

Technical Data Sheet Opto Interrupter EAITRDA6

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 **EAITRDA6** consists of an infrared emitting diode and an NPN silicon phototransistor, encased oblique angle (45°) on converging optical axis in a black Thermo-plastic housing. The phototransistor receives radiation from the IRED only, and avoids the noise from ambient light.

Applications

- Copier
- Scanner
- Non-contact Switching
- For Direct PC Board

Device Selection Guide

Device No.	Chip Material	LENS COLOR
IR	GaAlAs	Blue
PT	Silicon	Black

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

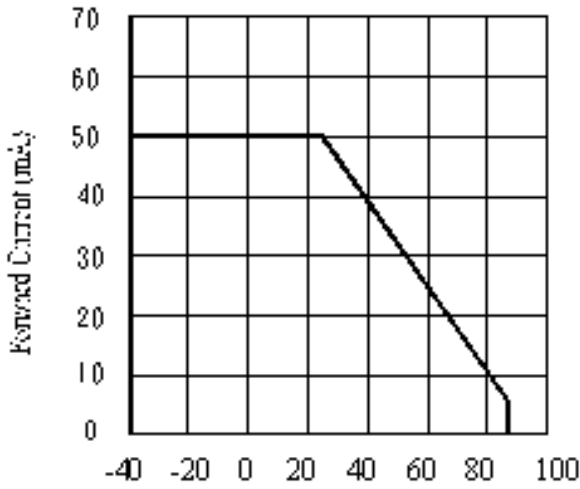
Notes: (* 1) $t_w=100\ \mu\text{sec.}$, $T=10\ \text{msec.}$ (* 2) $t=5\ \text{Sec}$

Electro-Optical Characteristics (Ta=25°C)

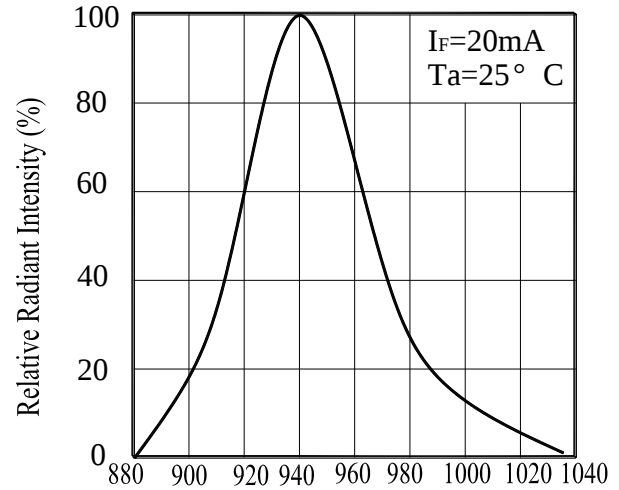
Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V_{F1}	-	1.2	1.5	V	$I_F=20mA$
		V_{F2}	-	1.4	1.85		$I_F=100mA$
		V_{F3}	-	2.6	4.0		$I_F=1A$
	Reverse Current	I_R	-	-	10	μA	$V_R=5V$
	Peak Wavelength	λ_p	-	940	-	nm	$I_F=20mA$
Output	Dark Current	I_{CEO}	-	-	100	nA	$V_{CE}=20V, E_e=0mW/cm^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_C=2mA, E_e=1mW/cm$
Collector Current(* 3)		$I_{C(ON)A}$	100	-	300	μA	$V_{CE}=5V, I_F=20mA$
		$I_{C(ON)B}$	200	-	600	μA	
		$I_{C(ON)C}$	400	-	1200	μA	
Response Time	Rise Time	t_R	-	15	-	μs	$V_{CE}=5V, I_C=1mA, R_L=1K\Omega$
	Fall Time	t_F	-	15	-	μs	

