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SBDC4227F



Specifications and Applications Information

05/23/12

Preliminary

SmartBridge DC-DC Converter

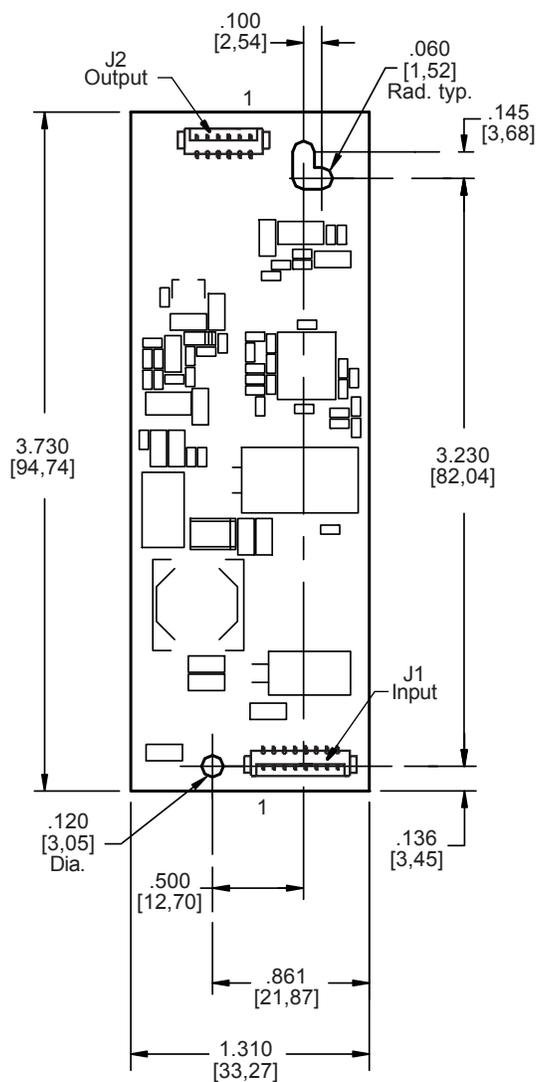
The ERG *SmartBridge Series* is designed to “bridge the gap” in current LCD systems when transitioning from an OEM CCFL backlit LCD to an OEM LED LCD panel with a built-in driver taking into consideration the parameters of the existing power setup. The result is a complete plug-and-play setup transitioning the design towards the new LED backlit LCD.

The ERG SBDC4227F is specifically designed for applications requiring a step-up conversion from a 5 Volt DC supply to a 12 Volt DC source. The SBDC4227F passes through Enable and PWM signals and ground. The connection to the panel is completed by an integration harness.

Designed, manufactured and supported within the USA, the SBDC4227F features:

- ✓ Less than 11 mm in height
- ✓ One year warranty
- ✓ Soft start
- ✓ Custom footprints are available

Package Configuration



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

Connectors

Input Connector	Output Connector
Molex 53261-0871	Molex 53261-0671
J1-1 Vin(+5 Vdc) J1-2 Vin(+5 Vdc) J1-3 GND J1-4 GND J1-5 Enable J1-6 PWM In J1-7 N/C J1-8 N/C	J2-1 Vout(+12 Vdc) J2-2 Vout(+12 Vdc) J2-3 GND J2-4 GND J2-5 Enable J2-6 PWM Through
Recommended input harness: H1308460F - flying lead input harness or H5106305 - DV to ERG input harness	

Mass: TBD grams typ.



**Absolute Maximum Ratings**

Rating	Symbol	Value	Units
Input Voltage Range	V_{in}	-0.3 to +6.0	Vdc
Storage Temperature	T_{stg}	-40 to +85	°C
Control Input Voltage	V_{PWM}	0 to +5.0	Vdc

Operating Characteristics

Unless otherwise noted $V_{in} = 5.00$ Volts dc and $T_a = 25^\circ\text{C}$.

Characteristic	Symbol	Min	Typ	Max	Units
Input Voltage	V_{in}	+4.5	+5.0	+5.5	Vdc
Component Surface Temperature	T_s	-40	-	+80	°C
Input Current	I_{in}	0.5	0.6	0.7	Adc
Peak Inrush Current (Note 1)	I_{peak}	0	2.0	-	Adc
PWM In Pin (Note 2)					
Turn-on Threshold	V_{thon}	-	-	2.0	Vdc
Turn-off Threshold	V_{thoff}	0.9	-	-	Vdc
PWM Input Impedance (Note 3)	$Z_{PWM\ in}$	-	9.0	-	kOhms
Frequency (Notes 4,5)	F_{PWM}	130	-	40,000	Hz
Vout (+12 Vdc)					
Output Voltage	V_{out}	11.4	12.0	12.6	Vdc
Output Current	I_{out}	0	0.20	0.45	Adc
Output Voltage Ripple (Note 6)	V_{rip}	-	0.07	-	Vrms
Load Regulation (Note 6)	I_{reg}	-	±0.25	-	%
Efficiency	η	-	80	-	%

Specifications subject to change without notice.

