Features

Unregulated Converters

- UL/CSA and EN-60950-1 Safety certified
- EN-60601 for Medical Applications
- 6kVDC Isolation
- Optional Continuous Short Circuit Protection
- Efficiency up to 80%
- Space Saving „Skinny DIP“ Package
- Very Low Isolation Capacitance

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

2 Watt DIP24 Miniature Single & Dual Output

RoHS 2002/95/EC 6/6

E-224736

EN-60950-1 Certified
EN-60601-1 Certified
UL/CSA 60950-1 Certified
IEC 60601-1 CB Report

RV

Selection Guide

Part Number SIP 7	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency Std (%)	Max Capacitive Load(1)
RV-xx3.3S	3.3, 5, 12, 15, 24	3.3	600	70	3300µF
RV-xx05S	3.3, 5, 12, 15, 24	5	400	70-75	1200µF
RV-xx09S	3.3, 5, 12, 15, 24	9	222	70-75	1200µF
RV-xx12S	3.3, 5, 12, 15, 24	12	167	70-75	680µF
RV-xx15S	3.3, 5, 12, 15, 24	15	132	75-80	680µF
RV-xx24S	3.3, 5, 12, 15, 24	24	83	75-80	470µF
RV-xx3.3D	3.3, 5, 12, 15, 24	±3.3	±300	70	±1500µF
RV-xx05D	3.3, 5, 12, 15, 24	±5	±200	70-75	±470µF
RV-xx09D	3.3, 5, 12, 15, 24	±9	±111	70-75	±470µF
RV-xx12D	3.3, 5, 12, 15, 24	±12	±85	70-75	±220µF
RV-xx15D	3.3, 5, 12, 15, 24	±15	±66	75-80	±220µF
RV-xx24D	3.3, 5, 12, 15, 24	±24	±42	75-80	±100µF

xx = Input Voltage. Other input and output voltage combinations available on request.
No suffix is 6kVDC functional isolation
* add Suffix “P” for Continuous Short Circuit Protection, e.g. RV-0505S/P, RV-0505D/P

Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

Input Voltage Range		±10%
Output Voltage Accuracy		±5%
Line Voltage Regulation		1.2%/1% of Vin typ.
Load Voltage Regulation (10% to 100% full load)	3.3V output types	20% max.
	5V output type	15% max.
	9V, 12V, 15V, 24V output types	10% max.
Output Ripple and Noise (20MHz limited)		200mVp-p max.
Operating Frequency		20kHz min. / 50kHz typ. / 85kHz max.
Efficiency at Full Load		70% min. / 75% typ.
Minimum Load = 0%		Specifications valid for 10% minimum load only.
Isolation Voltage	(tested for 1 second)	6000VDC
	(rated for 1 minute)	3000VAC / 60Hz
Isolation Capacitance		2pF min. / 12pF max.
Isolation Resistance		15 GΩ min.
Short Circuit Protection		1 Second
P-Suffix		Continuous
Operating Temperature Range (free air convection)		-40°C to +85°C (see Graph)
Storage Temperature Range		-55°C to +125°C
Relative Humidity		95% RH
Package Weight		9g
Packing Quantity		15 pcs per Tube

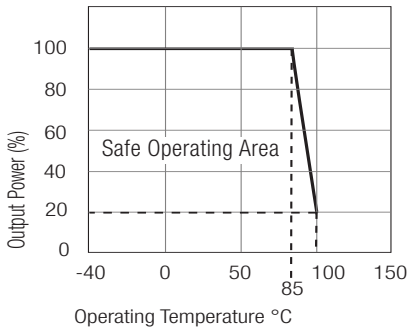
cont.

Description

Very high isolation in a small size are the main features of this miniature DIP24 converter, ideal for highly sophisticated industrial, test and measurement and medical designs where board space is at a premium.

