

DESCRIPTION

Demonstration circuits 1424A-A and 1424A-B feature the LT3581 in Boost/Inverting Regulator configurations. The Boost is designed to convert a 5V to 10V input source to 12V at 900mA, and the Inverter a 5V to 12V to -12V at 750mA. DC1424A-A is designed to survive output short circuit events with the external MOSFET installed at the output as default. The demo board includes an option to install the MOSFET at the input side. Install Q1 and R1 on the back of the board and refer to Figure 4 for other instructions. DC1424A-B can easily be converted into a SEPIC Converter by swapping L2 and D2 from their respective locations as shown in Figure 5. The LT3581 includes a 42V Master and Slave switch combination with 3.3A total current and can be used in many configurations such

as Boost, SEPIC, CUK and Flyback. It has a 2.5V to 22V operating input range, UVLO, soft-start, programmable switching frequency and many other popular features. The LT3581 is suitable for many applications, such as Local Bias Supplies, VFD, TFT-LCD Supplies and Automotive Engine Control Power. The LT3581 datasheet gives a complete description of the part, its operation and application information. The datasheet must be read in conjunction with this quick start guide for working on or modifying the demo circuit 1424A.

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

LT is a trademark of Linear Technology Corporation

PERFORMANCE SUMMARY DC1424A-A

Specifications are at TA = 25°C

| SYMBOL | PARAMETER FOR BOOST CONVERTER | CONDITIONS | MIN | TYP | MAX | UNITS |
|------------------|-------------------------------|--|-------|-----|-------|-------|
| V _{IN} | Input Supply Range | | 5 | | 10 | V |
| V _{OUT} | Output Voltage Accuracy | V _{IN} = 5V to 10V, I _{LOAD} = 900mA | 11.60 | 12 | 12.30 | V |
| Efficiency | | V _{IN} = 5V, I _{LOAD} = 900mA | | 88 | | % |
| Ripple | | V _{IN} = 5V, I _{LOAD} = 900mA | | 100 | | mV |
| F _s | Switching Frequency | | | 1.2 | | MHz |

PERFORMANCE SUMMARY 1424A-B

Specifications are at TA = 25°C

| SYMBOL | PARAMETER FOR CUK CONVERTER | CONDITIONS | MIN | TYP | MAX | UNITS |
|------------------|-----------------------------|---|--------|-------|--------|-------|
| V _{IN} | Input Supply Range | | 5 | | 12 | V |
| V _{OUT} | Output Voltage Accuracy | V _{IN} = 5V to -12V, I _{LOAD} = 750mA | -11.60 | -11.9 | -12.30 | V |
| Efficiency | | V _{IN} = 5V, I _{LOAD} = 750mA | | 81 | | % |
| Ripple | | V _{IN} = 5V, I _{LOAD} = 750mA | | 20 | | mV |
| F _s | Switching Frequency | | | 1.2 | | MHz |

QUICK START PROCEDURE

Demonstration circuit 1424A-A and 1424A-B is easy to set up to evaluate the performance of the LT3581. Refer to Figures 1 and 2 for proper measurement equipment setup and follow the procedure below:

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 Vin or Vout and GND terminals. See Figure 2 for proper scope probe technique.

1. Place jumper in the following position:
JP1 On
2. With power off, connect the input power supply to Vin and GND.

Apply 5V to input.

Check for the proper output voltages.

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

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.