Typical Electrical/Optical/Characteristics Curves for IR

Forward Current vs. Ambient Temperature

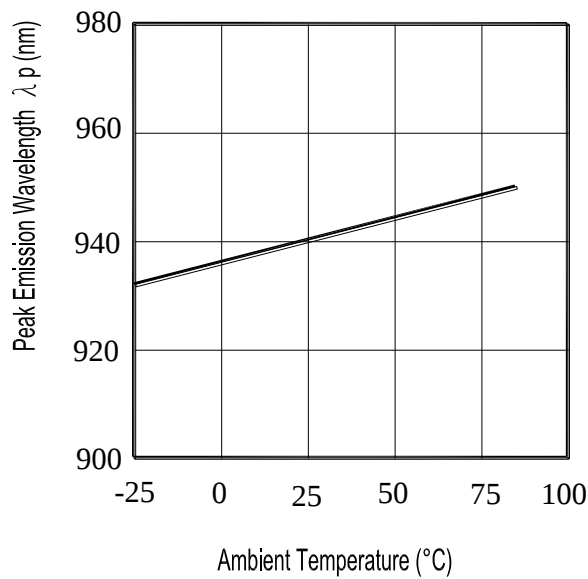


Spectral Distribution

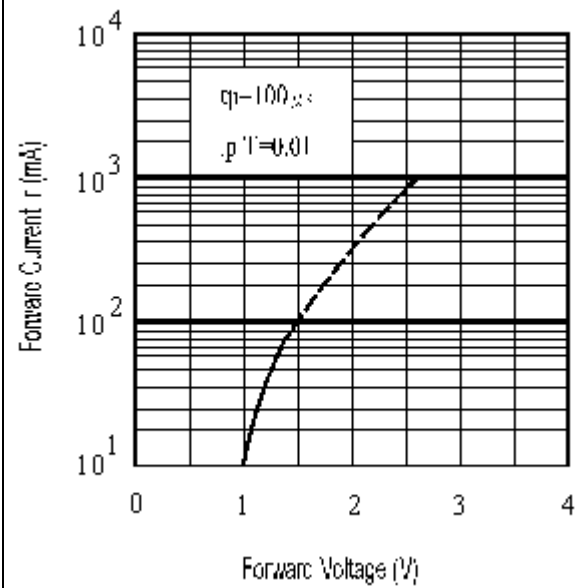


Wavelength λ (nm)

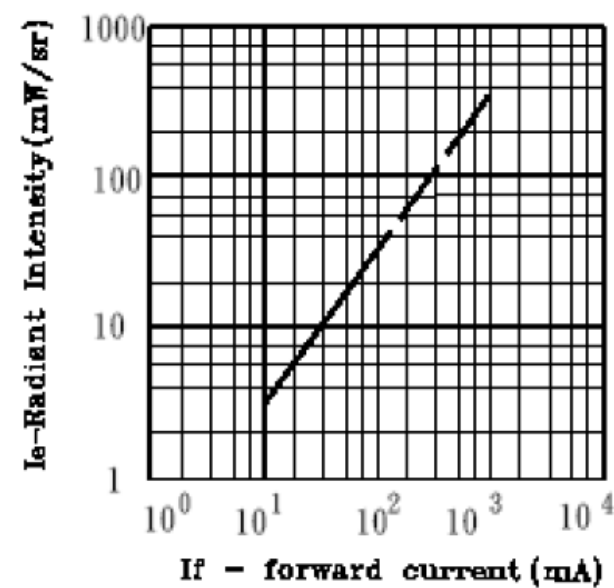
Peak Emission Wavelength vs. Ambient Temperature