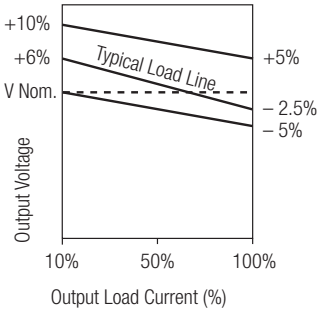
Derating-Graph

(Ambient Temperature)



Refer to Application Notes

Tolerance Envelope



Specifications (continued)

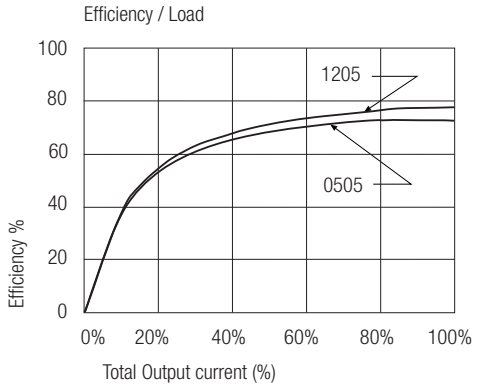
MTBF (+25°C)	*Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F	1154 x 10^3 hours
(+85°C)		using MIL-HDBK 217F	168 x 10^3 hours
Certifications	UL/cUL General Safety	Report: E248550	UL 60950-1 1st Ed.
	EN General Safety	Report: PS-R7219C1	EN60950-1:2001 + A11: 2004
	CB/EN Medical Safety	Report: MDD1205098-4 + RM1205098-4 IEC/EN 60601-1 3rd Edition	
		Medical Report + ISO14971 Risk Assessment	

