

## PROTECTION PRODUCTS

### Description

μClamp® series of TVS arrays are designed to protect sensitive electronics from damage or latch-up due to ESD and surge. They feature large cross-sectional area junctions for conducting high transient currents. They offer desirable characteristics for board level protection including fast response time, low operating and clamping voltage, and no device degradation.

μClamp0501P is in a 2-pin SLP1006P2 package, measuring 1.0 x 0.6 x 0.5mm. Leads are spaced at a pitch of 0.65mm and are finished with lead-free NiPdAu. Each device will protect one uni-directional line operating at 5 volts. They may be used to meet the ESD immunity requirements of IEC 61000-4-2 (±15kV contact & ±20 air discharge). The combination of small size and high ESD surge capability makes them ideal for use in applications such as cellular phones, industrial equipment, and portable instrumentation.

### Features

- High ESD withstand Voltage: +/-15kV (Contact) and +/-20kV (Air) per IEC 61000-4-2
- Ultra-small package(1.0 x 0.6 x 0.5mm)
- Protects one I/O or power line
- Low ESD clamping voltage
- Working voltage: +5V
- Low leakage current
- Solid-state silicon-avalanche technology

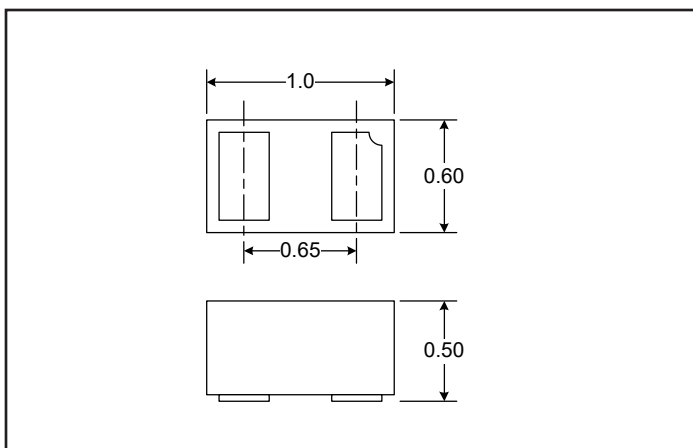
### Mechanical Characteristics

- SLP1006P2 package
- Pb-Free, Halogen Free, RoHS/WEEE Compliant
- Lead Finish: NiPdAu
- Marking: Marking code
- Packaging: Tape and Reel

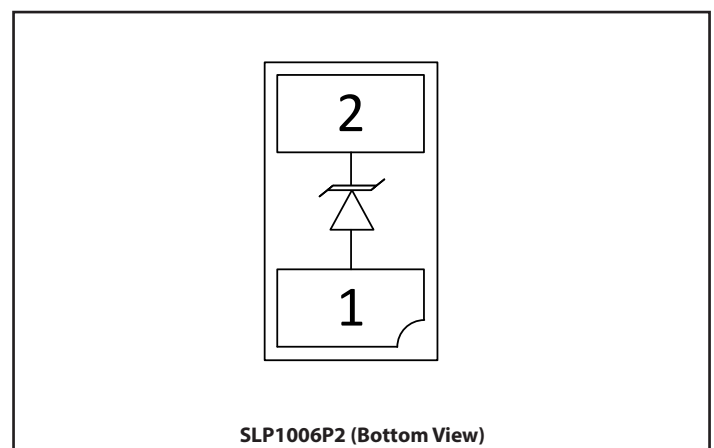
### Applications

- Cellular Handsets & Accessories
- OLED Displays
- VBUS
- Notebooks & Handhelds
- Portable Instrumentation

### Package Dimension



### Schematic & Pin Configuration



## Absolute Maximum Rating

| Rating                                                                                       | Symbol    | Value                | Units |
|----------------------------------------------------------------------------------------------|-----------|----------------------|-------|
| Peak Pulse Power ( $t_p = 8/20\mu s$ )                                                       | $P_{PK}$  | 200                  | W     |
| Peak Pulse Current ( $t_p = 8/20\mu s$ )                                                     | $I_{PP}$  | 16                   | A     |
| ESD per IEC 61000-4-2 (Air) <sup>(1)</sup><br>ESD per IEC 61000-4-2 (Contact) <sup>(1)</sup> | $V_{ESD}$ | $\pm 20$<br>$\pm 15$ | kV    |
| Operating Temperature                                                                        | $T_{OP}$  | -55 to +125          | °C    |
| Storage Temperature                                                                          | $T_{STG}$ | -55 to +150          | °C    |

