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SFDZDB4100F



Specifications and Applications Information

08/06/12

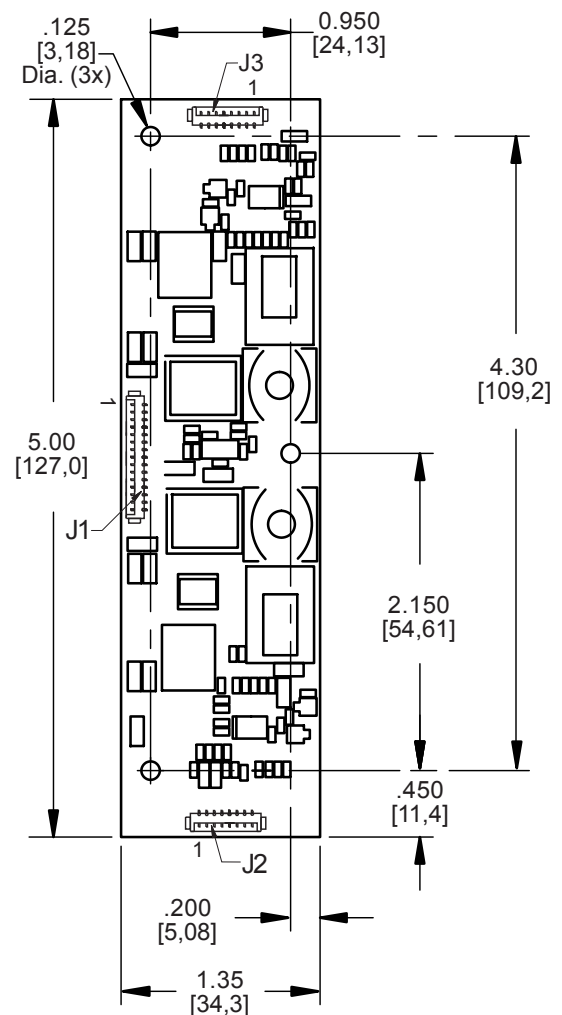
Smart Force LED Driver

The ERG *Smart Force Series* of LED Drivers are specifically designed for applications which require high efficiency, wide dimming and LCD brightness stability over a wide input voltage range. The SFDZDB4100F is designed to provide backlight power for the Optrex T-55534D150J-LW-A-ABN and Mitsubishi AA150XT11 displays.

Designed, manufactured and supported within the USA, the SFDZD features:

- ✓ Constant LED current
- ✓ High efficiency
- ✓ On-board PWM dimming
- ✓ High dimming ratio
- ✓ Separate enable and dimming function
- ✓ Open/short circuit protection
- ✓ Soft start
- ✓ One year warranty

Package Configuration



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

Mass: 35 grams



Connectors

Input Connector		Output Connectors *			
Molex 53261-1571		Molex 53261-0871			
J1-1,2,3	Vin(+)	J2-1	Cathode 1	J3-1	Cathode 5
J1-4,5,6	Vin(+)	J2-2	Anode 1	J3-2	Anode 5
J1-7,8,9	GND	J2-3	Cathode 2	J3-3	Cathode 6
J1-10,11,12	GND	J2-4	Anode 2	J3-4	Anode 6
J1-13	Enable	J2-5	Cathode 3	J3-5	Cathode 7
J1-14	N/C	J2-6	Anode 3	J3-6	Anode 7
J1-15	Control	J2-7	Cathode 4	J3-7	Cathode 8
		J2-8	Anode 4	J3-8	Anode 8

* Requires harness (2X):
ERG part number H13208152 recommended

**Absolute Maximum Ratings**

Rating	Symbol	Value	Units
Input Voltage Range	V_{in}	-0.3 to +18	Vdc
Storage Temperature	T_{stg}	-40 to +85	°C
Control Voltage	$V_{Control}$	0 to 6.0	Vdc
Enable Input Voltage	V_{Enable}	0 to 6.0	Vdc

Operating Characteristics

Unless otherwise noted $V_{in} = 12.00$ Volts dc and $T_a = 25^{\circ}\text{C}$.

Characteristic	Symbol	Min	Typ	Max	Units
Input Voltage	V_{in}	+10.8	+12.0	+13.2	Vdc
Component Surface Temperature (Note 1)	T_s	-20	-	+80	°C
Input Current (Note 2)	I_{in}	2.02	2.38	2.74	Adc
LED String Voltage	V_{LED}	15	-	38	Vdc
Efficiency (Note 2)	η	-	91	-	%
Output Current (per string)	I_{out}	97	102	107	mArms
Enable Pin					
Turn-on Threshold (Note 3)	V_{thon}	-	-	1.8	Vdc
Turn-off Threshold	V_{thoff}	0.6	-	-	Vdc
Enable Input Impedance (Note 4)	R_{Enable}	-	8.5	-	kOhms
Control Pin (Notes 5,6)					
Full-on Threshold	V_{fon}	-	1.0	-	Vdc
Minimum Pulse Width Threshold	V_{PWmin}	-	4.5	-	Vdc

Specifications subject to change without notice.

- Note 1 Surface temperature must not exceed 80°C ; thermal management actions may be required.
Note 2 Input Current and Efficiency are calculated with 32V LED strings.
Note 3 Enable pin is internally pulled up above the Turn-on Threshold.
Note 4 Enable pin input impedance is 8.5 k Ω to 3V with 12V input voltage.
Note 5 Internally pulled up above the Turn-on Threshold.
Note 6 Control pin input impedance is 485 k Ω .



Onboard PWM

Unless otherwise noted $V_{in} = 12.00$ Volts DC, $T_a = 25$ °C and unit has been running for 5 minutes.