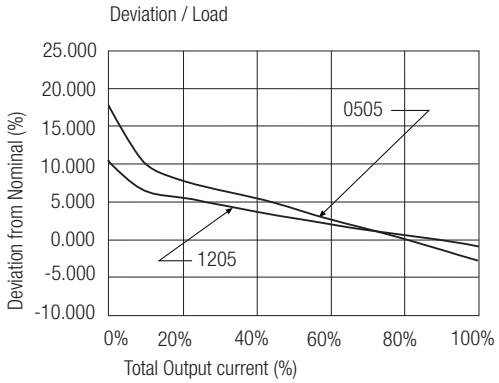
Notes

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

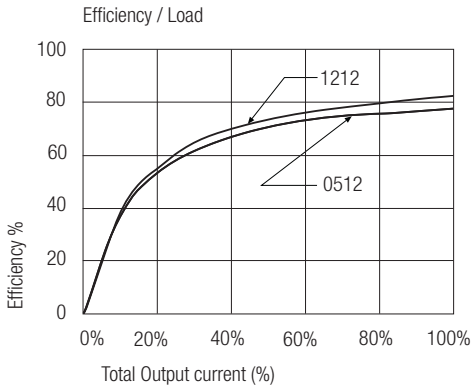
Typical Characteristics

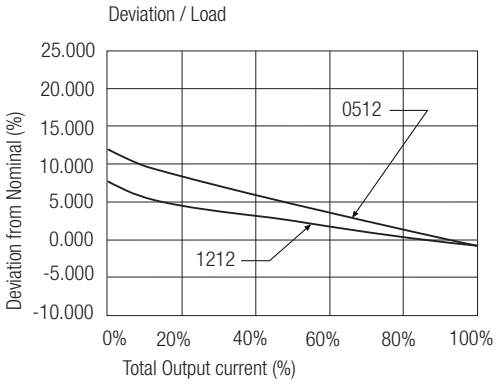
RV-xx05S





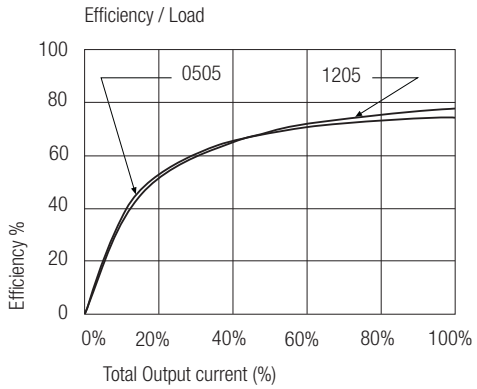
RV-xx12S

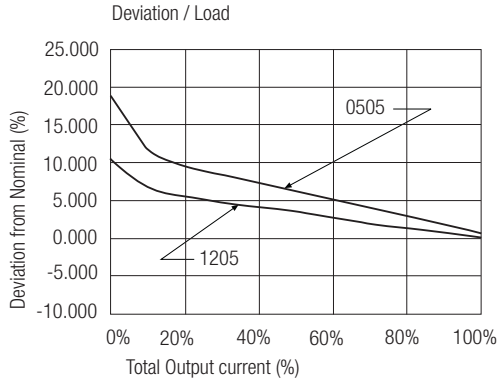




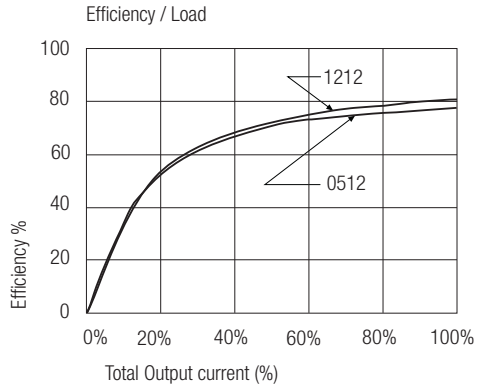
Typical Characteristics

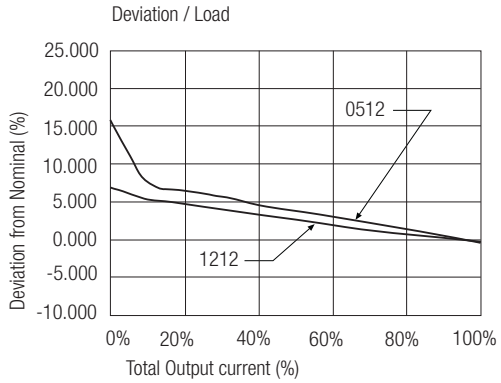
RV-xx05D





RV-xx12D

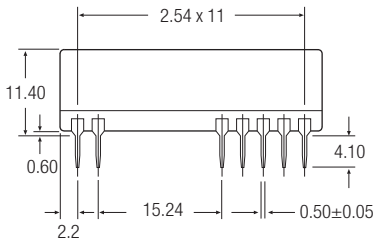


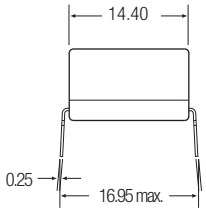


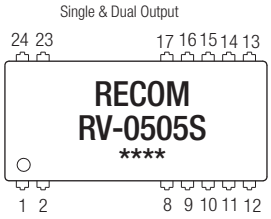
Package Style and Pinning (mm)

3rd angle projection

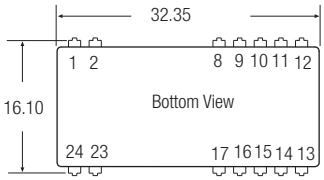
24 PIN DIP Miniature Package Style

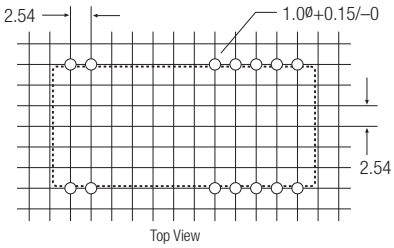






Recommended Footprint Details





Pin Connections

Pin #	Single
1	+Vin
2	-Vin
8, 9, 11, 14	NC
10, 15	-Vout
12 & 13	+Vout
16, 17, 23, 24	NC

NC = No Connection

Pin Connections

Pin #	Dual
1	+Vin
2	-Vin
8, 17	-Vout
9, 11, 14,16, 23, 24	NC
10 & 15	Com
12, 13	+Vout