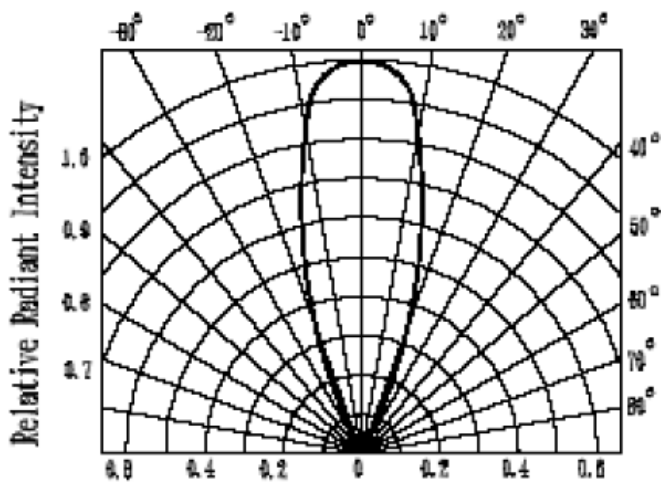
Forward Current vs. Forward Voltage



Radiant Intensity vs. Forward Current

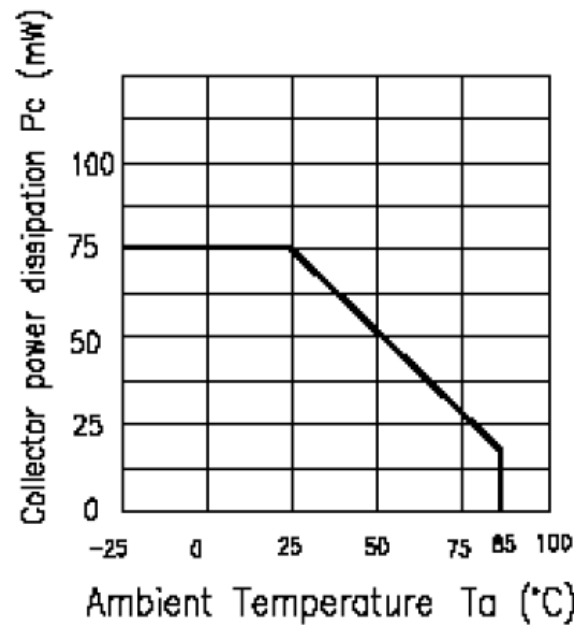


Relative Radiant Intensity vs. Angular Displacement

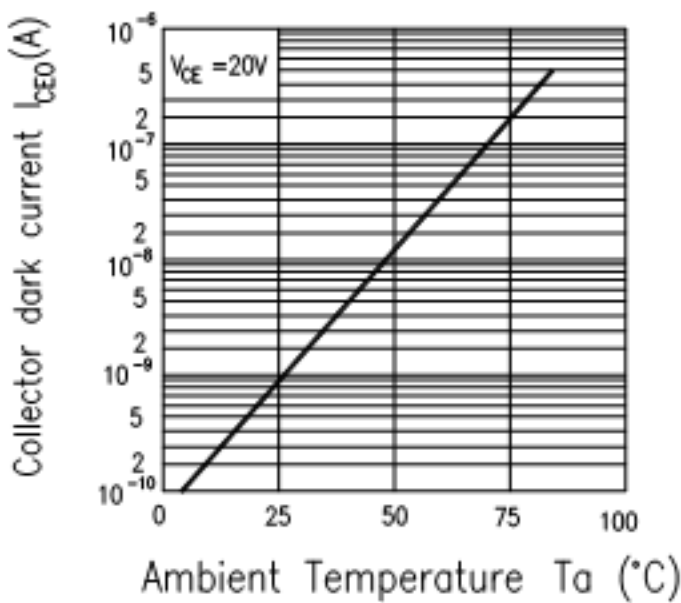


Typical Electro/Optical/Characteristics Curves for PT

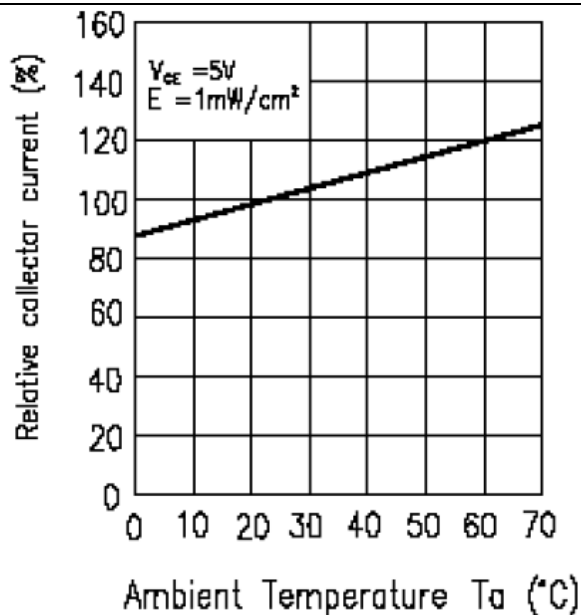
Collector Power Dissipation vs. Ambient Temperature