Characteristic	Symbol	Min	Typ	Max	Units
Frequency	f_{pwm}	-	245	-	Hz
Control Input Bias Current	I_{cbias}	-	-	10	μA

Application Information

The ERG SFDZDB4100F has been designed to be configured in multiple ways:

NO DIMMING

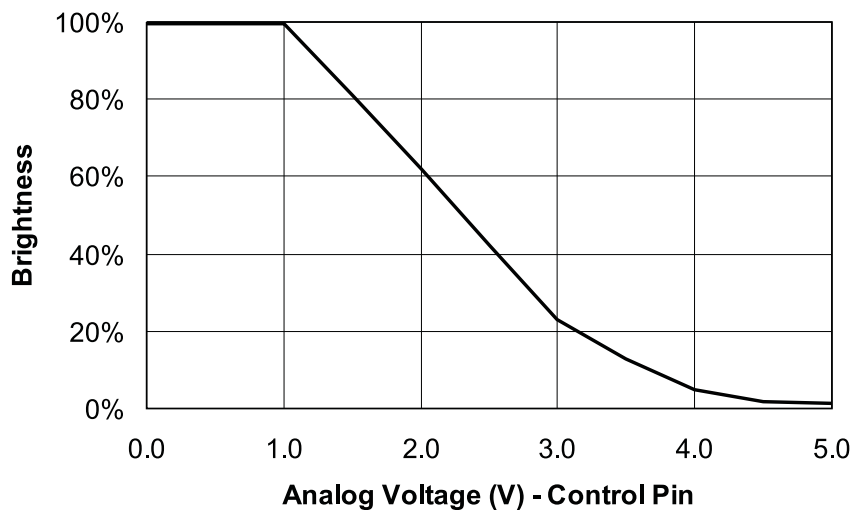
- OPERATION: The SFD driver can be configured to operate without dimming by floating the Control Pin (J1-15) and the Enable Pin (J1-13).
- Pins 1 through 6 of connector J1 must be connected to +Vin, between 10.8 and 13.2 Vdc. Pins 7 through 12 of connector J1 must be connected to GND.

ONBOARD PWM DIMMING

- OPERATION: Onboard PWM configuration as shown in Figure 1 allows the user to control display brightness by controlling the onboard PWM generator. The user is responsible to provide an analog control signal. A dimming ratio up to 255:1 is possible with this configuration.
- DIMMING: Dimming is accomplished by applying an analog voltage to the Control Pin (J1-15). Display brightness is modulated by controlling the Control Pin voltage as shown in Graph 1.
- ENABLE/DISABLE: The driver may be enabled or disabled (turned on and off) by applying a DC voltage to the Enable Pin(J1-13). Enable Pin on and off levels are specified in the Operating Characteristics section of the data sheet. The driver can also be enabled by floating the Enable Pin.
- Pins 1 through 6 of connector J1 must be connected to +Vin, between 10.8 and 13.2 Vdc. Pins 7 through 12 of connector J1 must be connected to GND. Pin 14 may be left floating or pulled up.



ONBOARD PWM DIMMING



Graph 1

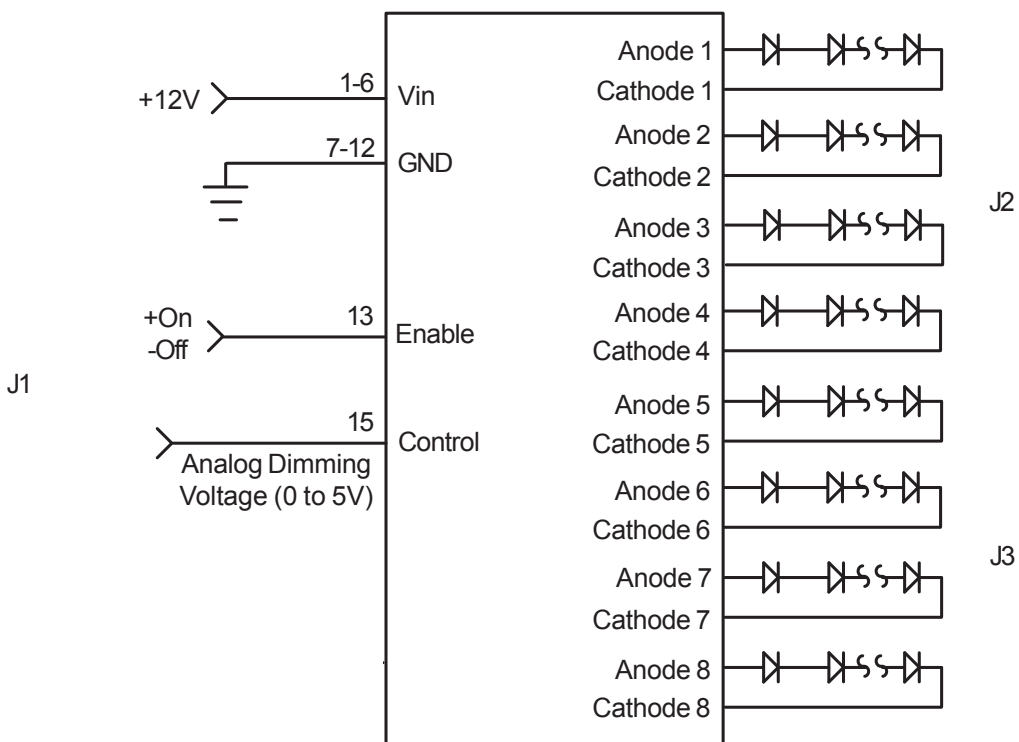


Figure 1



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