LXMG221W-0700034-D1

34W 700mA Dimming LED Driver Module

PRODUCTION DATASHEET

DESCRIPTION

The LXMG221W-0700034-D1 is a fully enclosed compact solid-state LED lighting driver module. It operates from a universal AC input supply in the range of 100 to 277VAC, 50/60Hz to drive one string of LED's with active power factor correction. LED string voltage can range from 20 to 48V at a constant current of 700mA.

Control terminal leads include a dimming input BRITE_A with a dedicated RETURN lead. The amplitude of the output LED string current will vary from 15% to 100% corresponding to a $1V_{DC}$ to $10V_{DC}$ signal on the BRITE_A input following the IEC 60929 Analog Control Specification Standard.

The BRITE_A terminal also provides a shutdown function, when pulled down below 1V, to meet ENERGY STAR® requirement to be less than 0.5W in standby mode.

To reduce audible noise the internal switching frequency remains above 30kHz. Safety features include open output circuit protection, whole string short circuit protection, and over temperature protection if the hot spot case temperature exceeds 85 to 95°C. The operating ambient temperature range is -30°C to 60°C, and the compact enclosure is rated to IP66, and designed to meet UL8750 for SSL.

IMPORTANT: For the most current data, consult *MICROSEMI*'s website: http://www.microsemi.com

KEY FEATURES

- High Efficiency
- Active Power Factor Correction
- Universal AC Input 100~277V_{AC}
- Dimming Input Provides 15% to 100% Range, Plus Shutdown
- Fully Isolated Plastic Case (IP66)
- Small Compact Size
- High Reliability
- Full Protection: OVP,SCP, OTP, Maximum Power Limit
- Complies with UL8750
- RoHS Compliant
- ENERGY STAR® Compliant

APPLICATIONS

- SSL Class 2 LED Driver Module
- LED Lighting

PRODUCT HIGHLIGHT

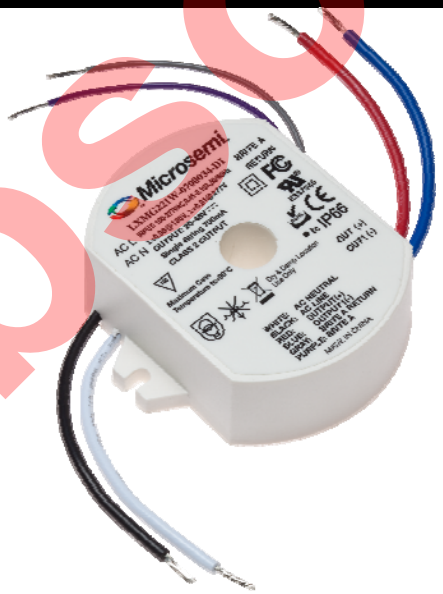

Photo is representative only, actual product may differ slightly

ORDER INFORMATION

Part Number	Input Voltage	Output Current
LXMG221W-0700034-D1	100V_{AC} to 277V_{AC} 50/60 Hz	One 700mA Dimmable Current Source 20V to 48V Anode Voltage

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ABSOLUTE MAXIMUM RATINGS

Input Voltage (V_{IN}) ..... 90 V_{AC} to 305V_{AC}
Input Power 45W
Output LED String Current ..... 800mA (Internally Limited)
Output String Voltage ..... 56V (Internally Limited)
Output Power 38W
Input Signal Voltage (BRITE_A Input) ..... -0.3V to 11V
Ambient Operating Temperature, zero airflow ..... -30°C to 60°C
Hot Spot Case Temperature, zero airflow ..... 85°C
Storage Temperature Range ..... -40°C to 85°C

Note: Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of specified terminal.

RECOMMENDED OPERATING CONDITIONS (R.C.)

This module has been designed to operate over a wide range of input and output conditions. However, best efficiency and performance will be obtained if the module is operated under the condition listed in the 'R.C.' column. All specifications are typical at 25°C unless otherwise stated. Min. and Max. columns indicate values beyond which the inverter, although operational, might not function optimally.

