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R243801F

RoHS Compliant

Specifications and Applications Information

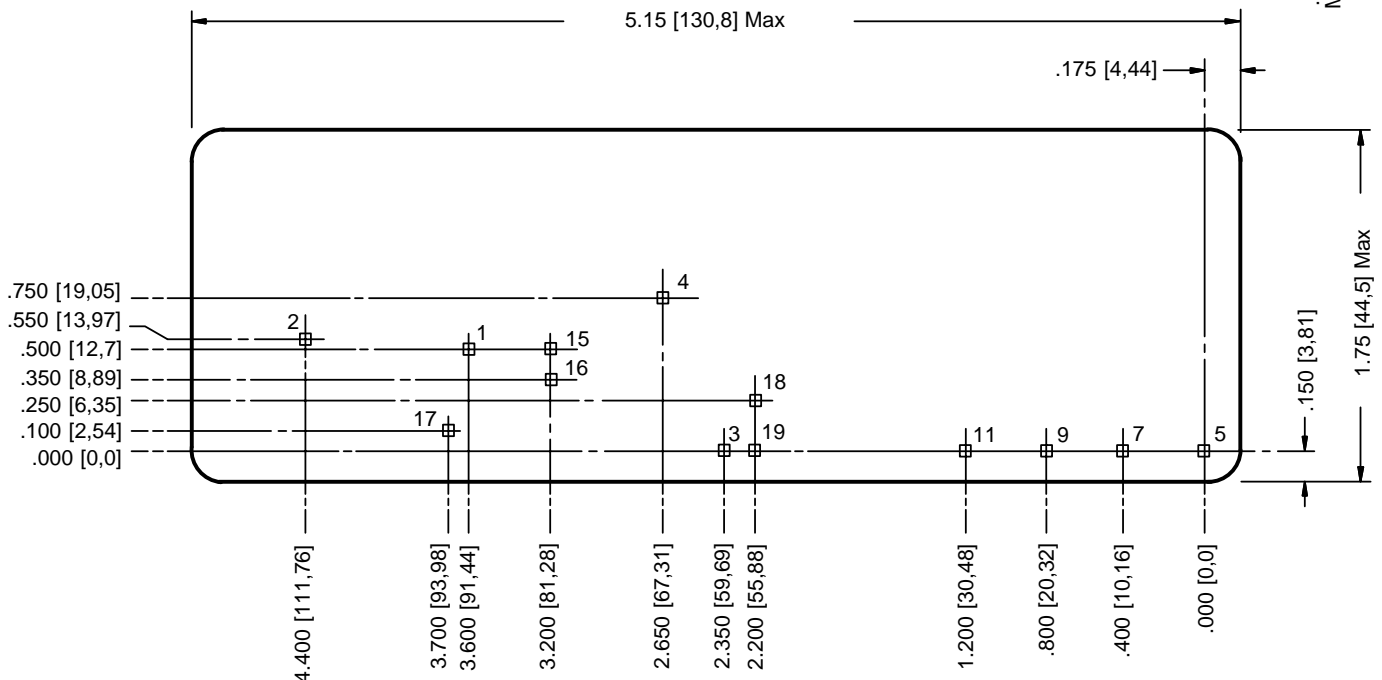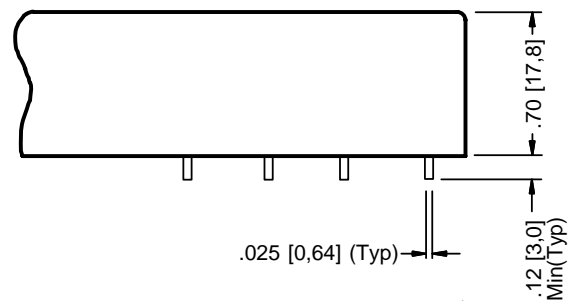04/28/08   Preliminary

4 Lamp
DC to AC Inverter

The ERG R243801F dc to ac inverter is specifically designed to power the NEC NL10276BC30-18L backlight module. It provides for flicker-free dimming from either an analog or digital control input.
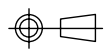
The R243801F's high power density, dimming control, and encapsulated package make it the ideal power source for applications where high efficiency and reliability in lighting multiple lamp backlights are critical.