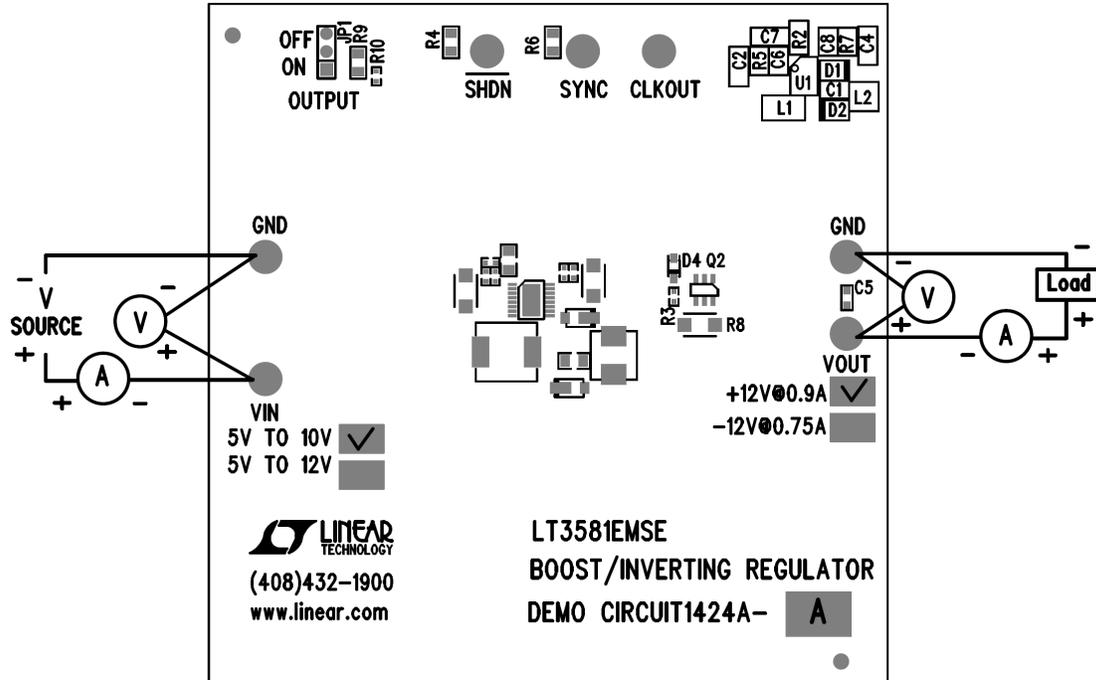


Figure 1. DC1424A-A Proper Equipment Setup

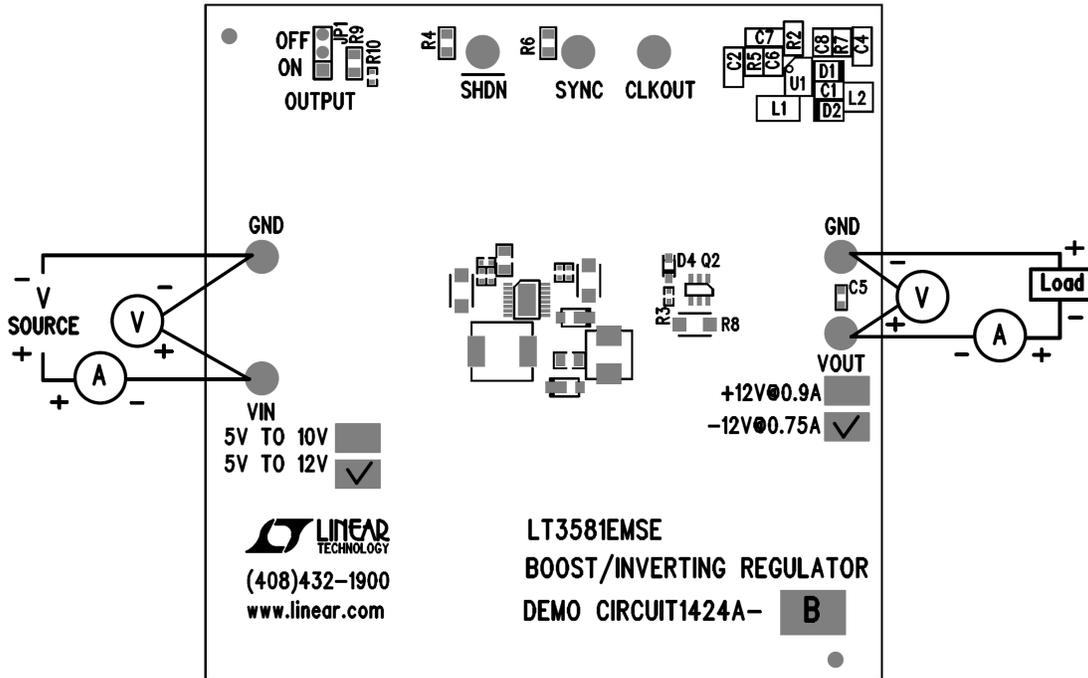


Figure 2. DC1424A-B Proper Equipment Setup

