

Technical Data Sheet Opto Interrupter EAITRCA1

Features

- Fast response time
- High analytic
- High sensitivity
- Cut-off visible wavelength $\lambda_P=940\text{nm}$
- Pb Free
- This product itself will remain within RoHS compliant version.

Description

The **EAITRCA1** consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing. The phototransistor receives radiation from the IR only. This is the normal situation. But when an object is in between, phototransistor could not receive the radiation.

Applications

- Mouse Copier
- Switch Scanner
- Floppy disk driver
- Non-contact Switching
- For Direct Board

Device Selection Guide

Device No.	Chip Material	LENS COLOR
IR	GaAlAs	Water clear
PT	Silicon	Water clear

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V _R	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1) Pulse width ≤100μs, Duty cycle=1%	I _{FP}	1	A
Output	Collector Power Dissipation	P _C	75	mW
	Collector Current	I _C	20	mA
	Collector-Emitter Voltage	B V _{CEO}	30	V
	Emitter-Collector Voltage	B V _{ECO}	5	V
Operating Temperature		Topr	-25~+85	°C
Storage Temperature		Tstg	-40~+85	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		Tsol	260	°C

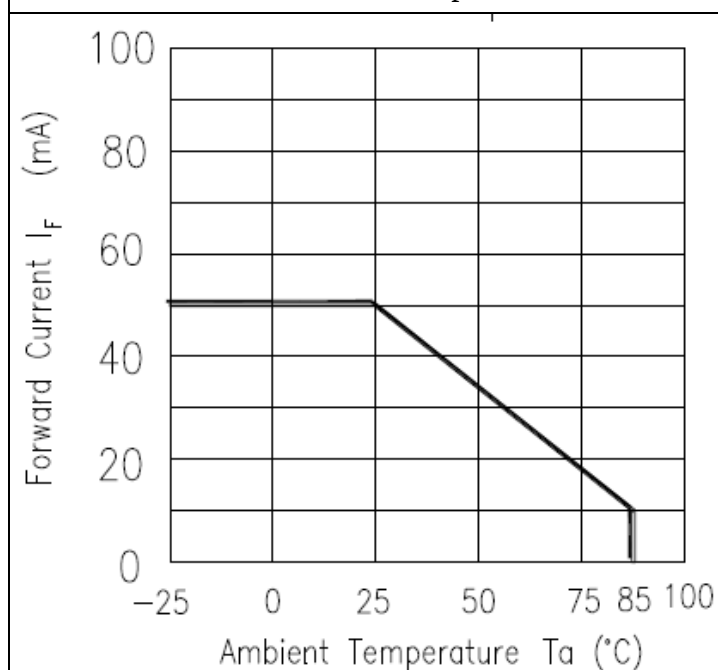
Notes: (* 1) tw=100 μsec. , T=10 msec. (* 2) t=5 Sec

Electro-Optical Characteristics (Ta=25°C)