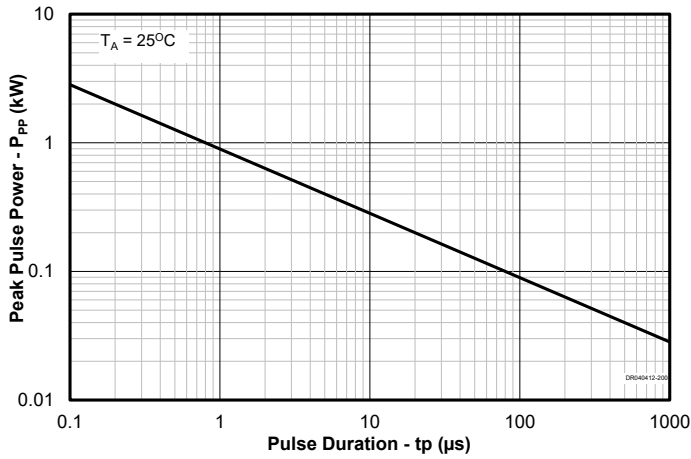
## Electrical Characteristics (T=25°C unless otherwise specified)

| Parameter                 | Symbol    | Conditions                                             | Min. | Typ. | Max. | Units         |
|---------------------------|-----------|--------------------------------------------------------|------|------|------|---------------|
| Reverse Stand-Off Voltage | $V_{RWM}$ | Pin 2 to 1                                             |      |      | 5    | V             |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_t = 1\text{mA}$ , Pin 2 to 1                        | 6    |      |      | V             |
| Reverse Leakage Current   | $I_R$     | $V_{RWM} = 5\text{V}$ , Pin 2 to 1                     |      |      | 5    | $\mu\text{A}$ |
| Forward Voltage           | $V_F$     | $I_F = 10\text{mA}$ , Pin 1 to 2                       |      | 0.8  |      | V             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 5\text{A}$ , $t_p = 8/20\mu s$ , Pin 2 to 1  |      |      | 9.8  | V             |
|                           |           | $I_{PP} = 16\text{A}$ , $t_p = 8/20\mu s$ , Pin 2 to 1 |      |      | 12.5 |               |
| Junction Capacitance      | $C_J$     | $V_R = 0\text{V}$ , $f = 1\text{MHz}$                  |      |      | 160  | pF            |

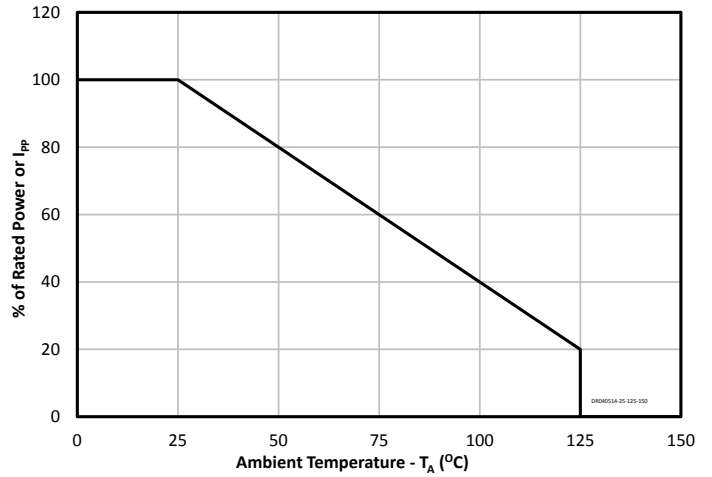
Notes: 1) ESD gun return path connected to ESD ground plane

# Typical Characteristics

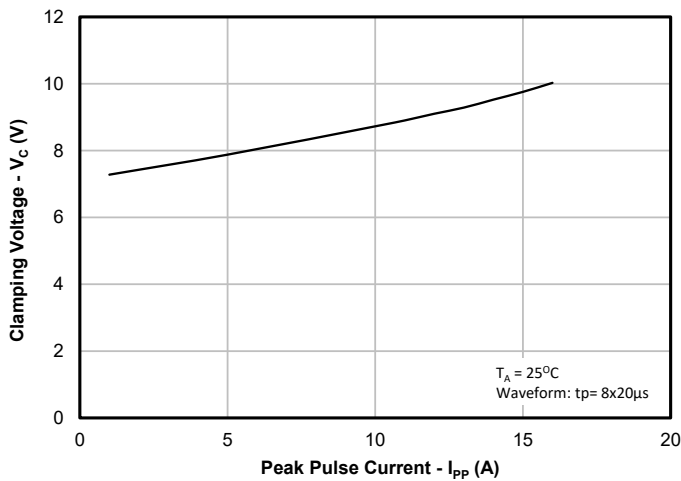
### Non-Repetitive Peak Pulse Power vs. Pulse Time