NC = No Connection

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

RV

Features

Unregulated Converters

- UL/CSA and EN-60950-1 Safety certified
- EN-61010 for Test, Measurement and Lab Use
- UL/CSA and EN-60601 for Medical Applications
- 6.4kVDC or 8kV Reinforced Isolation
- Optional Continuous Short Circuit Protection
- Efficiency to 88%
- Space Saving „Skinny DIP“ Package
- Very Low Isolation Capacitance

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

2 Watt DIP24 Miniature Single & Dual Output

RoHS 2002/95/EC 6/6

E-224736

EN-60950-1 Certified
EN-60601-1 Certified
UL/CSA 60950-1 Certified
UL-60601-1 Certified
EN-61010-1 Certified
IEC-60601-1 CB Report

RV/R

Selection Guide

Part Number SIP 7	Reinforced Isolation (kVDC)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency Std (%)	Max Capacitive Load[1]
RV-xx3.3S	/R6.4 & /R8	3.3, 5, 12, 15, 24	3.3	600	70-78	3300µF
RV-xx05S	/R6.4 & /R8	3.3, 5, 12, 15, 24	5	400	76-80	1200µF
RV-xx09S	/R6.4 & /R8	3.3, 5, 12, 15, 24	9	222	78-85	1200µF
RV-xx12S	/R6.4 & /R8	3.3, 5, 12, 15, 24	12	167	78-85	680µF
RV-xx15S	/R6.4 & /R8	3.3, 5, 12, 15, 24	15	132	78-88	680µF
RV-xx3.3D	/R6.4 & /R8	3.3, 5, 12, 15, 24	±3.3	±300	70-78	±1500µF
RV-xx05D	/R6.4 & /R8	3.3, 5, 12, 15, 24	±5	±200	75-82	±470µF
RV-xx09D	/R6.4 & /R8	3.3, 5, 12, 15, 24	±9	±111	76-84	±470µF
RV-xx12D	/R6.4 & /R8	3.3, 5, 12, 15, 24	±12	±85	78-86	±220µF
RV-xx15D	/R6.4 & /R8	3.3, 5, 12, 15, 24	±15	±66	78-86	±220µF

xx = Input Voltage. Other input and output voltage combinations available on request.
No suffix is 6kVDC functional isolation
* add Suffix “P” for Continuous Short Circuit Protection, e.g. RV-0505S/P, RV-0505D/P
* add Suffix “/R6.4”or “/R8” for Reinforced Isolation, e.g. RV-0505S/R6.4, RV-0505D/P/R8

Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

Input Voltage Range		±10%
Output Voltage Accuracy		±5%
Line Voltage Regulation		1.2%/1% of Vin typ.
Load Voltage Regulation (10% to 100% full load)	3.3V output types	20% max.
	5V output type	15% max.
	9V, 12V, 15V, 24V output types	10% max.
Output Ripple and Noise (20MHz limited)		200mVp-p max.
Operating Frequency		20kHz min. / 50kHz typ. / 85kHz max.
Efficiency at Full Load		70% min. / 75% typ.
Minimum Load = 0%		Specifications valid for 10% minimum load only.
/R6.4	(tested for 1 second)	6400VDC
	(rated for 1 minute)	3200VAC / 60Hz
/R8	(tested for 1 second)	8000VDC
	(rated for 1 minute)	4000VAC / 60Hz
Isolation Capacitance		2pF min. / 12pF max.
Isolation Resistance		15 GΩ min.
Short Circuit Protection		1 Second
P-Suffix		Continuous
Operating Temperature Range (free air convection)		-40°C to +85°C (see Graph)
Storage Temperature Range		-55°C to +125°C
Relative Humidity		95% RH
Package Weight		9g
Packing Quantity		15 pcs per Tube

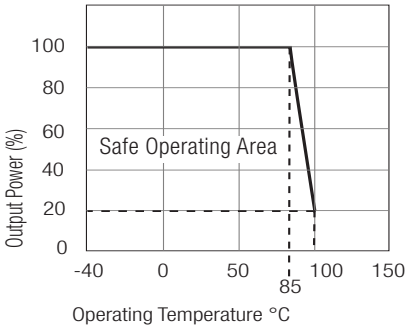
cont.