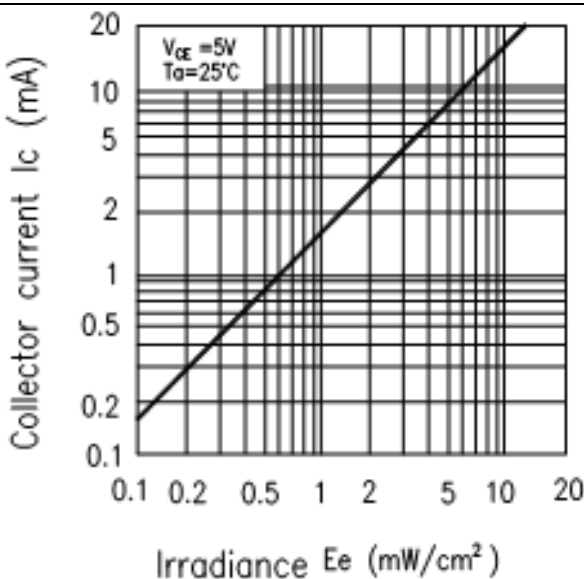
Relative Collector Current vs. Ambient Temperature



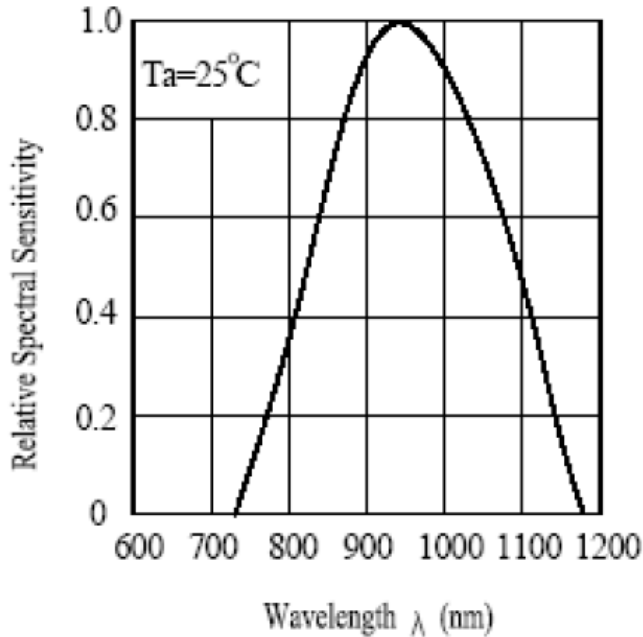
Relative collector current vs. Ambient Temperature



