

## Features

### Unregulated Converter

- 1 : 1 Input Range
- 0.5W SMD Package
- Efficiency up to 80%
- Approved for Medical Applications
- 1kVDC and 3 kVDC Isolation Option
- Operating Temperature from -40°C to +100°C

### Specifications (measured at $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

| Part Number SMD | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Efficiency typ. (%) | Max Capacitive Load <sup>(1)**</sup> |
|-----------------|---------------------|----------------------|---------------------|---------------------|--------------------------------------|
| R0.5S**-3.305*  | 3.3                 | 5                    | 100                 | 80                  | 1000μF                               |
| R0.5S**-3.312*  | 3.3                 | 12                   | 42                  | 77                  | 150μF                                |
| R0.5S**-3.315*  | 3.3                 | 15                   | 33                  | 77                  | 150μF                                |
| R0.5S**-0505*   | 5                   | 5                    | 100                 | 72                  | 1000μF                               |
| R0.5S**-0512*   | 5                   | 12                   | 42                  | 77                  | 150μF                                |
| R0.5S**-0515*   | 5                   | 15                   | 33                  | 79                  | 150μF                                |
| R0.5S**-1205*   | 12                  | 5                    | 100                 | 74                  | 1000μF                               |
| R0.5S**-1212*   | 12                  | 12                   | 42                  | 75                  | 150μF                                |
| R0.5S**-1215*   | 12                  | 15                   | 33                  | 75                  | 150μF                                |
| R0.5S**-2405*   | 24                  | 5                    | 100                 | 75                  | 1000μF                               |
| R0.5S**-2412*   | 24                  | 12                   | 42                  | 77                  | 150μF                                |
| R0.5S**-2415*   | 24                  | 15                   | 33                  | 77                  | 150μF                                |
| R0.5D**-3.305*  | 3.3                 | ±5                   | ±50                 | 79                  | ±470μF                               |
| R0.5D**-3.312*  | 3.3                 | ±12                  | ±21                 | 76                  | ±68μF                                |
| R0.5D**-3.315*  | 3.3                 | ±15                  | ±17                 | 77                  | ±68μF                                |
| R0.5D**-0505*   | 5                   | ±5                   | ±50                 | 79                  | ±470μF                               |
| R0.5D**-0512*   | 5                   | ±12                  | ±21                 | 77                  | ±68μF                                |
| R0.5D**-0515*   | 5                   | ±15                  | ±17                 | 79                  | ±68μF                                |
| R0.5D**-1205*   | 12                  | ±5                   | ±50                 | 76                  | ±470μF                               |
| R0.5D**-1212*   | 12                  | ±12                  | ±21                 | 75                  | ±68μF                                |
| R0.5D**-1215*   | 12                  | ±15                  | ±17                 | 75                  | ±68μF                                |
| R0.5D**-2405*   | 24                  | ±5                   | ±50                 | 77                  | ±470μF                               |
| R0.5D**-2412*   | 24                  | ±12                  | ±21                 | 75                  | ±68μF                                |
| R0.5D**-2415*   | 24                  | ±15                  | ±17                 | 75                  | ±68μF                                |

\*add Suffix "/H" for 3kVDC Isolation Voltage

\*add Suffix "/P" for continuous short circuit protection

\*add Suffix "-R" for tape & reel packing

For more details and dimensions of the tapes and reels see Application Notes

R0.5S\*\*:

\*\*without marking denotes 5 pins out of 8 fitted (includes „/H“ option)

\*\*with marking 8 denotes 8 pins out of 8 fitted („/H“ option not available)

\*\*with marking 12 denotes 10 pins out of 12 fitted (includes „/H“ option)

R0.5D\*\*:

\*\*without marking denotes 6 pins out of 10 fitted (includes „/H“ option)

\*\*with marking 10 denotes 10 pins out of 10 fitted („/H“ option not available)

\*\*with marking 12 denotes 10 pins out of 12 fitted (includes „/H“ option)