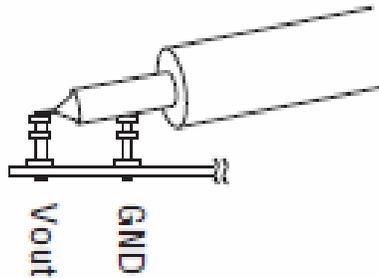


Figure 3. Proper Input/Output Ripple Measurement Technique

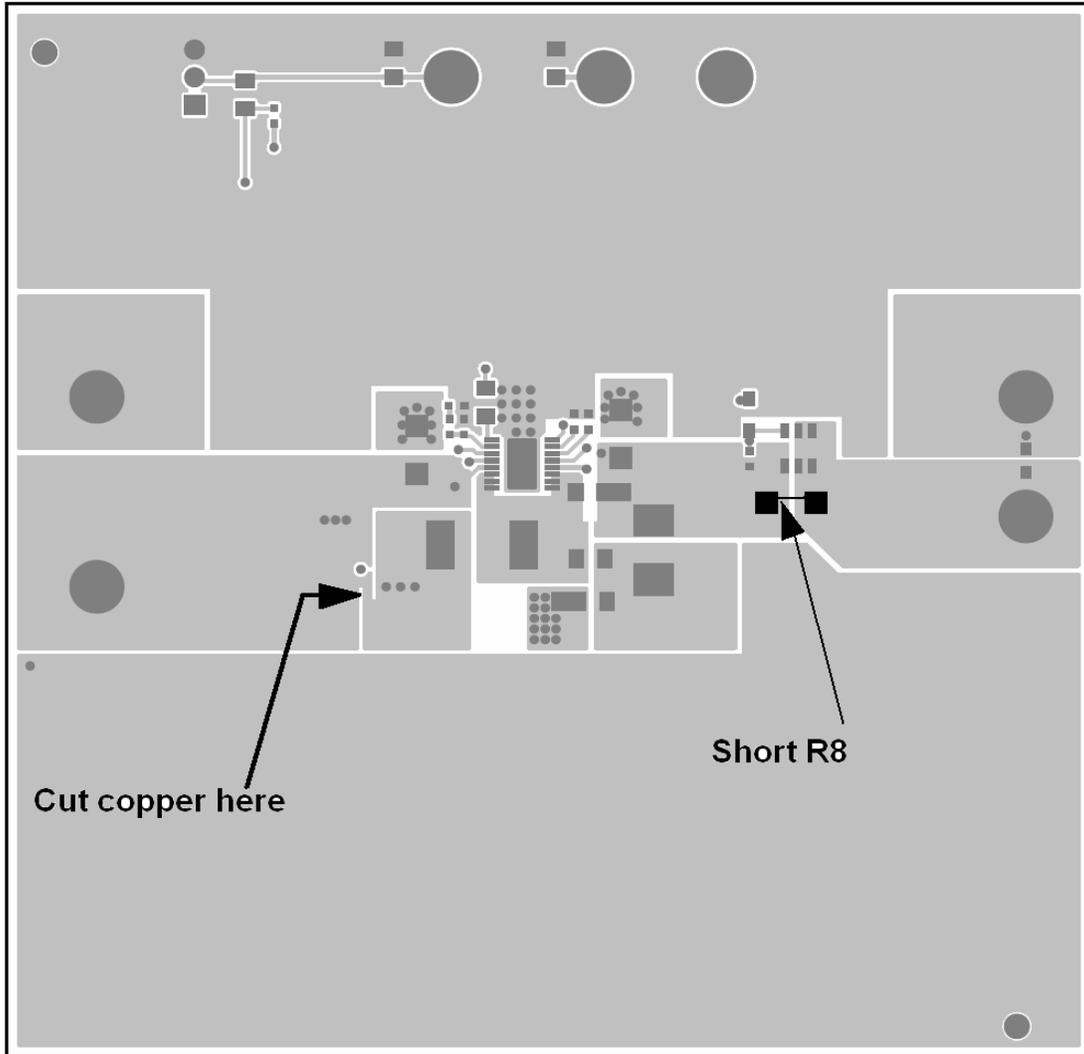