- Note 1 At full load for 5ms duration.
 Note 2 PWM pin is internally pulled up above the turn-on threshold.
 Note 3 PWM pin input impedance is 9kΩ to 4V with a 5V input voltage.
 Note 4 Operating outside of this frequency range may cause the driver to shut down or malfunction.
 Note 5 Minimum pulse width required for reliable operation is 5μs.
 Note 6 At full load.



SBDC4227F



Application Information

The ERG SBDC4227F has been designed to be configured in multiple ways:

NO DIMMING

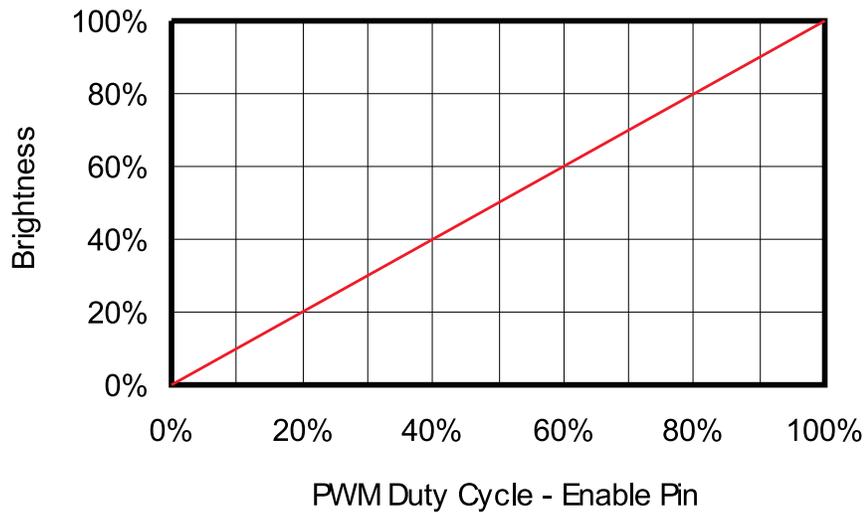
- OPERATION: The SBDC4227F can be configured to operate without dimming by floating the Control (J1-6) pin.
- Pin 1,2 of connector J1 must be connected to +Vin, between 4.5 and 5.5 Vdc. Pins 3 and 4 of connector J1 must be connected to GND.

EXTERNAL PWM

- Pass through.



EXTERNAL PWM DIMMING



Graph 1

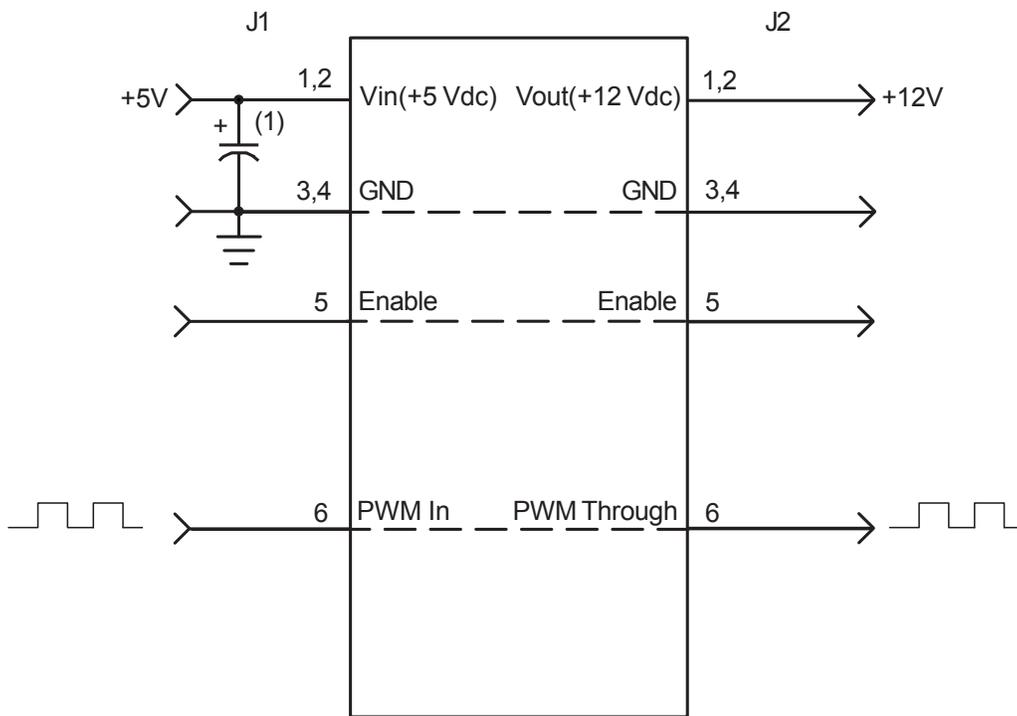


Figure 1

- (1) Low ESR type input by-pass capacitor (10 uF - 220 uF) may be required to reduce reflected ripple and to improve power supply response.



Endicott Research Group, Inc. (ERG) reserves the right to make changes in circuit design and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by ERG is believed to be accurate and reliable. However, no responsibility is assumed by ERG for its use.