## ECONOLINE

### DC/DC-Converter

with 3 year Warranty

## RECOM

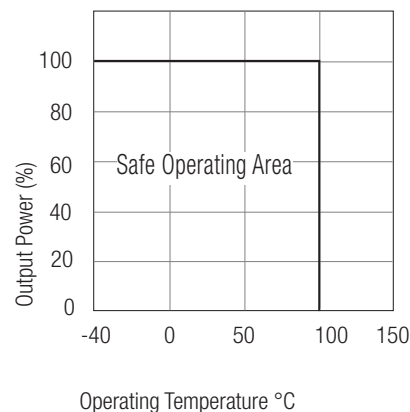
## 0.5 Watt SMD Isolated Single or Dual Output



UL-60950-1 Certified

## R0.5S\_D

## Derating-Graph (Ambient Temperature)



Refer to Application Notes

### Specifications (measured at $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

|                                             |                                                                          |                                                                  |
|---------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------|
| Input Voltage Range                         |                                                                          | $\pm 10\%$ max.                                                  |
| Voltage Set Accuracy                        | 100% Load/nominal Vin                                                    | -1% typ. / $\pm 5\%$ max.                                        |
| Line Regulation                             | Low Line to High Line @ max. Load                                        | 1.2% typ.                                                        |
| Load Regulation                             | 5V output                                                                | 6% typ. / 15% max.                                               |
| (10% to 100% Load)                          | 12/15V output                                                            | 5% typ. / 10% max.                                               |
| Ripple & Noise @ 20MHz BW                   |                                                                          | 50 mVp-p typ. / 100mVp-p max.                                    |
| Efficiency at Full Load                     |                                                                          | 70% min.                                                         |
| Operating Temperature                       |                                                                          | $-40^\circ\text{C}$ to $+100^\circ\text{C}$                      |
| Storage Temperature                         |                                                                          | $-55^\circ\text{C}$ to $+125^\circ\text{C}$                      |
| Isolation Voltage                           | (tested for 1 second)<br>(rated for 1 minute***)                         | 1000VDC<br>500VAC / 60Hz                                         |
| Isolation Voltage                           | H-Suffix<br>(tested for 1 second)<br>H-Suffix<br>(rated for 1 minute***) | 3000VDC<br>1500VAC / 60Hz                                        |
| Isolation Capacitance                       |                                                                          | 75pF max.                                                        |
| Isolation Resistance                        | Viso = 500V                                                              | 10 G $\Omega$ min.                                               |
| Humidity                                    |                                                                          | 95% max.                                                         |
| Operating Frequency                         | Vin (nom.)                                                               | 20kHz min. / 50 kHz typ. / 90 kHz max.                           |
| Short-Circuit Protection                    |                                                                          | 1 Second                                                         |
| MTBF                                        | Using MIL-HDBK 217F ( $+100^\circ\text{C}$ )                             | 1003 x $10^3$ hours                                              |
| Using MIL-HDBK 217F ( $+25^\circ\text{C}$ ) | 3962 x $10^3$ hours                                                      | <i>Detailed Information see Application Notes chapter „MTBF“</i> |
| Weight                                      | Single Types                                                             | 1.0 g                                                            |
|                                             | Dual Types                                                               | 1.2 g                                                            |
| Certification                               |                                                                          |                                                                  |
| UL General Safety                           | Report: E358085                                                          | UL 60950-1 2nd Ed.                                               |

\*\*\*Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

#### Notes

Note1: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1second without damage to the converter.

## Typical Characteristics

### Tolerance Envelope



## R0.5S-3.3xx



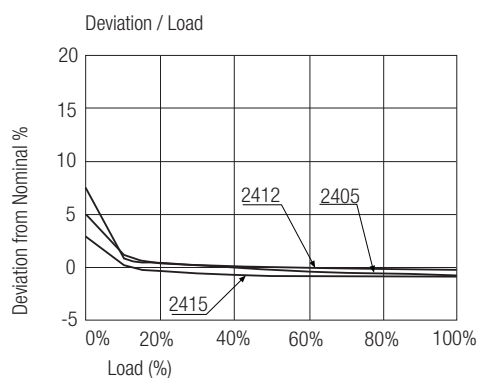
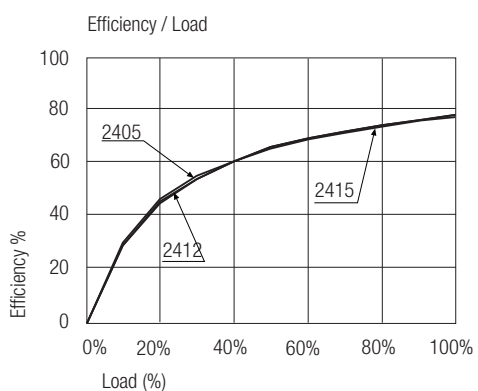
## R0.5S-05xx