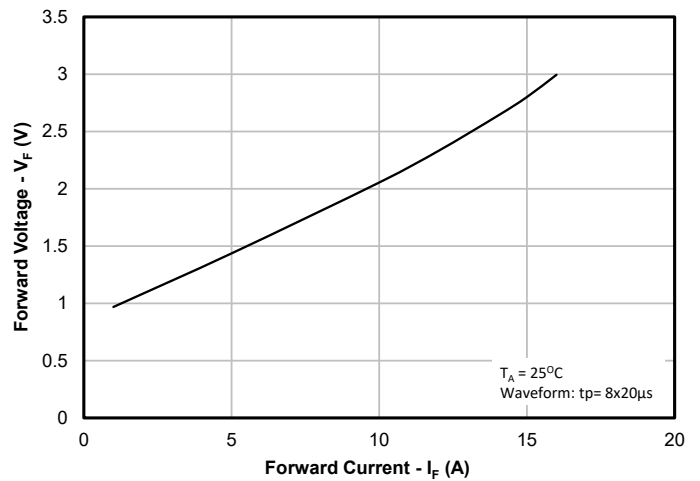
### Power Derating Curve



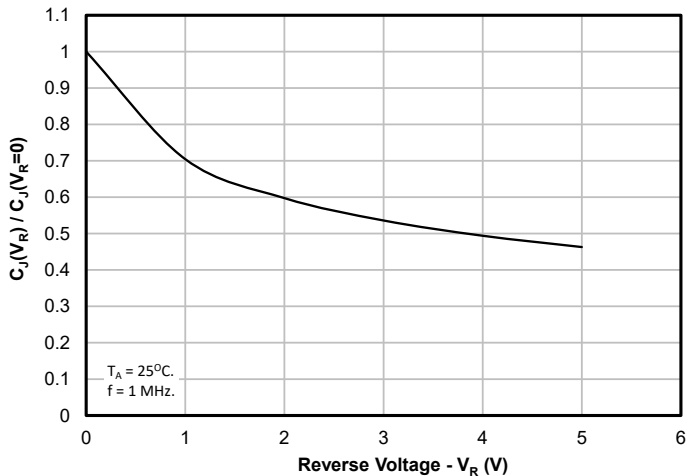
### Clamping Voltage vs. Peak Pulse Current