Pin Descriptions

1) +Vin
2) GND
3) Control
4) ACreturn
5) Lamp 1
6) not used
7) Lamp 2
8) not used
9) Lamp 3
10) not used
11) Lamp 4
12) not used
13) not used
14) not used
15) CT1
16) CT2
17) PWM Ctrl Range
18) PWM Ctrl
19) PWM Out

.70 [17,8]
.12 [3,0] Min(Typ)
.025 [0,64] (Typ)

5.15 [130,8] Max

.175 [4,44]

1.75 [44,5] Max
.150 [3,81]

.750 [19,05]
.550 [13,97]
.500 [12,7]
.350 [8,89]
.250 [6,35]
.100 [2,54]
.000 [0,0]

4.400 [111,76]
3.700 [93,98]
3.600 [91,44]
3.200 [81,28]
2.650 [67,31]
2.350 [59,69]
2.200 [55,88]
1.200 [30,48]
.800 [20,32]
.400 [10,16]
.000 [0,0]

Bottom View

RoHS
Compliant

Absolute Maximum Ratings

Rating	Symbol	Value	Units
Input Voltage	V_{in}	-0.3 to +13.2	Vdc
Storage Temperature	T_{stg}	-46 to +85	°C

Operating Characteristics

With a load simulating the referenced display and lamp warm-up of 5 minutes.
Unless otherwise noted Vin = 12.0 Volts dc and Ta = 25°C

	Characteristic	Symbol	Min	Typ	Max	Units
INVERTER SECTION	Input Voltage	V_{in}	+10.8	+12.0	+12.6	Vdc
	Component Surface Temperature (note 1)	T_s	-20	-	+80	°C
	Input Current (note 2)	I_{in}	-	1.45	1.67	Adc
	Operating Frequency	F_o	37	42	47	kHz
	Minimum Output Voltage (note 3)	V_{start}	1690	-	-	Vrms
	Efficiency	**h**	-	81	-	%
	Output Current (per lamp)	I_{out}	-	6.1	-	mArms
	Output Voltage	V_{out}	-	580	-	Vrms
SHUT-DOWN SECTION	CCFL Control Level (pin 3) CCFL Output Off CCFL Output On		 2.2	-	1.5	Vdc
	CCFL Control Pin Sink Current		-	1.1	1.4	mAdc
INTERNAL PWM GENERATOR	PWM Frequency Range		50	-	1000	Hz
	PWM Frequency		-	180	-	Hz
	PWM Control Voltage (Pin 18)		0	-	+Vin-2	Vdc
	Input Bias Current (Pin 18)		-	45	250	nAdc
	PWM Control Range Program Resistance (Pin 17)		1	-	-	kOhm
	PWM Output Level (Pin 19) Low High		 10	 5 11	 50	 mVdc Vdc

Specifications subject to change without notice.

(Note 1) Surface temperature must not exceed 80 degrees C; thermal management actions may be required.
(Note 2) Input current in excess of maximum may indicate a load/inverter mismatch condition, which can result in reduced reliability. Please contact ERG for technical support.
(Note 3) Provided data is not tested but guaranteed by design.

Application Notes:
1) Printed circuit boards to be free of traces beneath the inverter.
2) The minimum distance from high voltage areas of the inverter to any conductive material should be .12 inches per kilovolt of starting voltage.
3) Contact ERG for possible exceptions.

R243801F

TYPICAL CONNECTION UTILIZING INTERNAL PWM GENERATOR

+Vin

+ *

1

2

GND

5
7
9
11

15 16 17   18 19 3

4

PWM
Freq.