## R0.5S-12xx

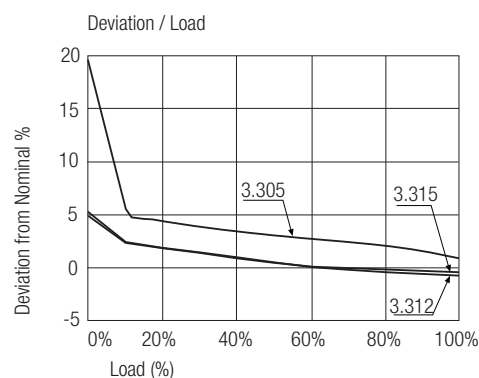
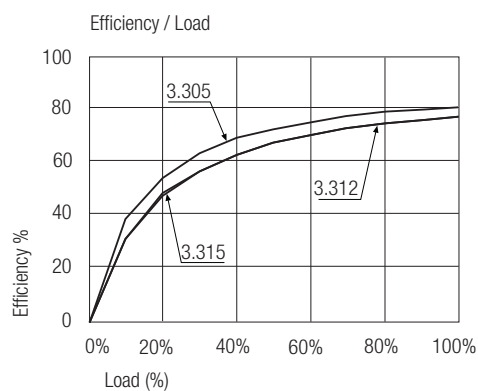


## R0.5S-24xx

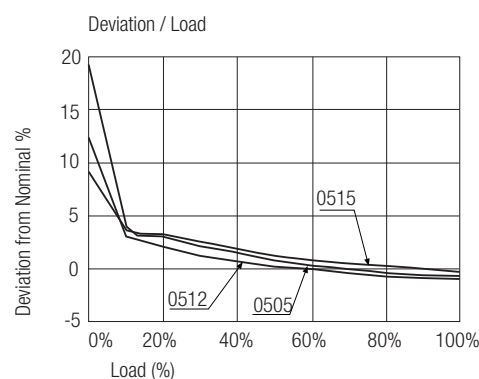
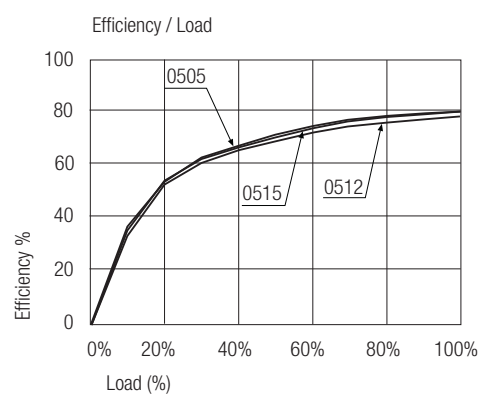


### Typical Characteristics

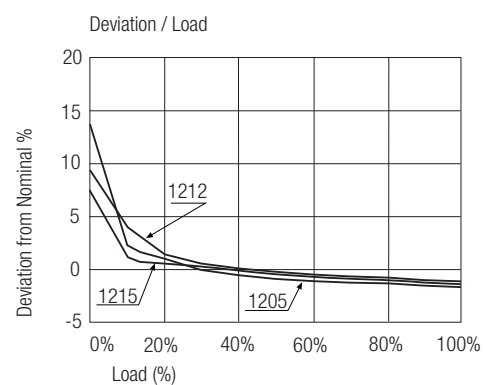
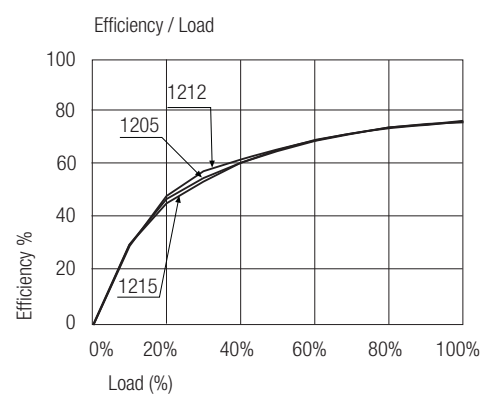
#### R0.5D-3.3xx