Parameter	Symbol	Min	R.C.	Max	Units
Input Supply Voltage Range	V_{IN}	100		277	V_{AC}
Linear BRITE_A Control Input Voltage Range	V_{BRITE_A}	1		10	V
LED String Voltage	V_{LED}	20		48	V
OUT- Sink Current	OUT_{-ISINK}		700		mA

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, the following specifications apply over the recommended operating conditions and ambient temperature of 25°C ; V_{IN} = 100 to 277V_{AC}; BRITE_A = 10kΩ to BRITE_RTN

Parameter	Symbol	Test Conditions / Comment	Min	Typ	Max	Units
Input Voltage	V_{IN}	Line Frequency 47 to 63 Hz	90		305	V_{AC}
Off Power	$P_{IN(MIN)}$	BRITE_A ≤ 0.5V (ENERGY STAR® Requirement)			0.5	W
Input AC Current	I_{120}	Measured at full load and 120V_{AC} Input		0.38		A
	I_{277}	Measured at full load and 277V_{AC} Input		0.16		A
Maximum Inrush Current	I_{INRUSH}	Measure at 277V_{AC} (First 10µS)			60	A
		After 10µS			3	A
Power Factor		Maximum Output Power; 120, 208, 240, 277V_{AC}; 50/60Hz	0.9			
Peak Efficiency (Note 1)	η	V_{LED} = 48V	84	85		%
Total Harmonic Distortion	THD	Maximum Output Power; 120, 208, 240, 277V_{AC}; 50/60Hz			20	%
OUTPUTS						
Average Sink Current	I_{OUT}		665	700	735	mA
LED String Voltage	V_{LED}		20		48	V
Ripple Current (pk-pk)	$I_{OUT-RIPPLE}$	Pk-pk Ripple Current/Average Current		20		%
Line Regulation	$I_{OUT-LINE}$	V_{IN} = Nominal ± 10%			1	%

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ELECTRICAL CHARACTERISTICS

Unless otherwise specified, the following specifications apply over the recommended operating conditions and ambient temperature of 25°C ; V_{IN} = 100 to 277V_{AC}; BRITE_A = 10kΩ to BRITE_RTN

Parameter	Symbol	Test Conditions / Comment	Min	Typ	Max	Units
Load Regulation	$I_{OUT-LOAD}$	VOUT+ = 20V to 48V			5	%
Turn-on Time	DELAY	Power ON to Full Bright Output Current, Vin = 120V_{AC}		1.8		sec
		Power ON to Full Bright Output Current, Vin = 230V_{AC}		0.8		
Dimming						
BRITE_A Voltage for Full Bright	$V_{BRITE\_A\_MAX}$		9.5	10	10.5	V
Potentiometer Dimming on BRITE_A	POT		8	10	12	kΩ
BRITE_A Voltage for Full Dim	$V_{BRITE\_A\_MIN}$		0.95	1	1.05	V
Minimum Output Current	I_{MIN}	BRITE_A = 0.9V		15		% of Max
Output Current Dim Range (Analog Dimming)		I_{LED} = 105mA, BRITE_A = 0.9V Versus BRITE_A ≥ 10V		7:1		RATIO
Shutdown Voltage Threshold	V_{BRITE_SD}				0.85	V
Protection						
Overvoltage Protection	V_{OV}	Maximum OUT+			56	V
Short Circuit Duration	Tsc	Time duration that OUT+ may be shorted			No Limit	sec
Over Temperature Shutdown	T_{SD}	Over Case Temperature Protection Hot Spot	85	95		°C
Safety & EMC Compliance						
UL/CE		UL8750				
		EN 61347-1, EN61347-2-13				
EMI Standards						
FCC Title 47, Part 15		Conducted & Radiated emission Test Class B				
EMS Standard						
ANSI C82.77-2002		Harmonic Current Emissions				
Energy Star		Standby Power, PF (Full Load)				
IEC 61000-4-2		Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact Discharge				
Life Expectancy		5 years / 50,000 hours @ 100% duty at maximum case temperature 55°C				
Environmental Standards		RoHS				

Note:
1) Peak Efficiency is the efficiency at a given sweet spot over the range of input voltage and output current.

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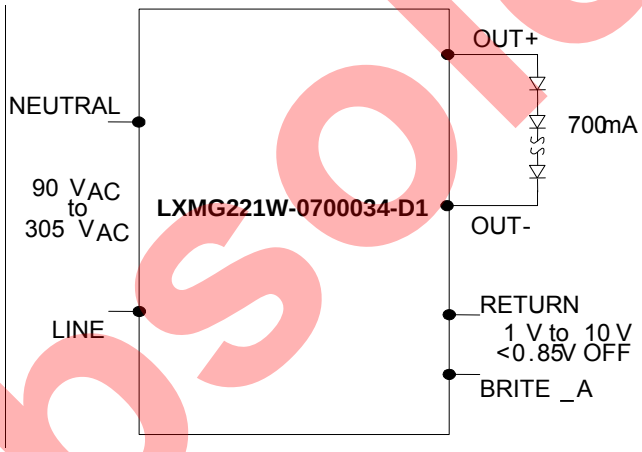
LEAD DESCRIPTION