CT   RR

PWM Range
(OPTIONAL)

+Vin

OPTIONAL (limits minimum Duty Cycle)

Intensity

lamps of
Backlight Assembly
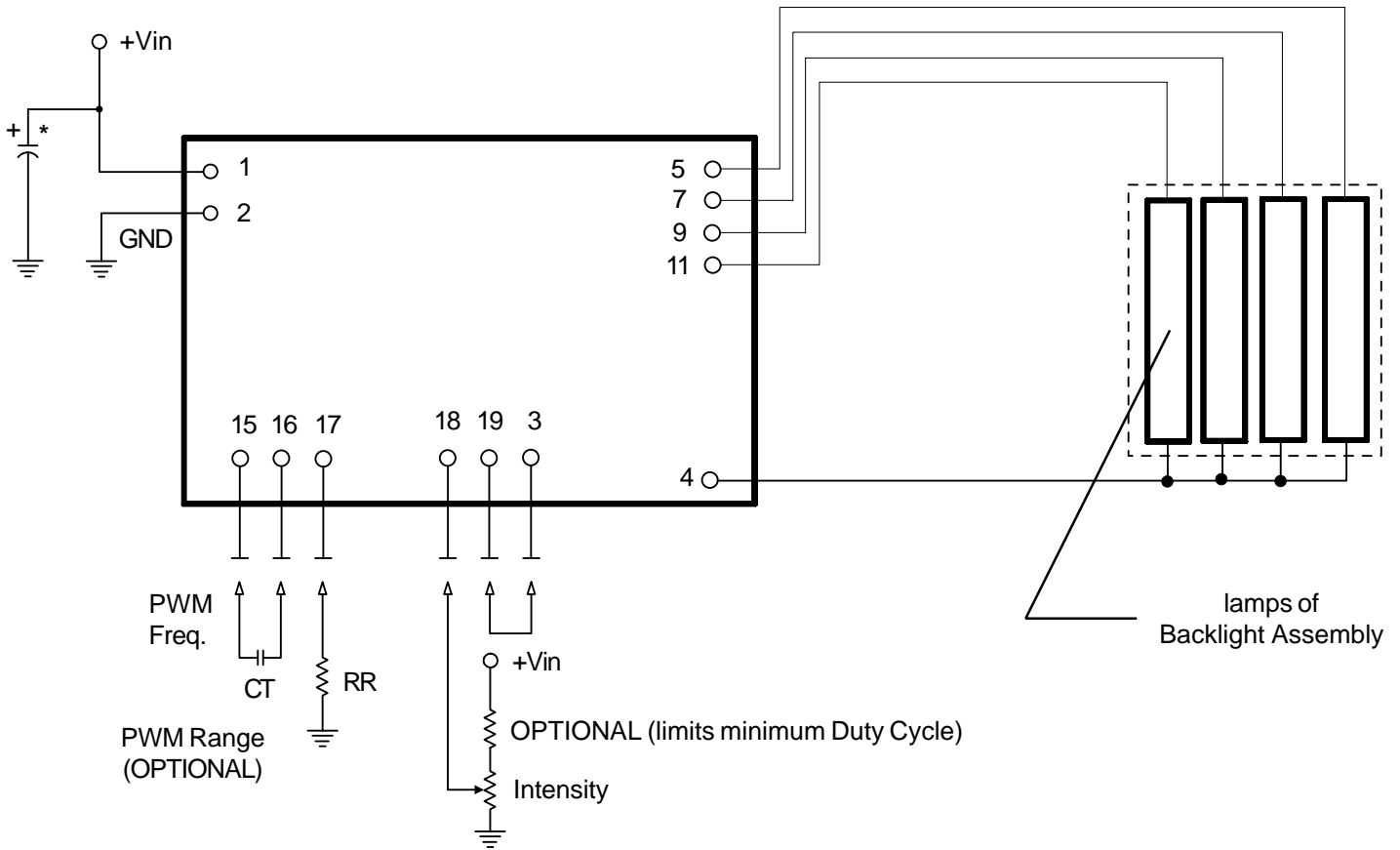
* Low ESR type input by-pass capacitor (22uF - 100 uF) may be required to reduce reflected ripple.