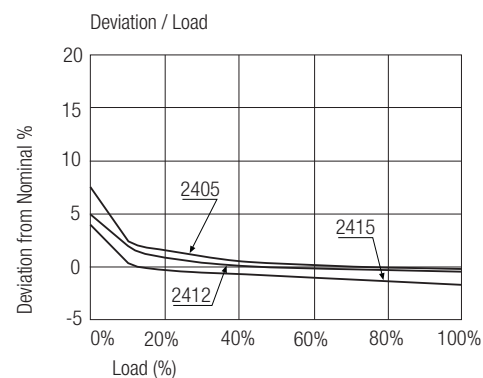
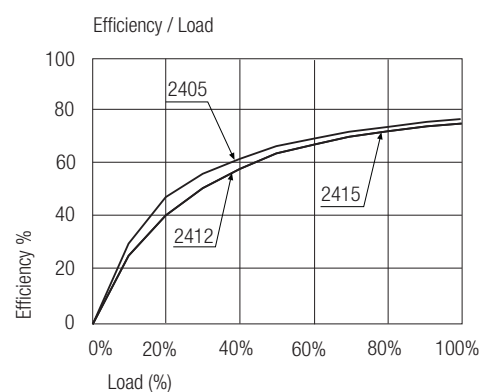
#### R0.5D-05xx



#### R0.5D-12xx



#### R0.5D-24xx



## Single Output



Except „/P“ Versions

| C1    | L1    | Vin  |
|-------|-------|------|
| 4.7µF | 4.7µH | 3.3V |
| 4.7µF | 4.7µH | 5V   |
| 4.7µF | 4.7µH | 12V  |
| 2.2µF | 4.7µH | 15V  |

## Dual Output



Except „/P“ Versions

| C1    | L1    | Vin  |
|-------|-------|------|
| 4.7µF | 10µH  | 3.3V |
| 4.7µF | 4.7µH | 5V   |
| 4.7µF | 2.2µH | 12V  |
| 4.7µF | 2.2µH | 15V  |

