattern)

GND Pattern Area

CN1 Input Connector
Hirose DF13-8P-1.25H
(pin number 8 is marked on PCB)

V(in)	1
V(in)	2
On/Off	3
Bright DC	4
Bright PWM	5
S-GNG	6
GND	7
GND	8

CN1 Corresponding Housing
Hirose DF13-8S-1.25C
(Hirose Connector Pin Numbers)



CN2 Output Connector
JST SM03 (7-D1) B-BHS-1-TB(LF)

CCFT HIGH	1
CCFT HIGH	2
NC	3
CCFT LOW	4

CN2 Corresponding Housing
JST BHR-04VS-1

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Model

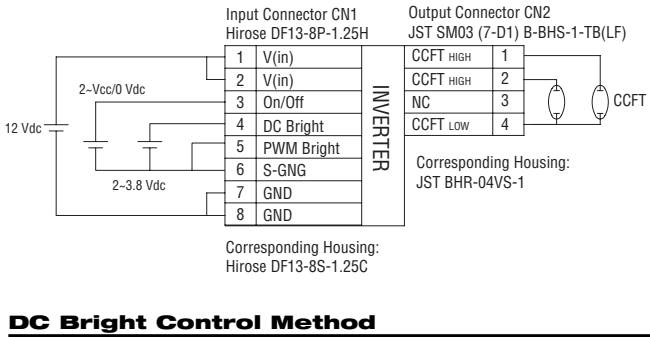
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Tech Notes

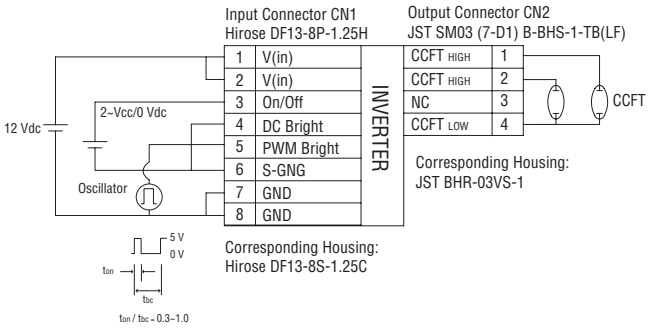
Connection Diagram

LS720A-RH

DC Bright Control Connection

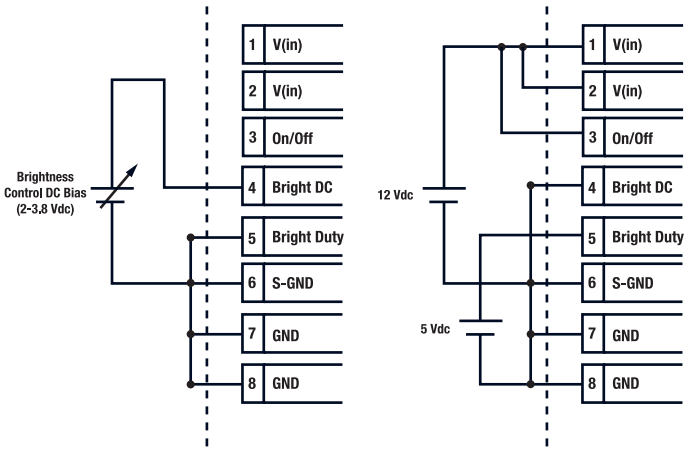


PWM Bright Control Connection



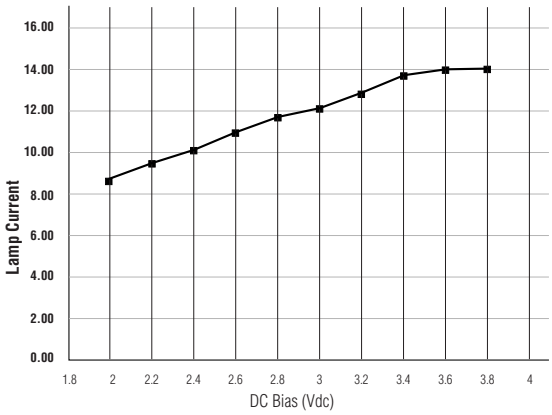
DC Bright Control Method

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



preset to maximum brightness (continuous)

DC Bias	Lamp Current (2 lamps)
2.0 V	6.88 mA
2.2 V	7.86 mA
2.4 V	8.60 mA
2.6 V	9.25 mA
2.8 V	9.88 mA
3.0 V	10.40 mA
3.2 V	11.00 mA
3.4 V	11.80 mA
3.6 V	12.10 mA
3.8 V	12.10 mA
4.0 V	12.10 mA



* Above specifications occur @ 25 ± 5°C, with pin 5 connected to GND, and V_{IN} = 12 Vdc using NEC NL panel.

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 —13.2 Vdc

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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