

Model LS680-1

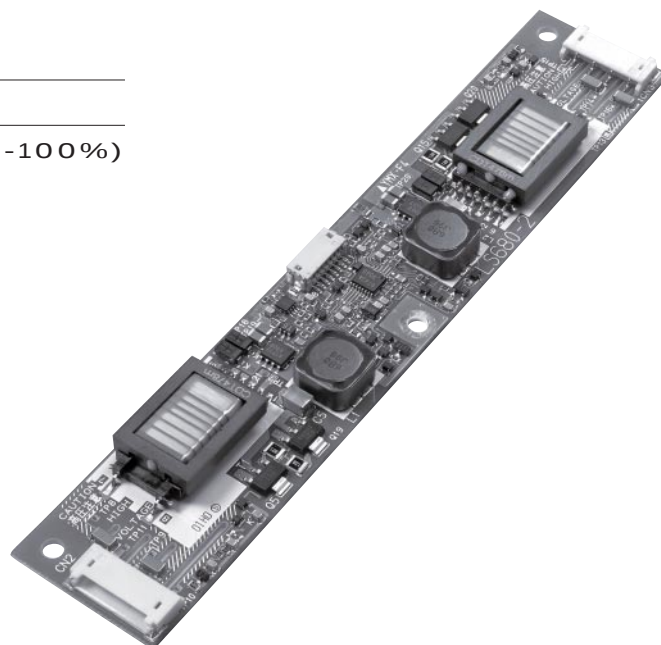
12 Volt Input

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	$V_{IN} = 12 \text{ Vdc}$ Luminance @ Max.	2.0 A
Max. Input Power	$V_{IN} = 12 \text{ Vdc}$ Luminance @ Max.	24 W
On/Off Input Current	On $V_{CONT} = 2.0 - V_{CC}$	$I_{MAX} = 4.0 \text{ mA}$
	Off $V_{CONT} = GND - 0.8 \text{ Vdc}$	$I_{MAX} = 50 \mu\text{A}$

*Above Specifications Occur @ $25 \pm 5^\circ\text{C}$

Output Specifications*

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

*Above specifications occur @ $25 \pm 5^\circ\text{C}$ & $V_{IN} = 10.8 - 13.2 \text{ Vdc}$.

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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)

[illegible]

No Pattern and No Component Area (except GND pattern)

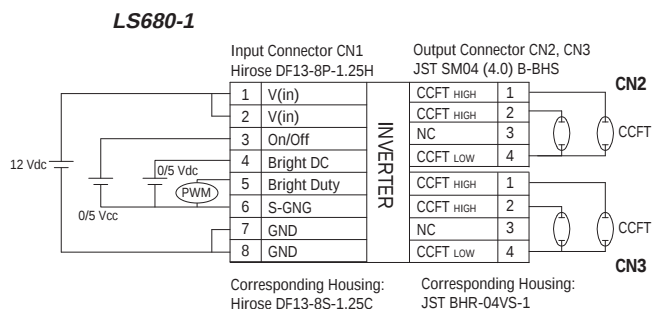
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Tech Notes

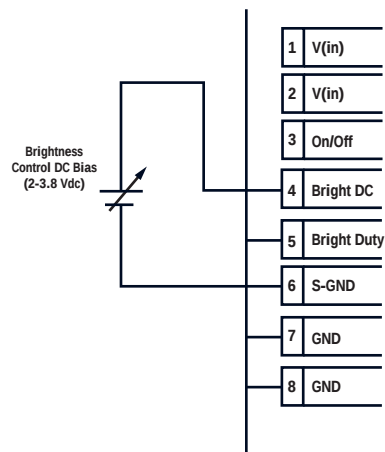
Connection Diagram



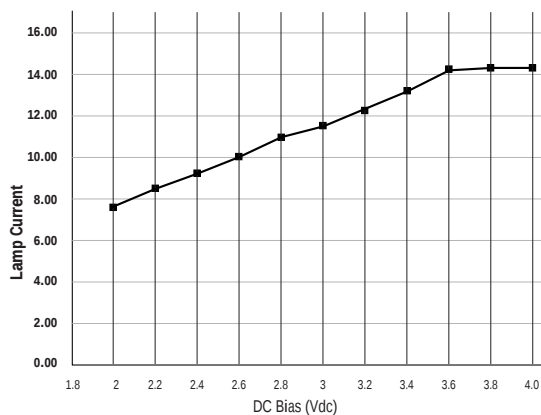
DC Bright Control Method

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 @ $25 \pm 5^\circ\text{C}$, with pin 5 connected to GND, and $V_{IN} = 12\text{ Vdc}$.

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) = $2\text{ Vdc} - V_{CC}$

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) $\leq 0.8\text{ Vdc}$

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