

Technical Data Sheet

Opto Interrupter

EAITRCA0

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 **EAITRCA0** 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 LED only .This is the normal situation.

But when an object is in between , phototransistor could not receives the radiation.

For additional component information , please refer to IR and PT.

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

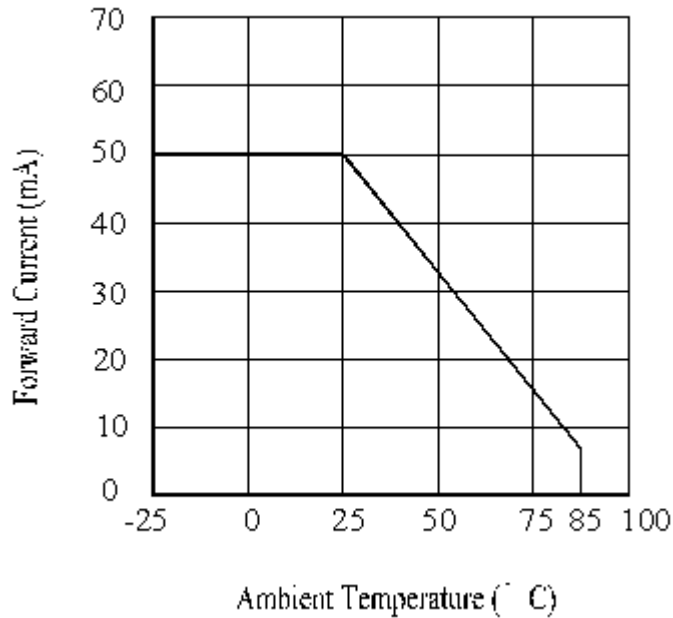
Notes: (* 1) tw=100 μsec. , T=10 msec. (* 2) t=5 Sec

Electro-Optical Characteristics (Ta=25°C)

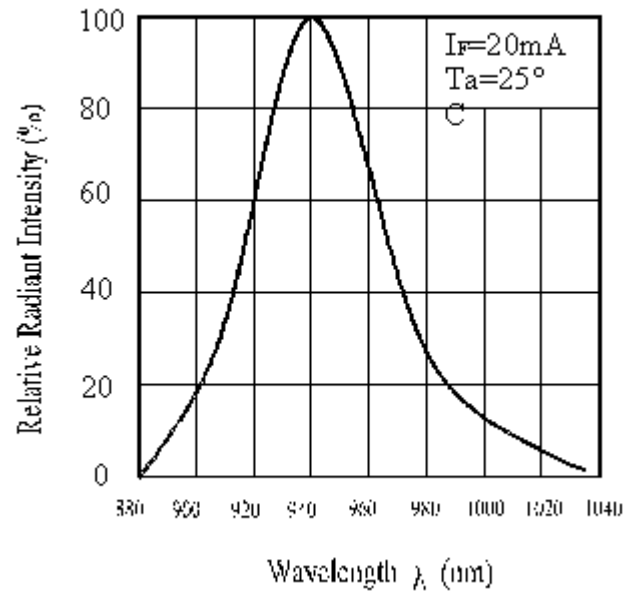
Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V_F	-	1.2	1.5	V	$I_F=20\text{mA}$
	Reverse Current	I_R	-	-	10	μA	$V_R=5\text{V}$
	Peak Wavelength	λ_p	-	940	-	nm	$I_F=20\text{mA}$
Output	Dark Current	I_{CEO}	-	-	100	nA	$V_{CE}=20\text{V}, E_e=0\text{mW/cm}^2$
	C-E Saturation Voltage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