Name	Pin #	Description
INPUT TERMINAL LEADS (18AWG) 16/30 Stranded		
BLACK	VIN Line Voltage	Main Input Power Supply Line 100 to 277VAC
WHITE	VIN Neutral	Main Input Power Supply Neutral
CONTROL TERMINAL LEADS (22AWG) 7/30 Stranded		
PURPLE	BRITE_A	Analog Dimming Input
GRAY	BRITE_RTN	Dimming Return
OUTPUT TERMINAL LEADS (18AWG)		
RED	OUT+	LED String Anode Voltage (High Side)
BLUE	OUT-	-LED Cathode Voltage (Low Side)

APPLICATION INFORMATION



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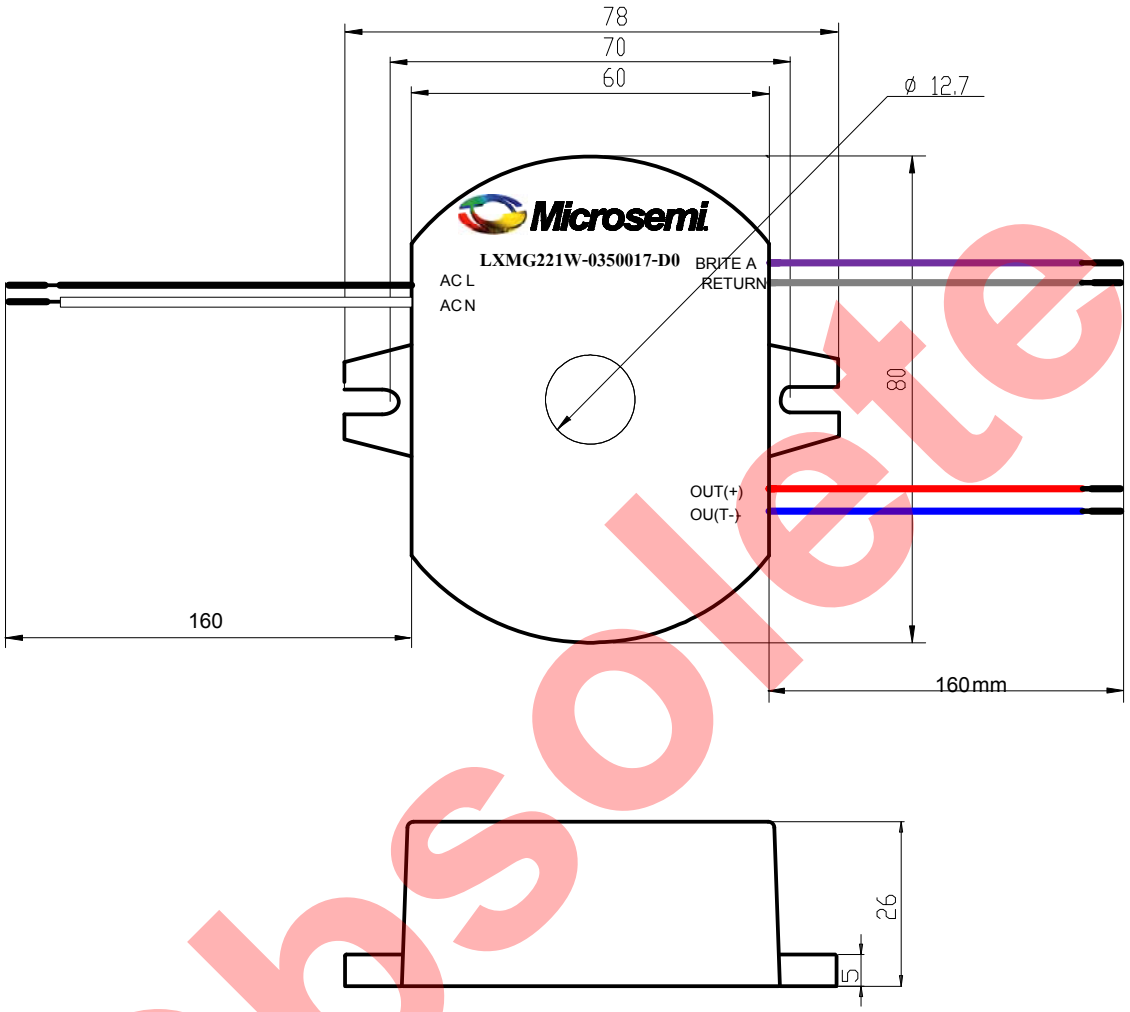
MECHANICAL DRAWING



Wire length is 160mm ± 5mm, stripped 12mm ± 2mm UL1015 AWG#18 16/30 stranded 105°C Input & Output wires; AWG#22 7/30 stranded Control wires
Hole in center, mounting tab slot width 4mm

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NOTES

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