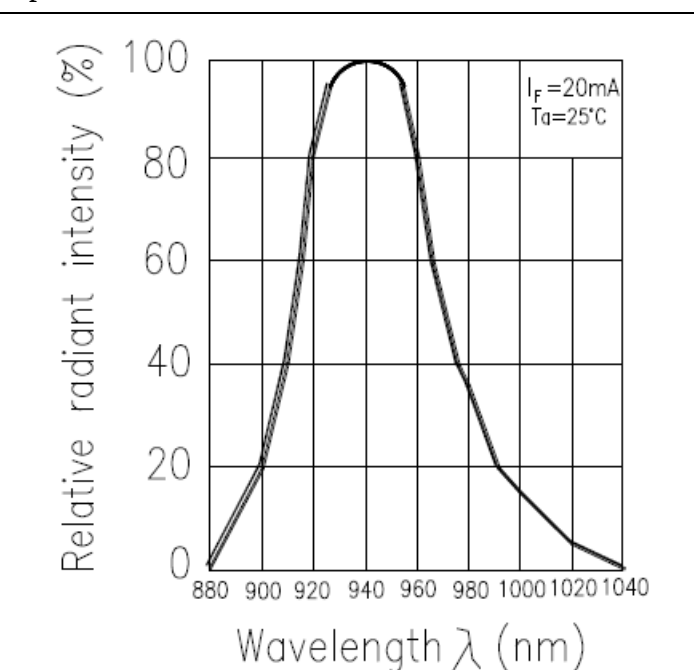
Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V_F	-	1.2	1.5	V	$I_F=20\text{mA}$
	Reverse Current	I_R	-	-	10	μA	$V_R=5\text{V}$
	Peak Wavelength	λ_P	-	940	-	nm	$I_F=20\text{mA}$
Output	Dark Current	I_{CEO}	-	-	100	nA	$V_{CE}=20\text{V}, E_e=0\text{mW/cm}^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_C=2\text{mA}, E_e=1\text{mW/cm}$
Collector Current (* 3)		$I_{C(ON)}$	0.9	-	15	mA	$V_{CE}=5\text{V}, I_F=20\text{mA}$
Response Time	Rise Time	t_R	-	15	-	μs	$V_{CE}=5\text{V} \quad I_C=1\text{mA} \quad R_L=1\text{K}\Omega$
	Fall Time	t_F	-	15	-	μs	

