

Using IHLP® Inductors for Your LED Lighting Application



APPLICATIONS

- Automotive lighting - interior and exterior
- Portable electronic devices
- LCD and CCD panel backlights (Flat screen televisions and monitors)
- Traffic and railway signals
- Signs and Illumination
- Personal flashlights
- Medical instruments and tool lighting
- Digital camera flash and video light

RESOURCES

- For more information, visit - <http://www.vishay.com/inductors/power-inductors/>
- For technical questions, contact - magnetics@vishay.com





INDUCTORS



Selecting the Right Inductor for Your Lighting Application

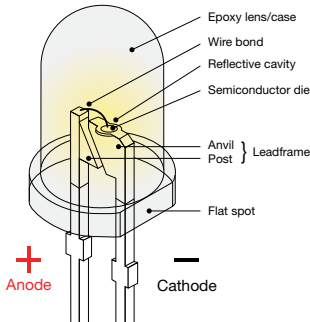
Inductors - IHLP® Solutions for Lighting Applications

LED Driver Technology from Linear Technology Corporation

LED driver circuits are available in several topologies:

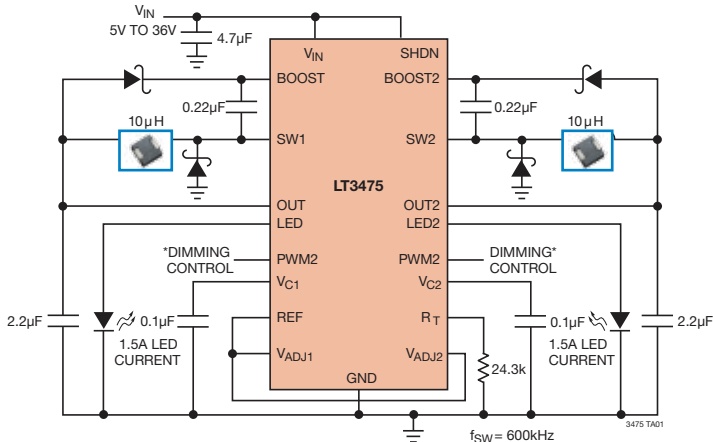
- Buck
- Boost
- Buck-Boost
- SEPIC designs

All of these require inductors, and virtually any LED implementation can benefit from the space savings delivered by Vishay's low-profile IHLP® inductor series. IHLP inductors are available in 8 different footprints and 10 different height variations. Whatever your LED application, there's an IHLP inductor to help make it more space- and power-efficient.



High-Current LED Drivers – Dual Buck

High-current inductor-based step-down switching LED drivers provide tiny, efficient high-power LED lighting solutions for automotive, architectural, and display backlighting.

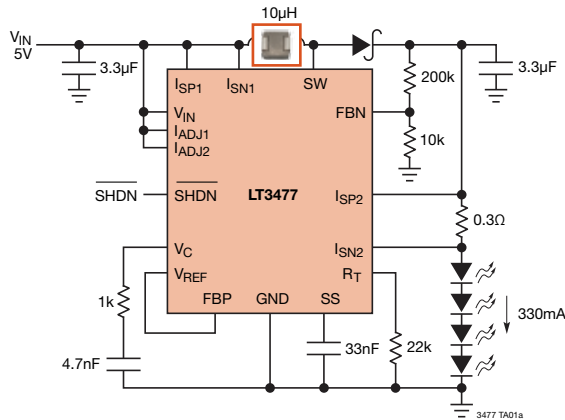


= Buck - IHLP2525CZER100M01

Circuit diagram courtesy of Linear Technology

High-Current LED Drivers – Boost

High-current inductor-based step-up switching LED drivers provide compact, efficient high-power LED lighting solutions. The boost regulator is useful for driving a chain of LEDs connected in series. It is beneficial to drive multiple LEDs in series so they receive the same amount of current and will have the same brightness level.



= Boost - IHLP2020BZER100M11

Circuit diagram courtesy of Linear Technology



INDUCTORS

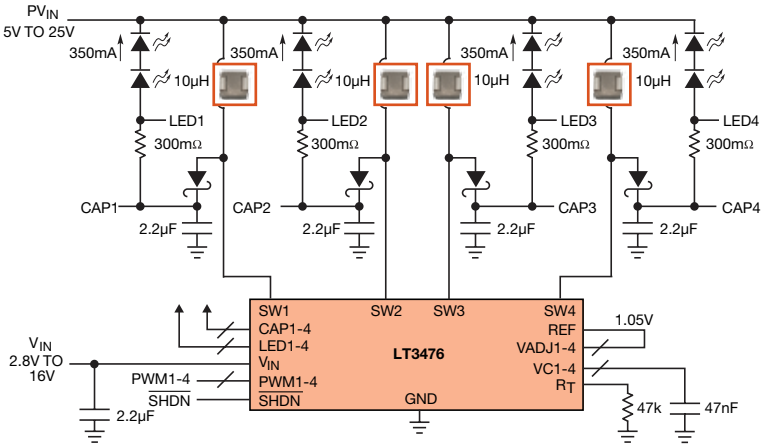


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High-Current LED Driver – Buck-Boost

High-current inductor-based buck-boost switching LED drivers provide flexible, tiny, efficient solutions for TFT backlighting, automotive, and avionic lighting applications.