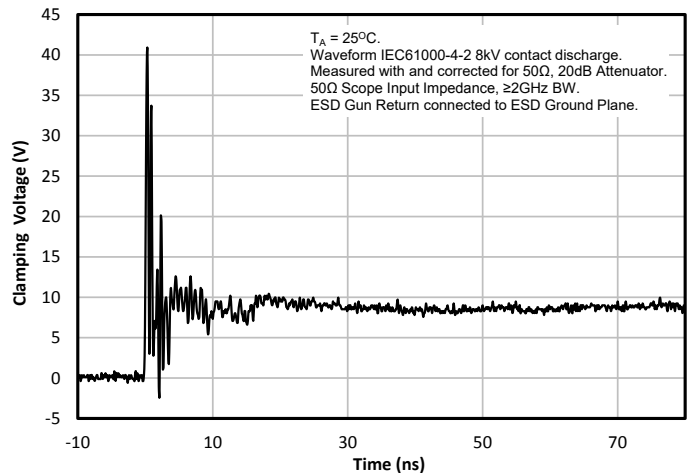
### Forward Voltage vs. Forward Current



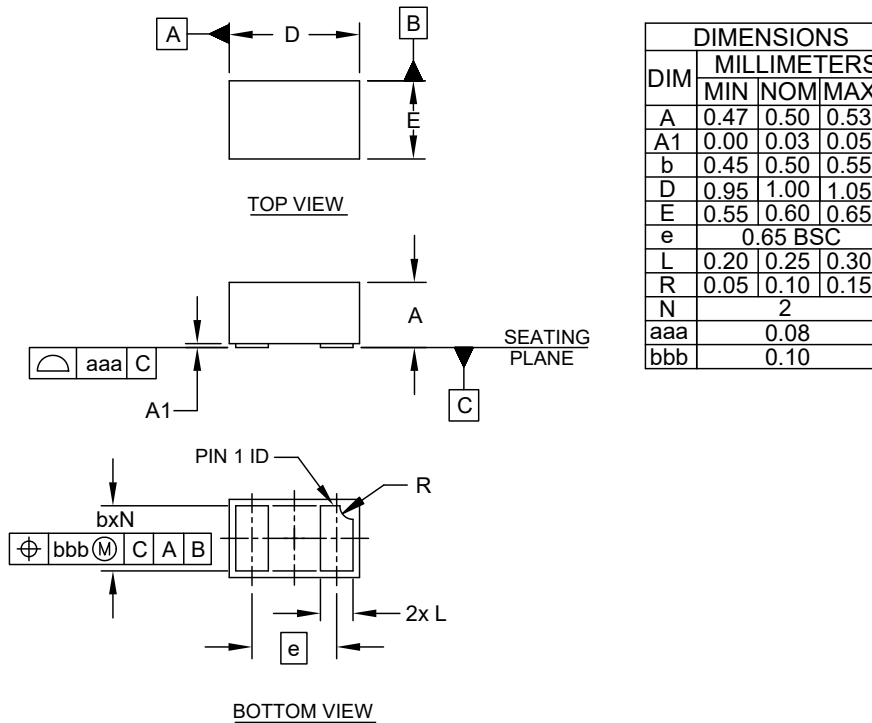
### Normalized Junction Capacitance vs. Reverse Voltage



### ESD Clamping (8kV Contact per IEC 61000-4-2)



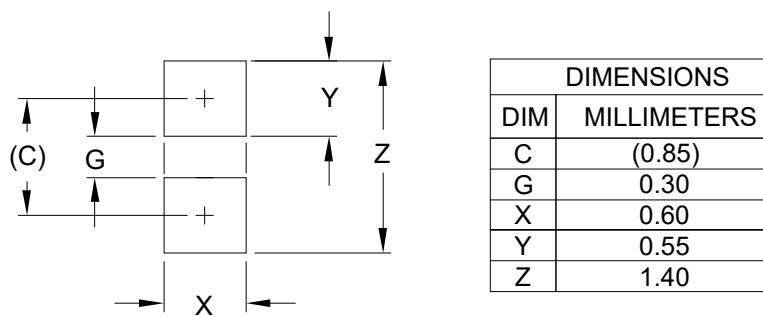
## Outline Drawing - SLP1006P2



**NOTES:**

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).