Figure 4. Using Disconnect MOSFET at the Input Side

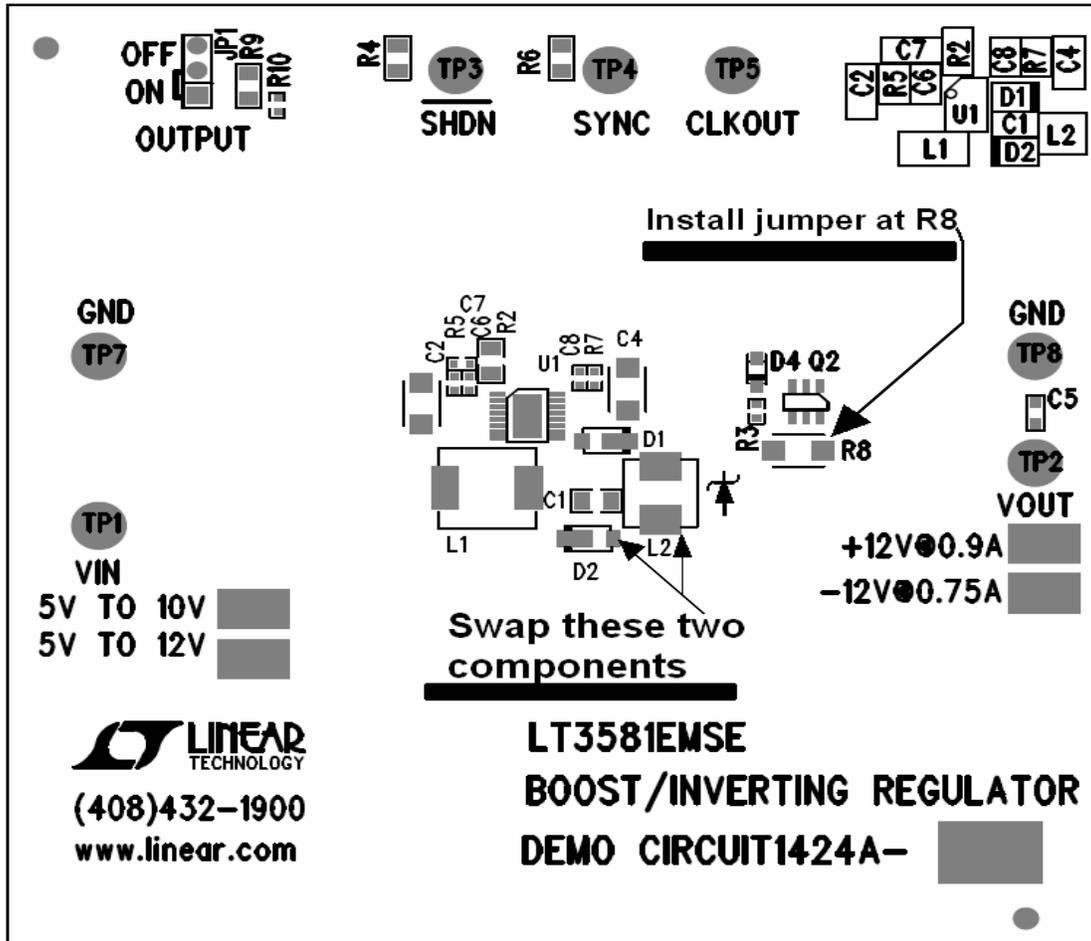
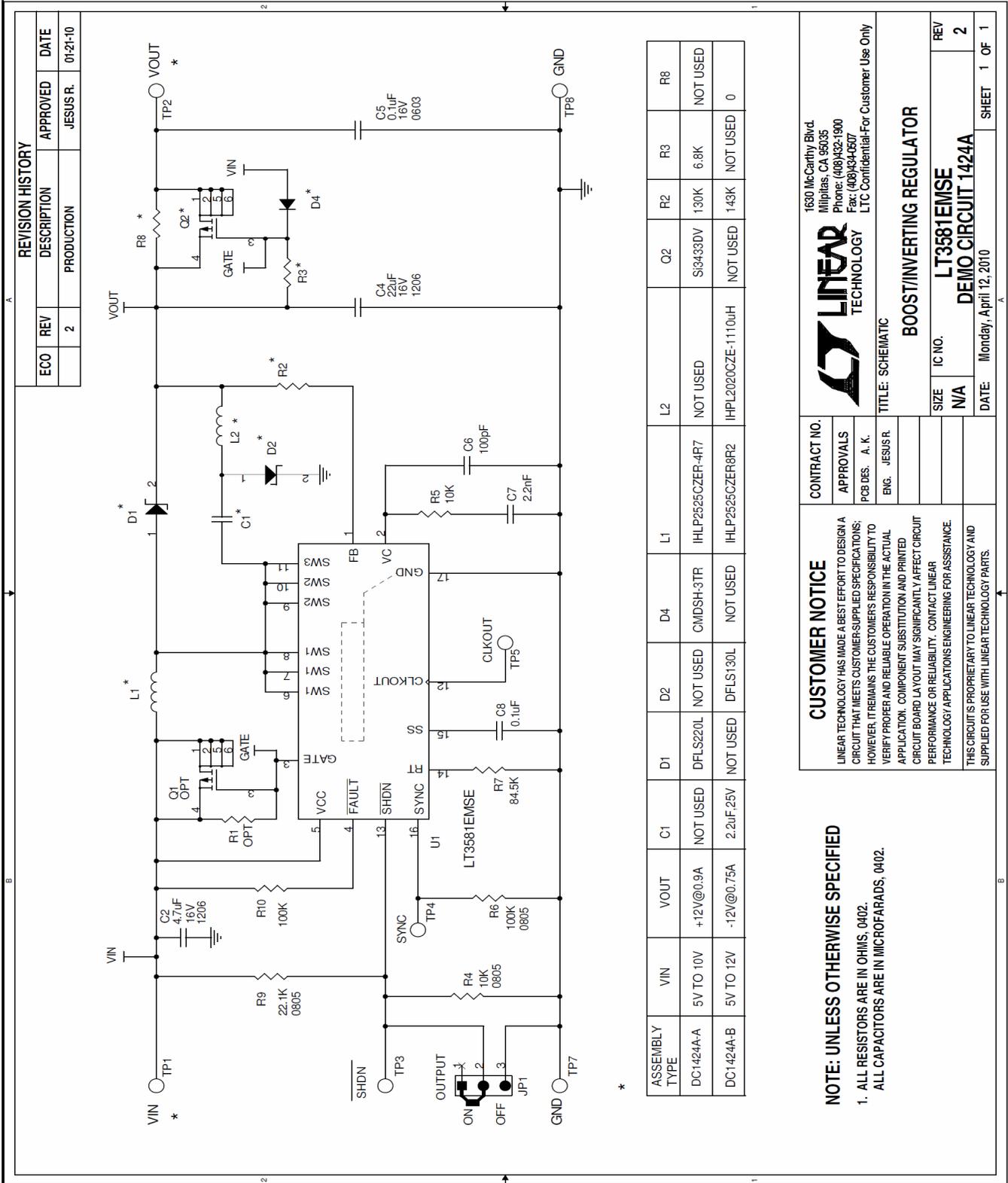