C1 = MLCC

L1 = SMD Inductor

### Package Style and Pinning (mm)

#### 5 PINS Single SMD Package



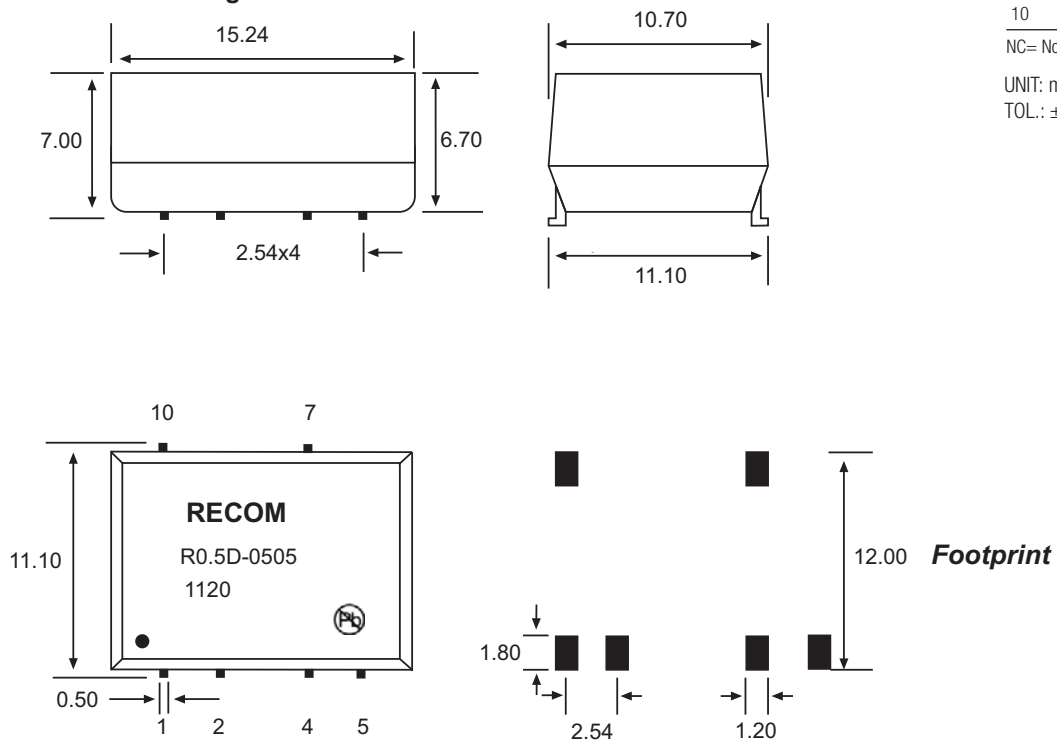
#### Pin Connections

| Pin # | Single | Dual   |
|-------|--------|--------|
| 1     | -Vin   | -Vin   |
| 2     | +Vin   | +Vin   |
| 4     | -Vout  | Com.   |
| 5     | +Vout  | -Vout  |
| 7     | No Pin | +Vout  |
| 8     | NC     | No Pin |
| 10    | No Pin | NC     |