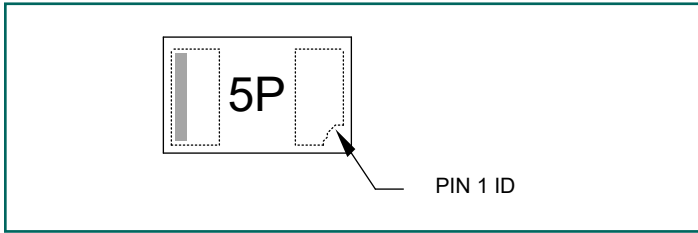
## Land Pattern - SLP1006P2



**NOTES:**

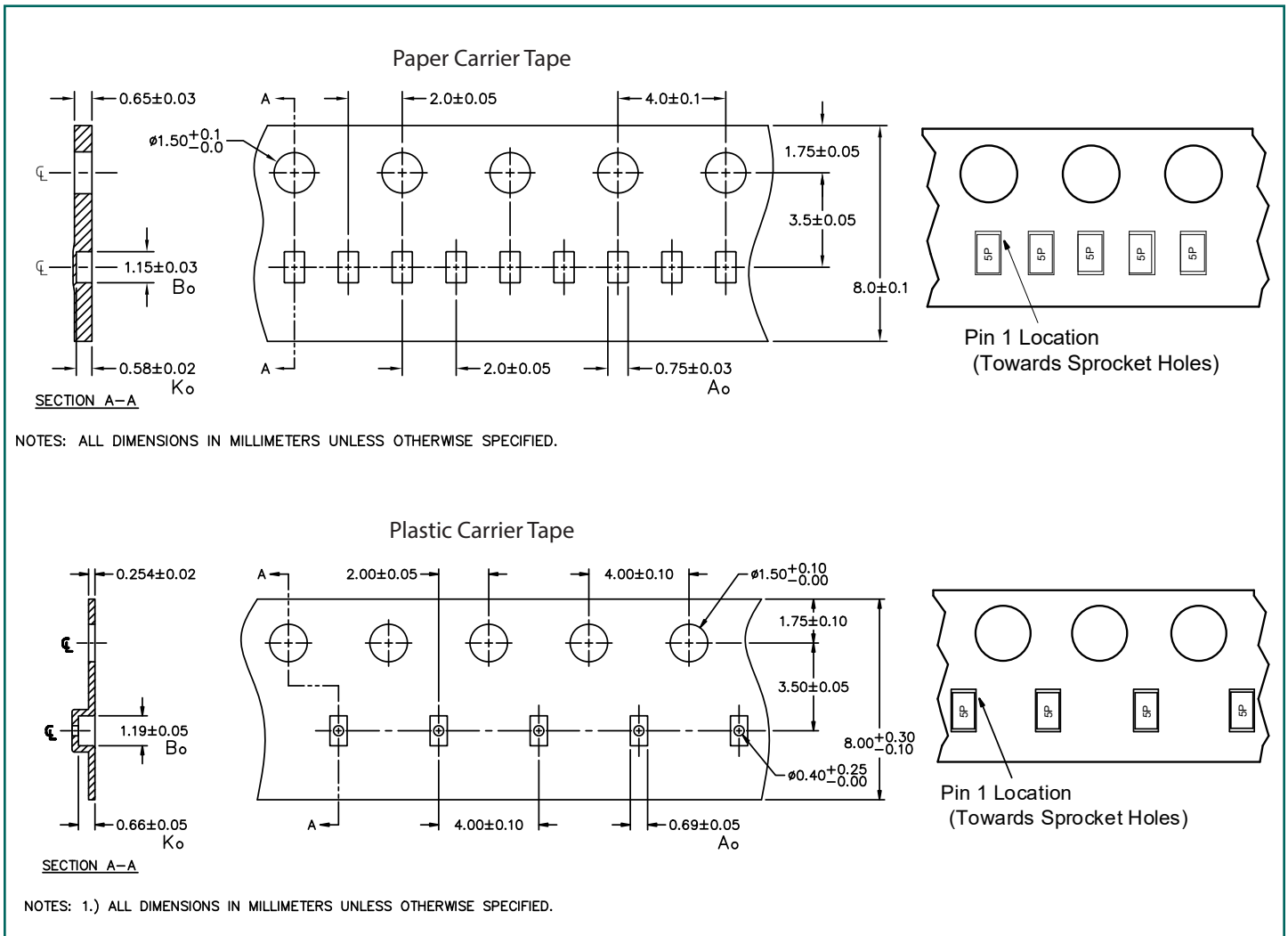
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

# Marking Code



Note: Cathode bar at Pin 2

# Tape and Reel Specification



# Ordering Information

| Part Number     | Qty per Reel | Tape Material | Reel Size |
|-----------------|--------------|---------------|-----------|
| μClamp0501P.TFT | 15000        | Paper         | 7 Inch    |
| μClamp0501P.TCT | 3000         | Plastic       | 7 Inch    |

MicroClamp, uClamp and μClamp are registered trademarks of Semtech Corporation.



---

## Important Notice

Information relating to this product and the application or design described herein is believed to be reliable, however such information is provided as a guide only and Semtech assumes no liability for any errors in this document, or for the application or design described herein. Semtech reserves the right to make changes to the product or this document at any time without notice. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. Semtech warrants performance of its products to the specifications applicable at the time of sale, and all sales are made in accordance with Semtech's standard terms and conditions of sale.

SEMTECH PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS, OR IN NUCLEAR APPLICATIONS IN WHICH THE FAILURE COULD BE REASONABLY EXPECTED TO RESULT IN PERSONAL INJURY, LOSS OF LIFE OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. INCLUSION OF SEMTECH PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE UNDERTAKEN SOLELY AT THE CUSTOMER'S OWN RISK. Should a customer purchase or use Semtech products for any such unauthorized application, the customer shall indemnify and hold Semtech and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs damages and attorney fees which could arise.

The Semtech name and logo are registered trademarks of the Semtech Corporation. All other trademarks and trade names mentioned may be marks and names of Semtech or their respective companies. Semtech reserves the right to make changes to, or discontinue any products described in this document without further notice. Semtech makes no warranty, representation or guarantee, express or implied, regarding the suitability of its products for any particular purpose. All rights reserved.

© Semtech 2017

---

## Contact Information

**Semtech Corporation**  
200 Flynn Road, Camarillo, CA 93012  
Phone: (805) 498-2111, Fax: (805) 498-3804  
[www.semtech.com](http://www.semtech.com)

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](mailto:org@lifeelectronics.ru)