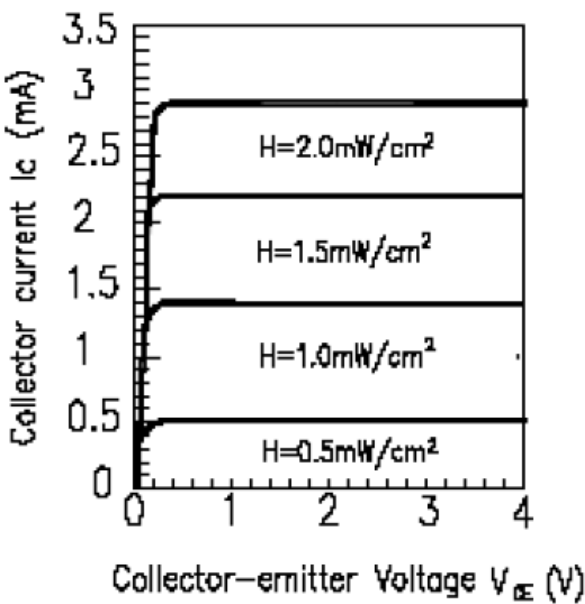
Collector Current vs. Irradiance



Relative Sensitivity vs. Wavelength



Collector current vs. Collector-Emitter Voltage



Reliability Test Item And Condition

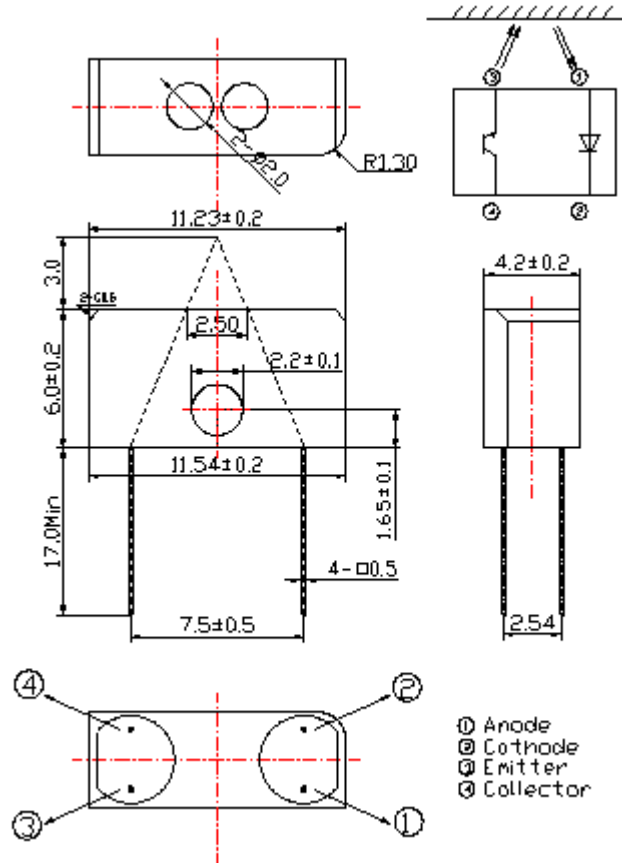
The reliability of products shall be satisfied with items listed below.

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



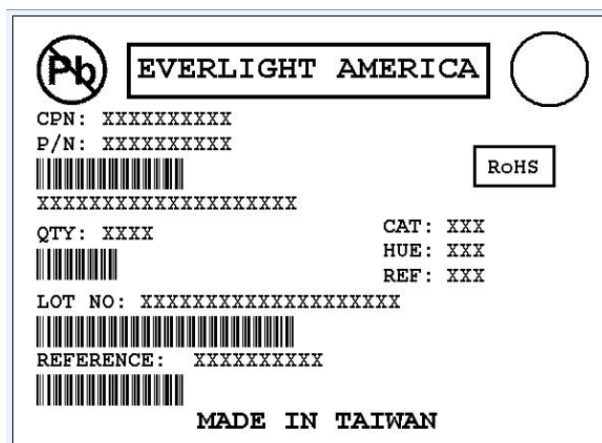
Notes:

1. All dimensions are in millimeters
2. Tolerances unless dimensions $\pm 0.2 \text{ mm}$
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
5. These specification sheets include materials protected under copyright of EVERLIGHT Americas corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's Americas consent
6. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERIGHT Americas assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.

Packing Quantity Specification

1. 150 pcs/1bag , 5 bags/1box
2. 10 boxes/1carton

Label Form Specification



The label form is rectangular with a thin border. At the top left is a circular logo with 'Pb' inside. To its right is a rectangular box containing the text 'EVERLIGHT AMERICA'. Further right is a small empty circle. Below the logo, the text 'CPN: XXXXXXXXXXXX' is printed. Below that is 'P/N: XXXXXXXXXXXX' followed by a barcode. To the right of the barcode is a small rectangular box containing 'RoHS'. Below the barcode is a line of 16 'X' characters. Below that is 'QTY: XXXX' followed by a barcode. To the right of the barcode is 'CAT: XXX'. Below the barcode is 'LOT NO: XXXXXXXXXXXXXXXXXXXX' followed by a barcode. To the right of the barcode is 'HUE: XXX'. Below the barcode is 'REFERENCE: XXXXXXXXXXXX' followed by a barcode. To the right of the barcode is 'REF: XXX'. At the bottom center, the text 'MADE IN TAIWAN' is printed.

- 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

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