NC= No Connection

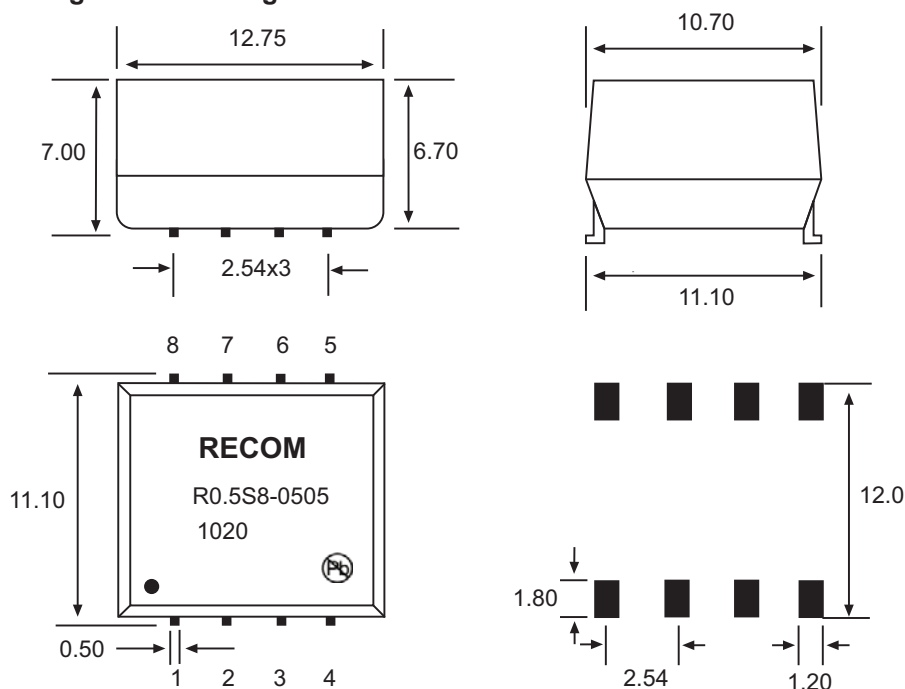
UNIT: mm  
TOL.:  $\pm 0.25$  mm

#### 6 PINS Dual SMD Package



### Package Style and Pinning (mm)

#### 8 PINS Single SMD Package



#### Footprint

##### Pin Connections

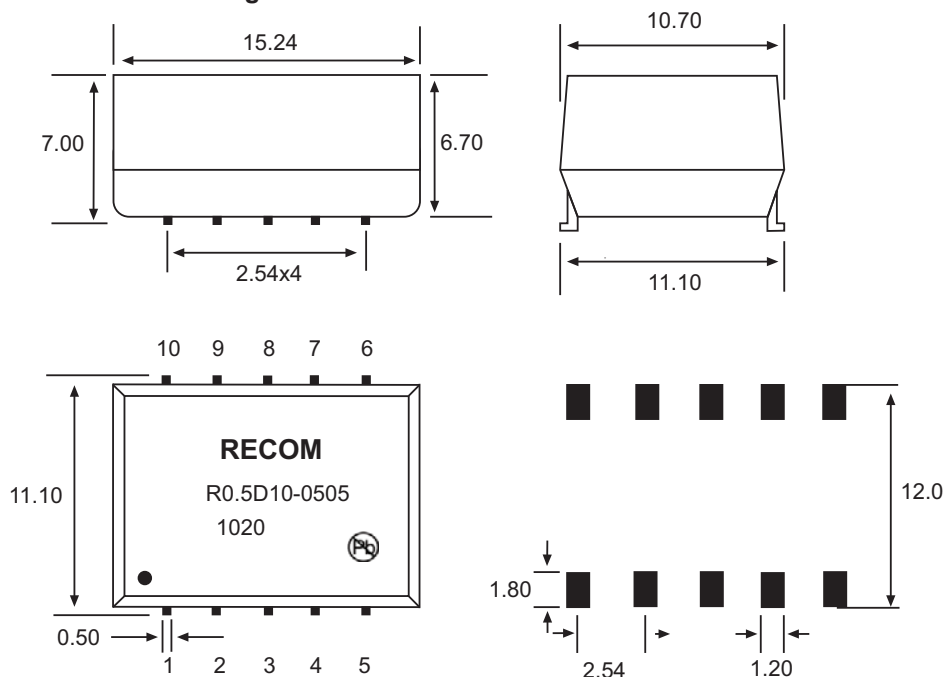
| Pin #   | Single | Dual  |
|---------|--------|-------|
| 1       | -Vin   | -Vin  |
| 2       | +Vin   | +Vin  |
| 4       | -Vout  | Com.  |
| 5       | +Vout  | -Vout |
| 7       | NC     | +Vout |
| 3, 6, 8 | NC     | NC    |
| 9, 10   | No Pin | NC    |

NC= No Connection

UNIT: mm

TOL.:  $\pm 0.25$  mm

#### 10 PINS Dual SMD Package



#### Footprint

# ECONOLINE

DC/DC-Converter

# R0.5S\_D Series

## Package Style and Pinning (mm)

### 12 PINS Dual SMD Package



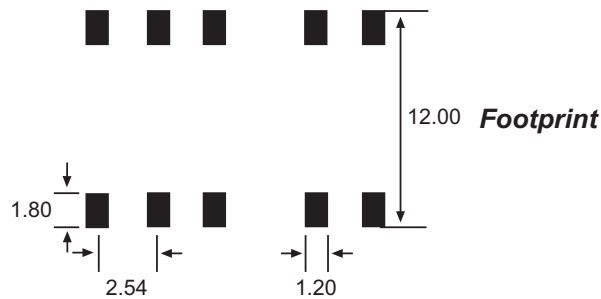
#### Pin Connections

| Pin #        | Function Single | Function Dual |
|--------------|-----------------|---------------|
| 1            | -Vin            | -Vin          |
| 2            | +Vin            | +Vin          |
| 5            | -Vout           | Com.          |
| 6            | NC              | -Vout         |
| 8            | +Vout           | +Vout         |
| 3,7,10,11,12 | NC              | NC            |

NC= No Connection

Unit: mm

TOL.: ± 0.25 mm



**Footprint**

The product information and specifications are subject to change without prior notice. RECOM products are not authorized for use in safety-critical applications (such as life support) without RECOM's explicit written consent. A safety-critical application is defined as an application where a failure of a RECOM product may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The buyer shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.



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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.);

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- 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

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