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Specifications and Applications Information

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Preliminary

The LPS Series of Smart Force™ DC to AC Inverters are designed to match the unique characteristics of conventional foil Electroluminescent Lamps used for backlighting applications. This pre-designed series of inverters makes matching Electroluminescent Lamps, DC to AC Inverters and applications very straightforward.

Product Features

- Different Package Sizes
- Standard Part Numbers
- Different Output (brightness) Levels
- Easy Unit Load Part Numbering System
- Straightforward Inverter and Lamp Matching
- Compensating Output Voltage and Frequency Extending Useful Life
- Application Support

Part Numbering System

LPSXX-Y-Z []

Inverter Series Type

Nominal DC Input Voltage
5, 9, 12, 15, 24

Output Code

Total number of Unit Loads

Package Type
(blank for standard package)

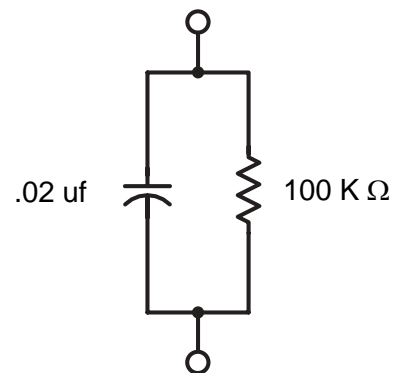
Example: The part number for a 12 volt input standard package inverter to power a 16 in² EL lamp to a high brightness would be LPS12-3-4

LPS Series

Smart Force™ DC to AC Inverters

Unit Loads

Each unit load represents approximately 4 in² (25,8 cm²) of Electroluminescent Lamp and should be used in the selection and testing of the inverter.



4 in² (25,8 cm²) EL Lamp 400 Hz, (phase angle of approximately 78.7°)

Output Code

Each output code represents a different output voltage (brightness level). The output code should be selected to provide the best brightness and life for the application.

Output Code	Output Voltage	Relative Brightness
D	60 Vrms	Very Dim
1	80 Vrms	Dim
2	100 Vrms	Moderate
3	120 Vrms	Bright

Validation

New inverter and EL lamp designs should be validated for proper matching. With the EL lamp connected to the inverter and the nominal input voltage applied the output voltage and frequency should be within ±15 % of nominal.

LPS Series

Electrical Specifications



General Specifications

(with nominal input voltage applied and powering the applicable equivalent load)

Operating Temperature -25° to +85° C

Input Voltage Tolerance +25%, -40%

Output Voltage Tolerance ±10%

Frequency Tolerance ±10%

Note: These inverters should never be powered without the load attached.

LPS Series Standard and P Package Overview						
Parameter	Symbol	Units	Output Code			
			D	1	2	3
Input Power per Unit Load	Pin	Watts	*0.200	*0.300	*0.400	*0.500
Minimum Input Voltage	Vin(min)	%	-40	-40	-40	-40
Maximum Input Voltage	Vin(max)	%	+25	+25	+25	+25
Minimum Operating Temperature	T(min)	°C	-25	-25	-25	-25
Maximum Operating Temperature	T(max)	°C	+85	+85	+85	+85
Nominal Output Voltage	Vout	Vrms	60	80	100	120
Nominal Operating Frequency	Fout	Hertz	400	400	400	400
Maximum Number of Unit Loads	Lmax	--	17	10	7	5
Output Voltage Tolerance	--	%	±10	±10	±10	±10
Operating Frequency Tolerance	--	%	±10	±10	±10	±10
Output Current per Unit Load	Iout	marms	3.1	4.1	5.1	6.1

* Input power may increase by 10% on low input voltage and/or single unit load inverters

Available Packages

Standard Package

1. +Vin
2. Common
3. Vout

P Package

1. +Vin
2. Common
3. Vout

H Package

1. +Vin
2. -Vin
3. Vout
4. Vout

Typical Relative Brightness vs. Time Performance Curve

The graph plots Relative Brightness (%) on the y-axis (0% to 120%) against Time (hours) on the x-axis (0 to 5,000). Two curves are shown: 'ERG Smart Force™ Inverter' and 'Fixed voltage and frequency'. Both curves start at 100% brightness at 0 hours. The 'Fixed voltage and frequency' curve drops more sharply, reaching approximately 30% brightness at 5,000 hours. The 'ERG Smart Force™ Inverter' curve shows significantly better performance, maintaining about 40% brightness at 5,000 hours.

Note: The standard package, "P" package and "H" package are not pin for pin compatible.