Description

Very high isolation in a small size are the main features of this miniature DIP24 converter, ideal for highly sophisticated industrial, test and measurement and medical designs where board space is at a premium.

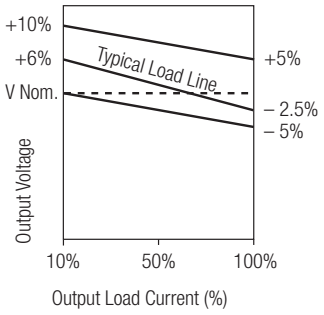
Derating-Graph

(Ambient Temperature)



Refer to Application Notes

Tolerance Envelope



Specifications (continued)

MTBF (+25°C)	*Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F	1154 x 10^3 hours
(+85°C)		using MIL-HDBK 217F	168 x 10^3 hours
Reinforced Isolation	Transformer Creepage	/R6.4 Types	5.5 mm min.
	Transformer Clearance	/R6.4 Types	5.5 mm min.
	PCB Creepage & Clearance	/R6.4 Types	4.8 mm min.

Certifications

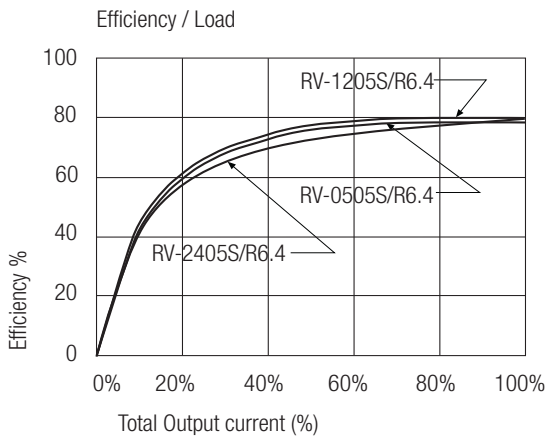
Measurement, Control and Laboratory Use Safety		Report: IL091212010M1	EN 61010-1 : 2001
	CSA General Safety		UL 60950-1 1st Ed.
			C22.2 No. 60950-1-03
	UL/cUL Medical Safety	Report: E314885-A2-UL	UL60601-1 1st Edition
	CSA Medical Safety	Report: 2207629	CAN/CSA-22.2 No 601.1-M90
	EN General Safety	Report: PS-R7219C1	EN60950-1:2001 + A11: 2004
	EN Medical Safety	Report: MDD1205098-1 + RM1205098-1	IEC/EN 60601-1 3rd Edition
		Medical Report + ISO14971 Risk Assessment	