Typical Electrical/Optical/Characteristics Curves for IR

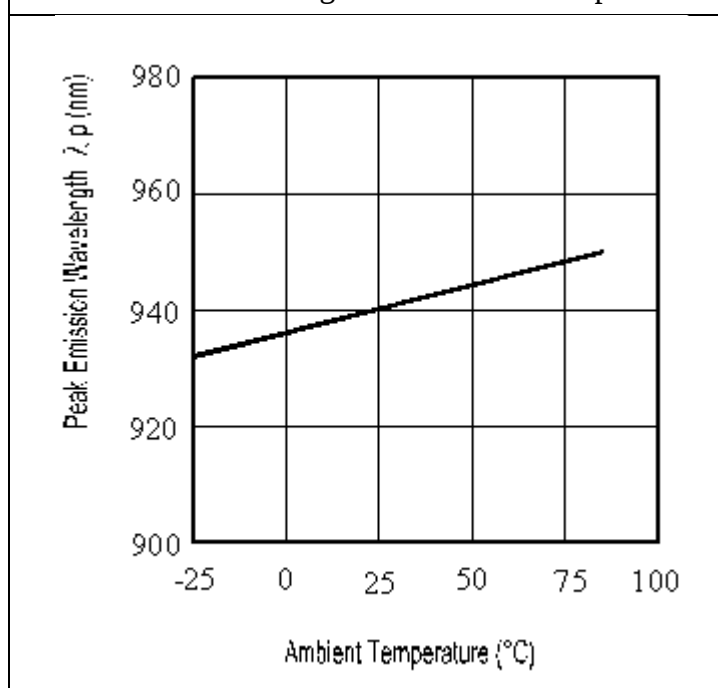
Forward Current vs. Ambient Temperature



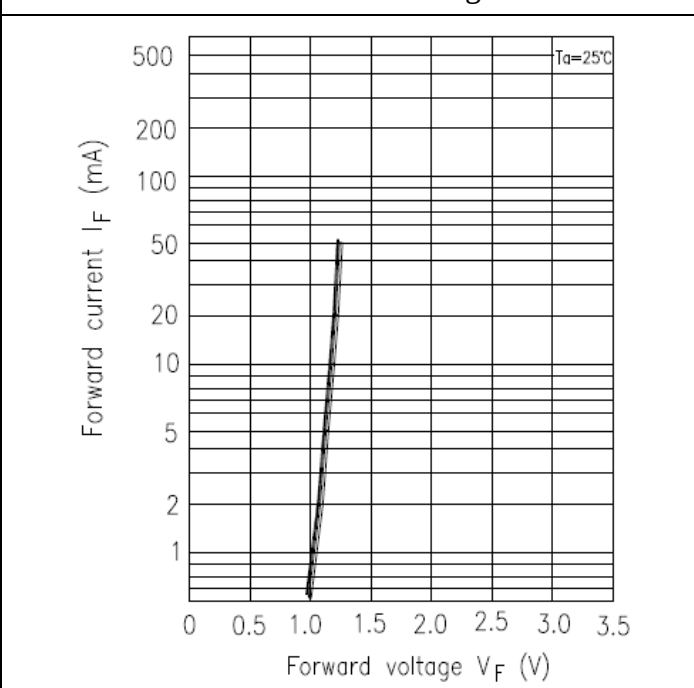
Spectral Distribution



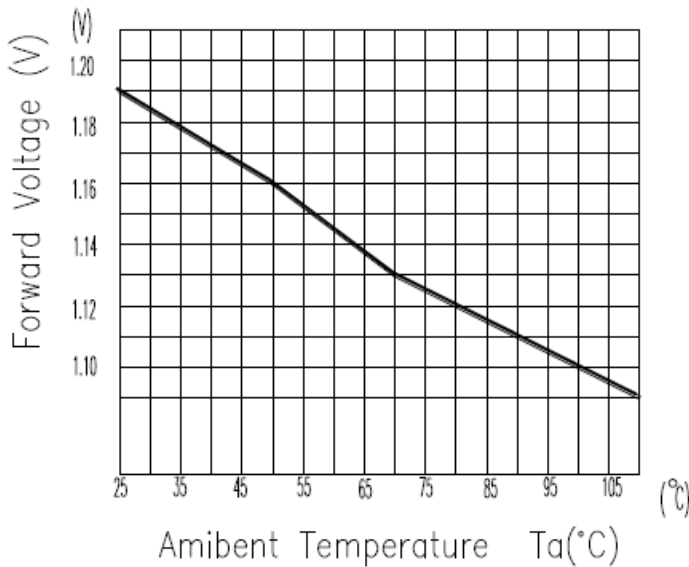
Peak Emission Wavelength vs. Ambient Temperature



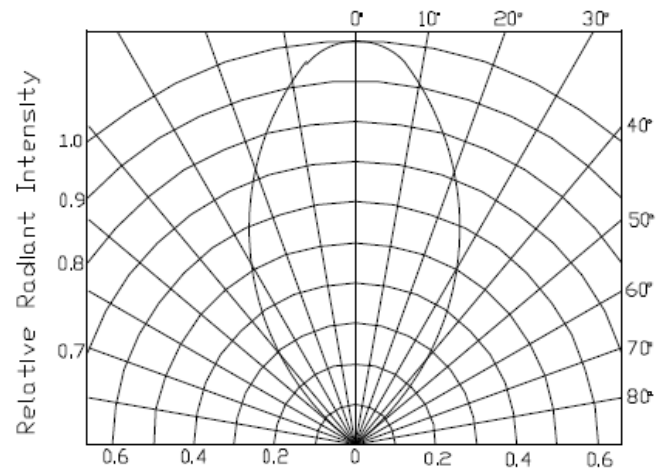
Forward Current vs. Forward Voltage



Forward Voltage vs. Ambient Temperature(°C)

