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DMW2928F



Specifications and Applications Information

01/07/11

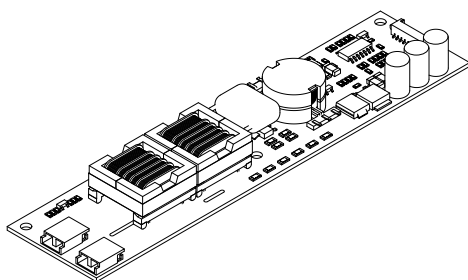
The ERG DMW2928F DC to AC inverter supports a wide input voltage range for use in applications where a regulated supply voltage is not available. Onboard dimming assists in final product integration providing a large dimming ratio from a supplied analog voltage.

The DMW2928F inverter is designed to power the Sharp LQ150X1LGN2 and LQ150X1LGN2A displays.

Product Features

- ✓ Wide input voltage range of 7 to 18 volts
- ✓ Onboard dimming
- ✓ Open lamp detection and shutdown
- ✓ High efficiency
- ✓ Made in U.S.A.

This unit complements our DMD Series of DC to AC Inverters



DMW2928F

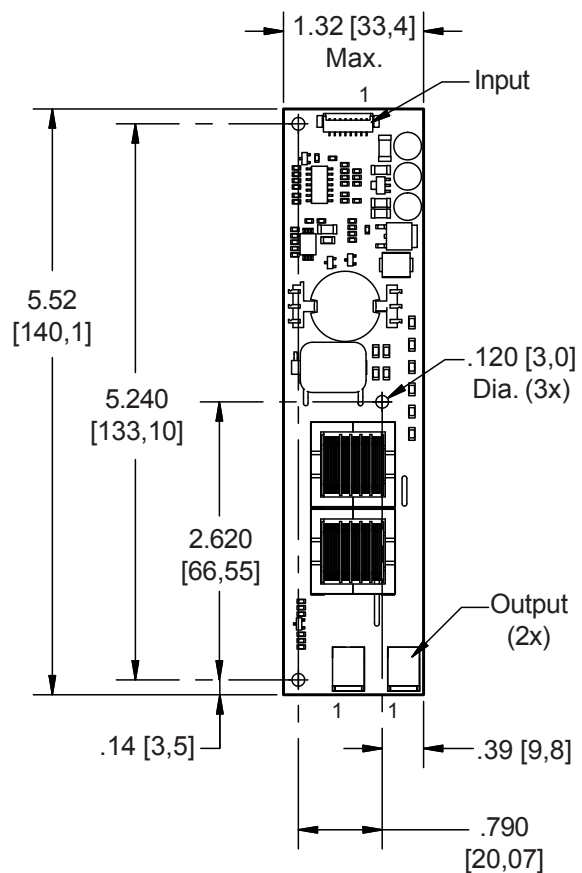
PCB components are shown for reference only. Actual product may differ from that shown.

Connectors

Input	J1	Molex	53261-0871
Output	J2,J3	JST	SM02B-BHSS-1-TB

Two Lamp DC to AC Inverter

Package Configuration



PCB components are shown for reference only. Actual product may differ from that shown.

Mass: 50 grams



Pin Descriptions

J1-1	Vin	J2-1	Lamp High
J1-2	Vin	J2-2	Lamp Return
J1-3	Vin		
J1-4	GND		
J1-5	GND	J3-1	Lamp High
J1-6	GND	J3-2	Lamp Return
J1-7	Enable		
J1-8	Control		



Absolute Maximum Ratings (Note 1)

Parameter	Symbol	Value	Unit
Input Voltage	V_{in}	-0.3 to +18.0	Vdc
Operating Temperature <small>(Note 2)</small>	T_a	0 to +85	°C
Storage Temperature	T_s	-40 to +85	°C
Enable Pin	V_{Enable}	-0.3 to +20.0	Vdc
Control Pin	$V_{Control}$	-0.3 to +5.5	Vdc

Note:

1. Reliable and predictable operation of the inverter is not guaranteed with applied stresses near or beyond those listed. Operation at these limits may reduce device reliability and is therefore not recommended.
2. For optimum reliability, the operating temperature should be kept below 50°C. Reliable operation above 50°C is possible if external airflow is provided and care is taken to ensure that the surface temperature of all components is below 85°C.

Electrical Characteristics

Unless otherwise noted, $V_{in} = 12.0$ volts DC, $T_a = 25^\circ\text{C}$ and the inverter has been running for 20 minutes.

Characteristic	Symbol	Min	Typical	Max	Unit
Input Current	I_{in}		1.02	1.20	Adc
Operating Frequency	F_o	40	43	46	kHz
Efficiency	η		85		%
Output Voltage (no load)	V_{start}	2400			Vrms
Output Lamp Current ($V_{Control} \sim 0$ V)	I_{lamp}		4.6		mArms
Output Lamp Current ($V_{Control} \sim 4.1$ V)	I_{lamp}		0		mArms
Onboard PWM Frequency	F_{PWM}		480		Hz
Enable turn-on threshold voltage	V_{thon}	2.5		V_{in}	Vdc
Enable turn-off threshold voltage	V_{thoff}			0.7	Vdc
Enable impedance to input voltage	R_{enable}		100		kOhms

Application Notes:

- 1) The minimum distance from high voltage areas of the inverter to any conductive material should be .12 inches per kilovolt of starting voltage.
- 2) Mounting hardware should be non-conductive.
- 3) Open framed inverters should not be used in applications at altitudes over 10,000 feet.
- 4) Contact ERG for possible exceptions.



Pin Descriptions

Pin	Description
Vin	Inverter input voltage. All three pins should be connected for optimum reliability and efficiency .
GND	Inverter ground. All three pins should be connected for optimum reliability and efficiency.
Enable	Inverter Enable. A high level signal on this pin enables inverter operation. This pin is pulled to Vin via an onboard 100 kOhm resistor.
Control	Dimming control. This pin controls the brightness of the inverter. Connecting this pin to ground causes the inverter to supply full lamp current for full brightness.
Lamp High	High side lamp output. This should be connected to the high voltage side of the display lamp connectors.
Lamp Return	Return side lamp output. This should be connected to the low voltage side of the display lamp connectors. Lamp current is sensed from this connection, it should not be externally grounded.

Application Information

The DMW2928F inverter is designed to power the Sharp LQ150X1LGN2 and LQ150X1LGN2A displays. Onboard regulation allows for a connection to an unregulated power source such as a battery or low cost wall module. An onboard PWM for dimming eases system integration by allowing for an analog voltage supplied by a potentiometer or digital to analog converter to achieve a wide dimming ratio. Open lamp detection circuitry protects the inverter from an open lamp condition caused by a broken or malfunctioning lamp.

Dimming of the inverter is accomplished by placing an analog voltage on the Control pin. The level of this voltage controls the brightness of the attached display. Connecting the Control pin to ground results in the maximum brightness of the display. Increasing the voltage on this pin gradually decreases the brightness until the display extinguishes. If dimming is not required in the application, simply connect this pin to ground. For optimum brightness, this pin must not be left floating.

The Enable pin on the inverter provides a convenient way to turn off the inverter. Grounding this pin turns the inverter off while either pulling this pin high or floating this pin turns the inverter on. Care should be taken when connecting logic devices to this pin as it is pulled to the input voltage with a 100k Ohm resistor. This pin may be left floating.



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