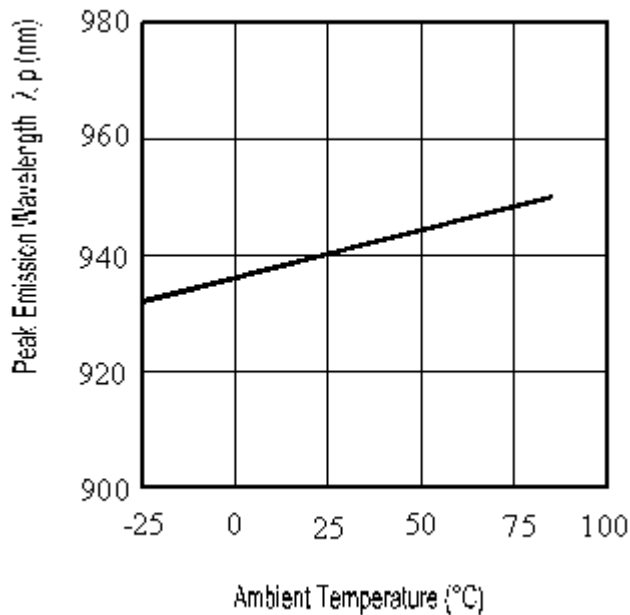
Forward Current vs. Ambient Temperature



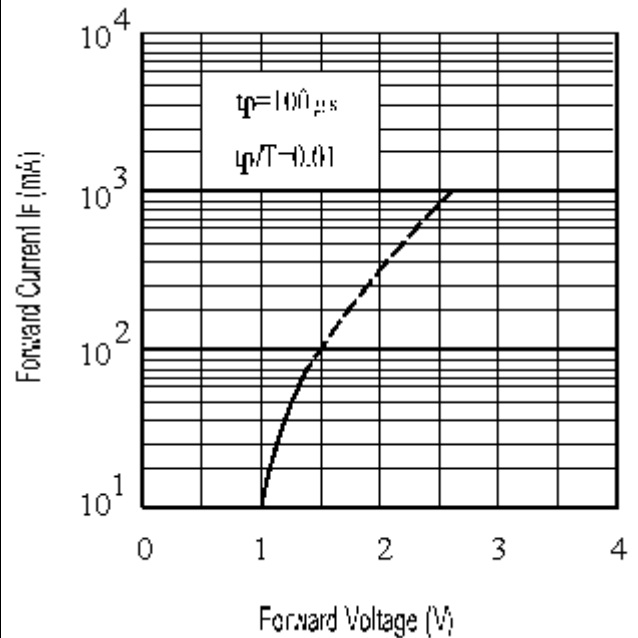
Spectral Distribution

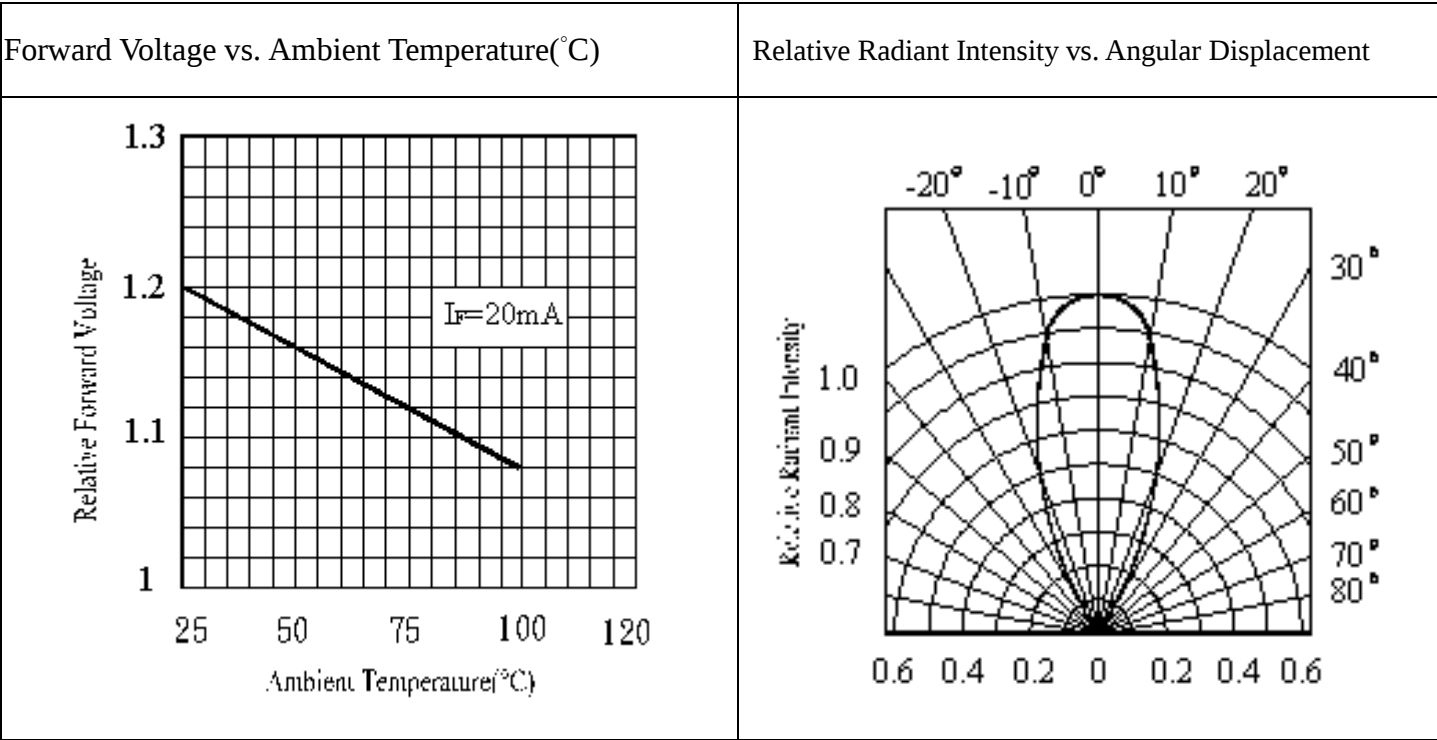


Peak Emission Wavelength vs. Ambient Temperature