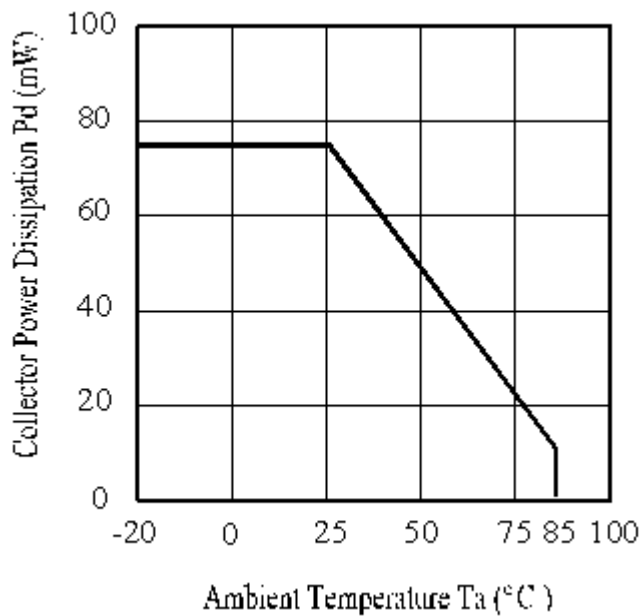


Relative Radiant Intensity vs. Angular Displacement

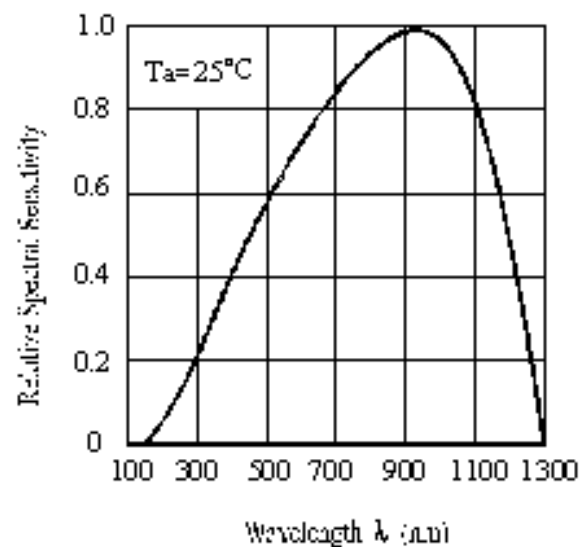


Typical Electro/Optical/Characteristics Curves for PT

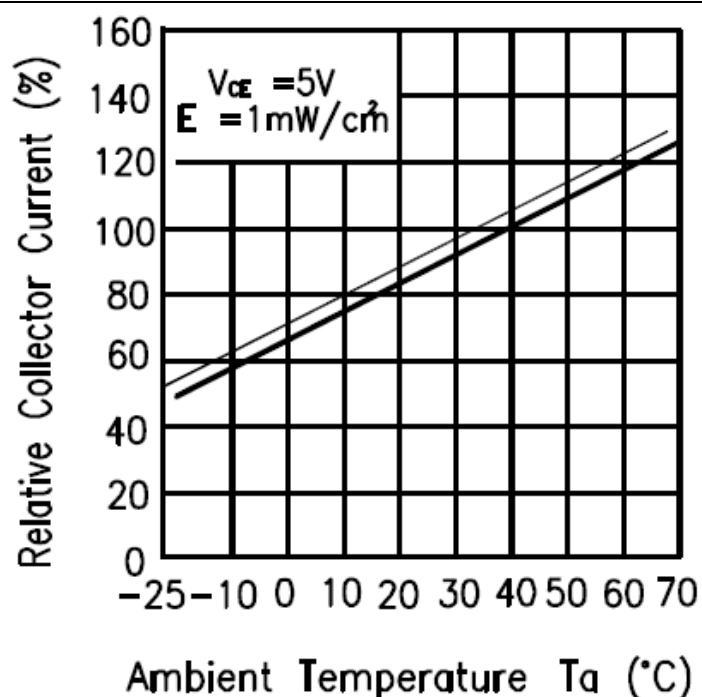
Collector Power Dissipation vs. Ambient Temperature