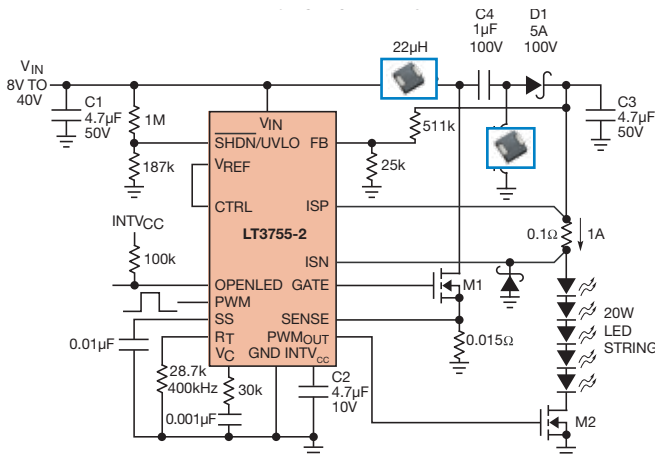
□ = Buck-Boost - IHLP2020BZER100M11

Circuit diagram courtesy of Linear Technology

High-Current LED Driver – SEPIC

The Single-Ended Primary Inductance Converter (SEPIC) regulator topology uses an additional inductor, but provides the following advantages for battery powered applications:

- 1) It can be buck or boost as the input voltage changes
- 2) The circuit provides inherent short-circuit protection due to the use of a coupling capacitor.



□ = Sepic - IHLP2525CZER220M11

Circuit diagram courtesy of Linear Technology



INDUCTORS



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Model Number	Maximum Size (mm)			Inductance at Zero DC (μH)					
	L	W	H	0.001	0.01	0.1	1	10	100
IHLP-1212BZ-11	3.60	3.20	2.0		0.22			2.2	
IHLP-1616AB-01	4.704	4.314	1.2	0.047				1.0	
IHLP-1616AB-11	4.704	4.314	1.2	0.047				2.2	
IHLP-1616BZ-01	4.704	4.314	2.0		0.1			2.2	
IHLP-1616BZ-11	4.704	4.314	2.0		0.1			4.7	
IHLP-2020AB-01	5.744	5.434	1.2		0.1			4.7	
IHLP-2020AB-11	5.744	5.434	1.2		0.1			4.7	
IHLP-2020BZ-01	5.744	5.434	2.0		0.1			10	
IHLP-2020BZ-11	5.744	5.434	2.0		0.1			10	
IHLP-2020CZ-01	5.744	5.434	3.0		0.1			15	
IHLP-2020CZ-11	5.744	5.434	3.0		0.1			22	
IHLP-2525AH-01	7.241	6.724	1.8		0.1			4.7	
IHLP-2525BD-01	7.241	6.724	2.4		0.1			10	
IHLP-2525CZ-01	7.241	6.724	3.0		0.1			10	
IHLP-2525CZ-11	7.241	6.724	3.0		0.1			22	
IHLP-2525EZ-01	7.241	6.724	5.0		0.56			10	
IHLP-4040DZ-01	11.500	10.300	4.0		0.19			10	
IHLP-4040DZ-11	11.500	10.300	4.0		0.1			100	
IHLP-5050CE-01	13.580	12.900	3.0		0.1			10	
IHLP-5050EZ-01	13.580	12.900	5.0		0.1			10	
IHLP-5050FD-01	13.580	12.900	6.5		0.1			10	
IHLP-6767DZ-01	17.950	17.150	4.0		0.1			10	
IHLP-6767DZ-11	17.950	17.150	4.0		0.1			47	
IHLP-6767GZ-01	17.950	17.150	7.0		0.1			22	
IHLP-6767GZ-11	17.950	17.150	7.0		0.1			100	



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Model Number	Rated Current DC at 25 °C (A)			Maximum DC Resistance (Ω)							
	1	10	100	0.1m	1m	10m	100m	1	10	100	500
IHLP-1212BZ-11	3.0 3.3		6.5 7.5	11.4							46
IHLP-1616AB-01	4.0 8.5		13 32	3.75							52.5
IHLP-1616AB-11	2.75 3.0		15 15	3.3							83.5
IHLP-1616BZ-01	2.85 6.0		11 35	5.0							90
IHLP-1616BZ-11	1.7 1.75		12 12	4.5							105
IHLP-2020AB-01	2.2 4.4		13.5 35	4.6							168
IHLP-2020AB-11	2.5 2.5		14 14	4.2							131
IHLP-2020BZ-01	2.3 4.0		17 45	3.9							199
IHLP-2020BZ-11	2.2 2.0		21 25	2.9							182.8
IHLP-2020CZ-01	1.9 2.5		23 27	3.16							265
IHLP-2020CZ-11	1.9 1.7		21 25	2.9							260
IHLP-2525AH-01	3.0 8.0		18 40	3.5							78
IHLP-2525BD-01	2.5 7.0		30 50	1.7							129
IHLP-2525CZ-01	3.0 7.0		32.5 60	1.7							105
IHLP-2525CZ-11	2.9 2.5		12.5 9.5	8							135
IHLP-2525EZ-01	4.5 4.5		20 12	3.6							71.3
IHLP-4040DZ-01	6.8 12.0		40 90	0.95							36.5
IHLP-4040DZ-11	2.5 2.25		40 46	0.8							270
IHLP-5050CE-01	7.0 14.0		43 84	0.96							34
IHLP-5050EZ-01	9.0 16.0		55 118	0.6							25.5
IHLP-5050FD-01	10.0 15.5		60 120	0.5							17.2
IHLP-6767DZ-01	10.5 19.5		75 92	0.88							25.6
IHLP-6767DZ-11	5.0 4.3		41 27.5	2.05							108.46
IHLP-6767GZ-01	11.0 23.0		80 129	0.70							26.5
IHLP-6767GZ-11	5.0 4.0		75.5 55	0.67							110.0

■ Heat Rated Current -01 series frequency range up to 5 MHz
■ Saturation Current -11 series frequency range up to 1 MHz



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