

Ultralow Power Boost Converters with Output Disconnect

DESCRIPTION

Demonstration circuits 1387A-A, and -B are Ultralow Power Boost Converters with Output Disconnect featuring the LT8410 and LT8410-1. Both versions convert a 3V-10V source to 16V. The -A version supplies 1.6mA at 3V_{IN} and the -B supplies 0.5mA.

Both versions feature a low noise control scheme, integrated schottky diode and output disconnect function, ultra-low quiescent current, built in soft-start and over-voltage protection. The LT8410 datasheet gives a complete description of the parts, their operation and application information. The datasheet must be read in conjunction with this quick start guide for working on or modifying the demo circuit 1387.

These circuits are intended for space-conscious applications such as Sensor Power, RF Mems and General Purpose Bias Supplies.

Design files for this circuit board are available. Call the LTC factory.

 , LTC, LTM, LT are registered trademarks of Linear Technology Corporation.

PERFORMANCE SUMMARY FOR DC1387A-A/LT8410 Specifications are at TA = 25°C

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V _{IN}	Input Supply Range		3		10	V
V _{OUT}	Output Voltage Range	V _{IN} = 3V, I _{LOAD} = 1.6mA	15.54	16	16.48	V
V _{OUT}	Output Voltage Range	V _{IN} = 10V, I _{LOAD} = 10mA	15.54	16	16.48	V
RIPPLE		V _{IN} = 10V, I _{LOAD} = 10mA		20		mV
EFFICIENCY		V _{IN} = 3V, I _{LOAD} = 1.6mA		73		%
EFFICIENCY		V _{IN} = 10V, I _{LOAD} = 10mA		83		%

PERFORMANCE SUMMARY FOR DC1387A-B/LT8410-1 Specifications are at TA = 25°C

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V _{IN}	Input Supply Range		3		10	V
V _{OUT}	Output Voltage Range	V _{IN} = 3V, I _{LOAD} = 0.5mA	15.52	16	16.48	V
V _{OUT}	Output Voltage Range	V _{IN} = 10V, I _{LOAD} = 3mA	15.52	16	16.48	V
RIPPLE		V _{IN} = 10V, I _{LOAD} = 3mA		10		mV
EFFICIENCY		V _{IN} = 3V, I _{LOAD} = 0.5mA		69		%
EFFICIENCY		V _{IN} = 10V, I _{LOAD} = 3mA		83		%

QUICK START PROCEDURE

Demonstration circuit 1387 is easy to set up to evaluate the performance of the LT8410 and LT8410-1. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

NOTE. When measuring the input or output voltage ripple, care must be taken to avoid a long ground lead on the oscilloscope probe. Measure the input or output voltage ripple by touching the probe tip directly across the V_{in} or V_{out} and GND terminals. See Figure 2 for proper scope probe technique.

1. Place jumpers in the following positions:

JP1 Run

2. With power off, connect the input power supply to V_{in} and GND.

3. Turn on the power at the input.

Check for the proper output voltages. $V_{out} = 15.52V$ to $16.48V$.

NOTE. If there is no output, temporarily disconnect the load to make sure that the load is not set too high.

4. Once the proper output voltage is established, adjust the load within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

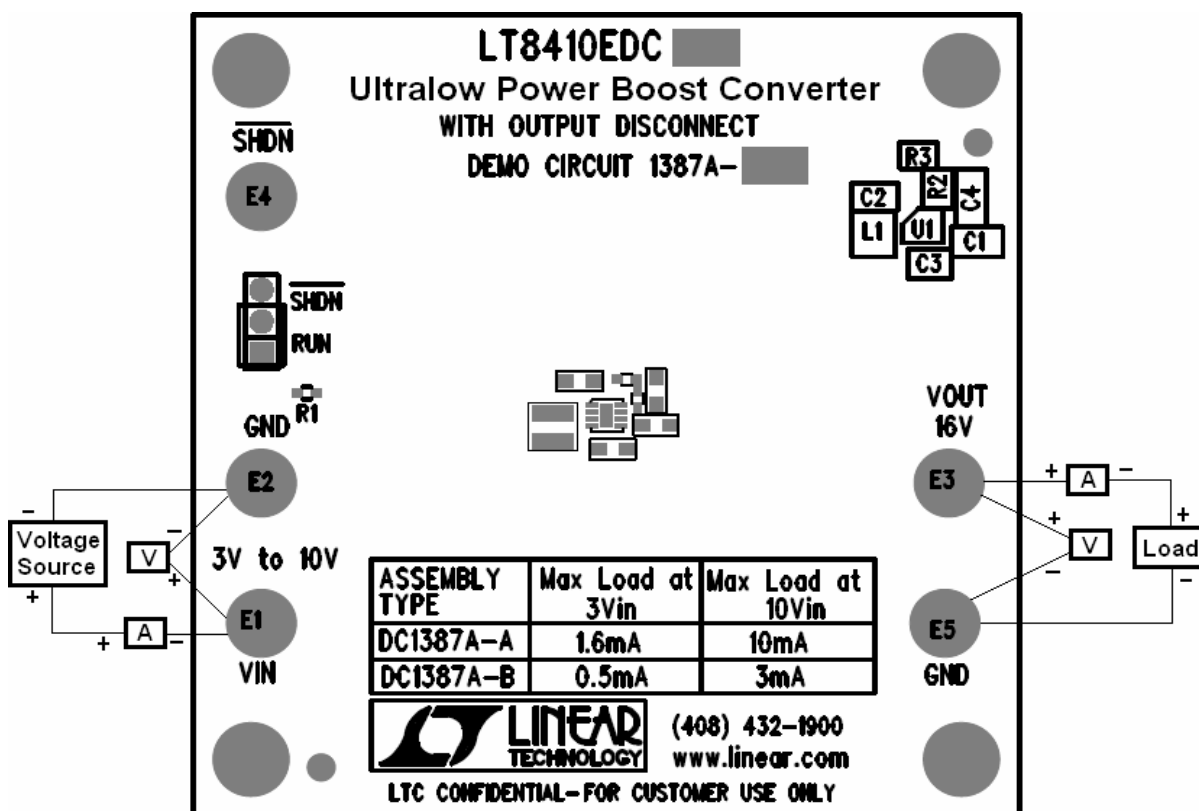


Figure 1. Proper Measurement Equipment Setup

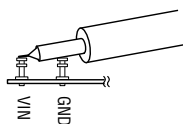


Figure 2. Measuring Input or output Ripple



ASSEMBLY TYPE	Max Load at 3 V _{in}	Max Load at 10 V _{in}	U1	L1	C3
DC1387A-A	1.6 mA	10 mA	LT8410EDC	DO2010-104MLB	1uF
DC1387A-B	0.5 mA	3 mA	LT8410EDC-1	DO2010-224MLB	0.1uF

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS ARE IN OHMS, 0402.
2. INSTALL SHUNT ON JP1 PIN 1 AND 2.

CUSTOMER NOTICE		CONTRACT NO.		1630 McCarthy Blvd. Milpitas, CA 95035 Phone: (408)432-1900 Fax: (408)434-0507 LTC Confidential/For Customer Use Only	
LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.		APPROVALS		 LINEAR TECHNOLOGY	
		DRAWN: Antonina K			
		CHECKED:			
		APPROVED:			
		ENGINEER: JESUS R.			
DESIGNER:					
THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.					
		SIZE		REV	
		A		2	
		DWG NO.		DC1387A	
		DATE:		Wednesday, October 15, 2008	
				SHEET 1 OF 1	



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.