Figure 5. SEPIC Conversion Instructions



| ASSEMBLY TYPE | VIN | VOUT | C1 | D1 | D2 | D4 | L1 | L2 | Q2 | R2 | R3 | R8 |
|---------------|-----------|------------|------------|----------|----------|-----------|------------------|--------------------|----------|------|----------|----------|
| DC1424A-A | 5V TO 10V | +12V@0.9A | NOT USED | DFLS220L | NOT USED | CMDSH-3TR | IHLP2525CZER-4R7 | NOT USED | S13433DV | 130K | 6.8K | NOT USED |
| DC1424A-B | 5V TO 12V | -12V@0.75A | 2.2uF, 25V | NOT USED | DFLS130L | NOT USED | IHLP2525CZER8R2 | IHPL2020CZE-1110uH | NOT USED | 143K | NOT USED | 0 |

CUSTOMER NOTICE
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.

NOTE: UNLESS OTHERWISE SPECIFIED
1. ALL RESISTORS ARE IN OHMS, 0402.
ALL CAPACITORS ARE IN MICROFARADS, 0402.

CONTRACT NO.
APPROVALS
PCB DES. A. K.
ENG. JESUS R.

1630 McCarthy Blvd.
Milpitas, CA 95035
Phone: (408)432-1900
Fax: (408)434-6507
LTC Confidential-For Customer Use Only

LINEAR TECHNOLOGY

TITLE: SCHEMATIC
BOOST/INVERTING REGULATOR

SIZE IC NO. **REV**
N/A **LT3581EMSE** 2
DATE: Monday, April 12, 2010 **SHEET** 1 OF 1

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: org@lifeelectronics.ru