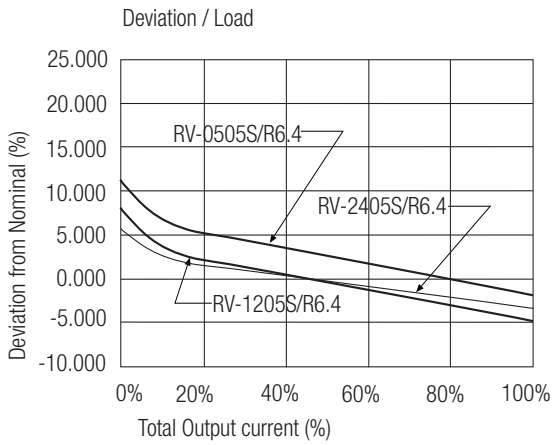
Notes

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

Typical Characteristics

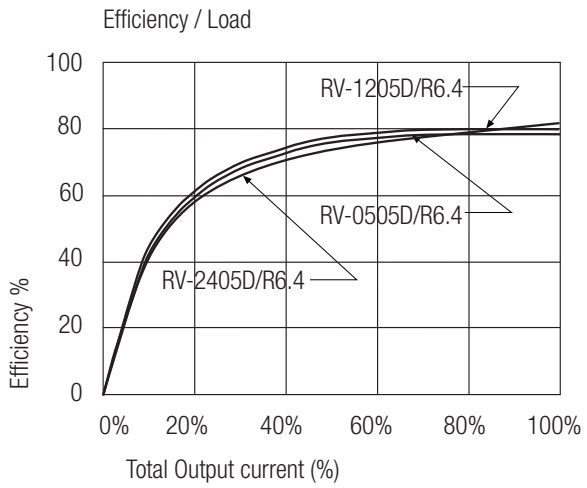
RV-xx05S/R6.4
RV-xx05S/R8

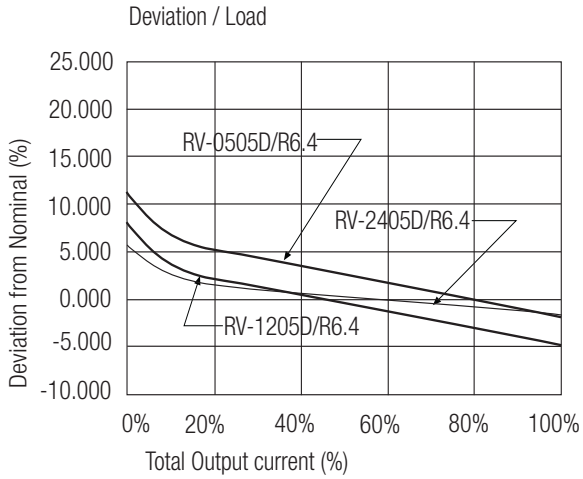




Typical Characteristics

RV-xx05D/R6.4
RV-xx05D/R8

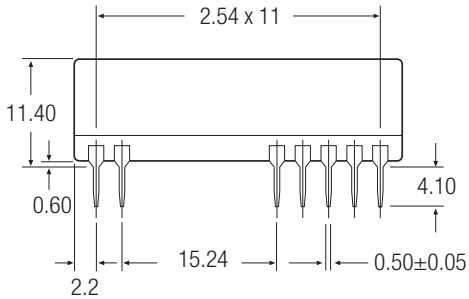


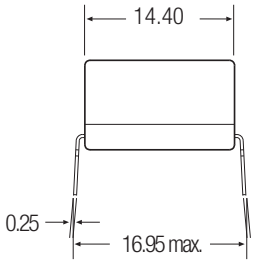


Package Style and Pinning (mm)

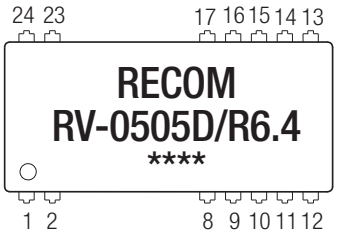
3rd angle projection

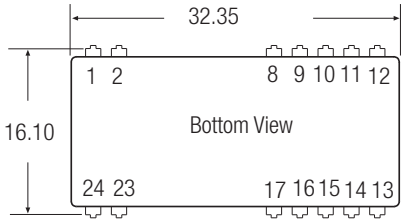
24 PIN DIP Miniature Package Style



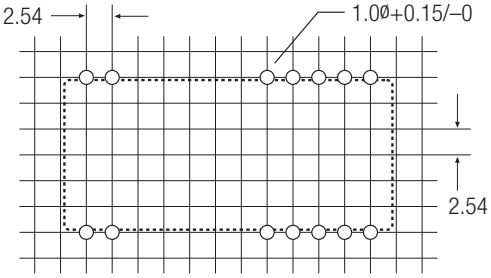


Single & Dual Output





Recommended Footprint Details



Top View

Pin Connections	
Pin #	**Single**
1	+Vin
2	-Vin
8, 9, 11, 14	NC
10, 15	-Vout
12 & 13	+Vout
16, 17, 23, 24	NC

NC = No Connection

Pin Connections	
Pin #	**Dual**
1	+Vin
2	-Vin
8, 17	-Vout
9, 11, 14,16, 23, 24	NC
10 & 15	Com
12, 13	+Vout

NC = No Connection

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

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.