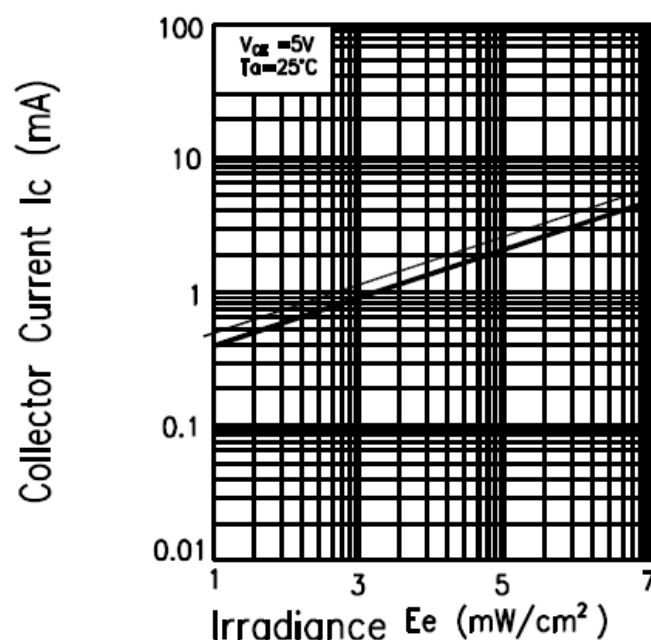
Spectral Distribution



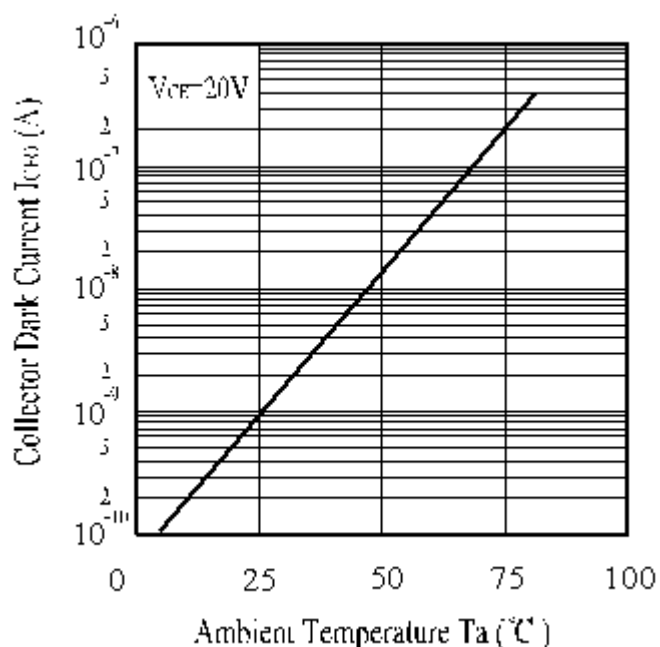
Relative Collector Current vs. Ambient Temperature



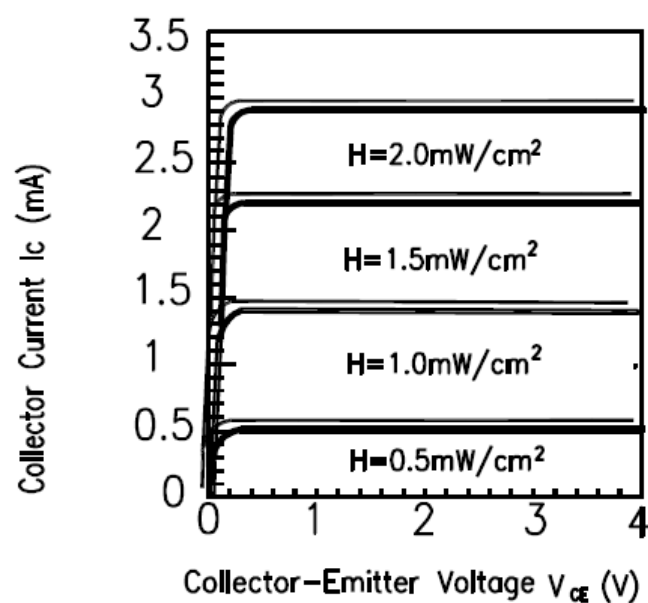
Collector Current vs. Irradiance



Collector Dark Current vs. Ambient Temperature



Collector Current vs. Collector-Emitter Voltage



Reliability Test Item And Condition

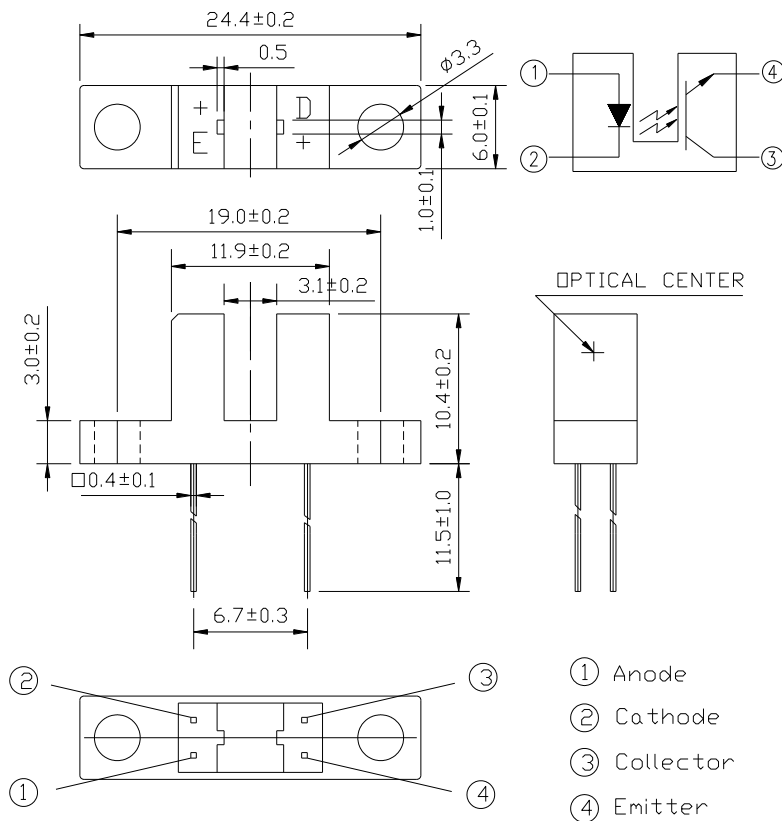
The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

NO.	Item	Test Condition	Test Hours/ Cycle	Sample Size	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5 °C	10 sec	22 PCs	$I_{c(on)} \leq L \times 0.8$ L : Lower specification limit	0/1
2	Temperature Cycle	H : +100°C 15 mins  5 min L : -40°C 15 min 	300 cycle	22 PCs		0/1
3	Thermal Shock	H : +100°C 5 min  10 sec L : -10°C 5 min 	300 cycle	22 PCs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000 hrs	22 PCs		0/1
5	Low Temperature Storage	TEMP. : -40°C	1000 hrs	22 PCs		0/1
6	DC Operating Life	V _{CE} =5V I _F =20mA	1000 hrs	22 PCs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 PCs		0/1

Package Dimension



1. All dimensions are in millimeters
2. Tolerances unless dimensions ± 0.2 mm
3. Lead spacing is measured where the lead emerge from the package
4. Above specification may be changed without notice. EVERLIGHT Americas will reserve authority on material change for above specification
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Packing Quantity Specification

1. 20pcs/1Tube, 100Tubes/1Box
2. 4Boxes/1Carton

Label Form Specification

The diagram shows a rectangular label with the following elements:

- Top Left:** A circular logo containing the letters "Pb".
- Top Center:** A rectangular box containing the text "EVERLIGHT AMERICA".
- Top Right:** A small empty circle.
- Below "Pb" logo:** The text "CPN: XXXXXXXXXXXX" followed by "P/N: XXXXXXXXXXXX".
- Below P/N:** A barcode.
- Below barcode:** The text "XXXXXXXXXXXXXXXXXXXXX".
- Below text:** The text "QTY: XXXX" followed by "CAT: XXX".
- Below QTY:** A barcode.
- Below barcode:** The text "LOT NO: XXXXXXXXXXXXXXXXXXXXX".
- Below LOT NO:** A barcode.
- Below LOT NO barcode:** The text "REFERENCE: XXXXXXXXXXXX".
- Below REFERENCE:** A barcode.
- Bottom Center:** The text "MADE IN TAIWAN".
- Right Side:** A small rectangular box containing the text "RoHS".

- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number
- X: Month
- Reference: Identify Label Number

Notes

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- 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;
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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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