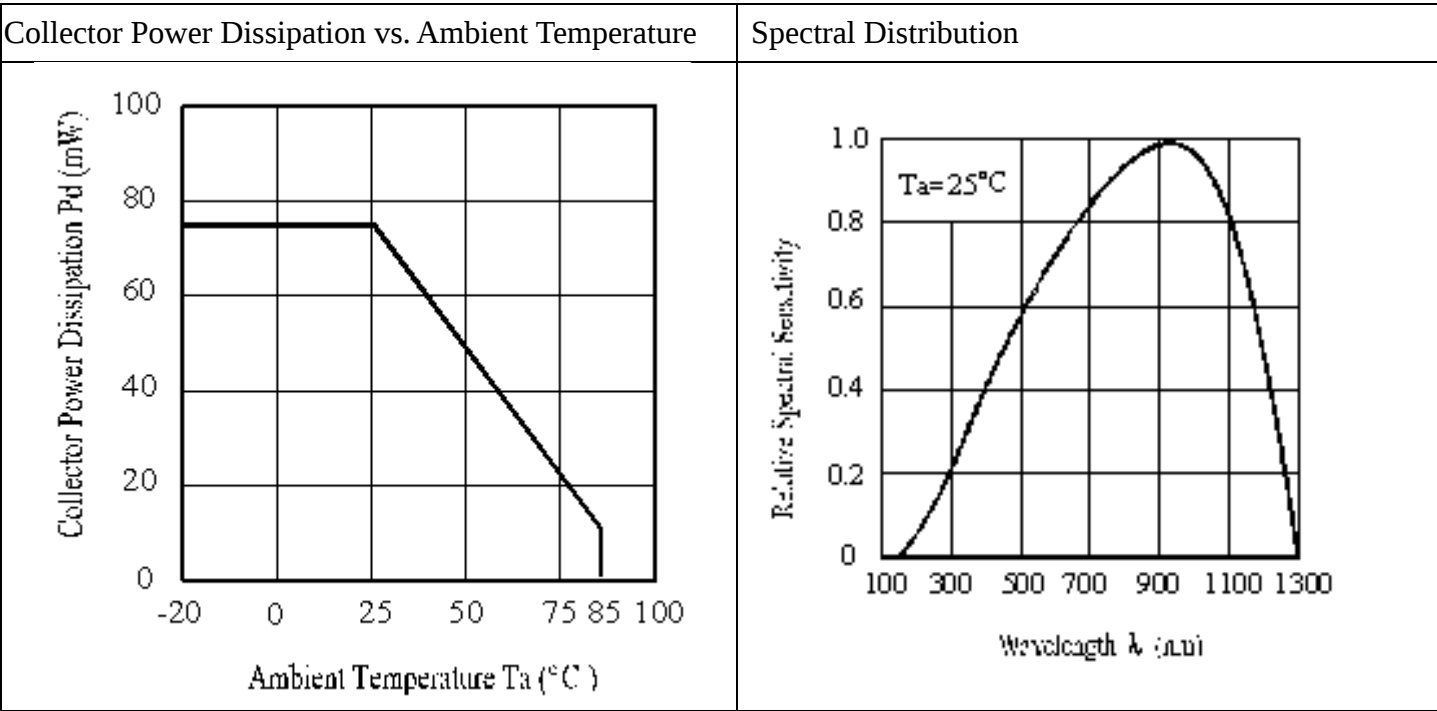


Forward Current vs. Forward Voltage

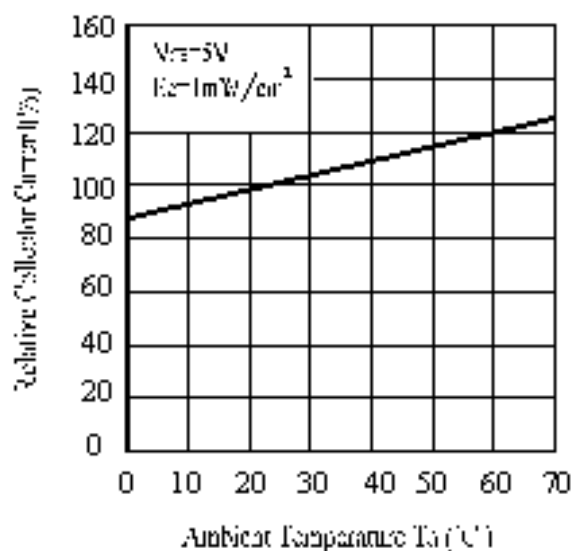




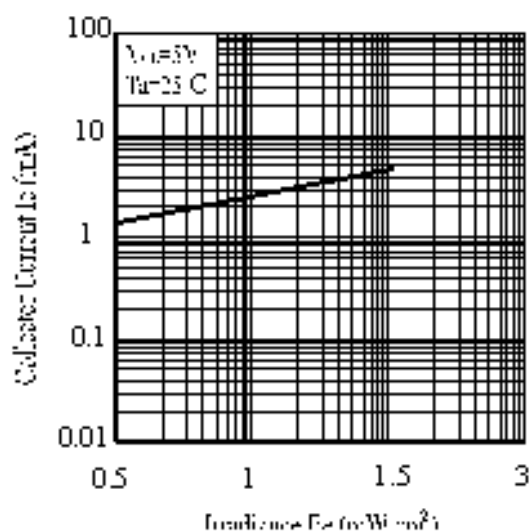
Typical Electro/Optical/Characteristics Curves for PT



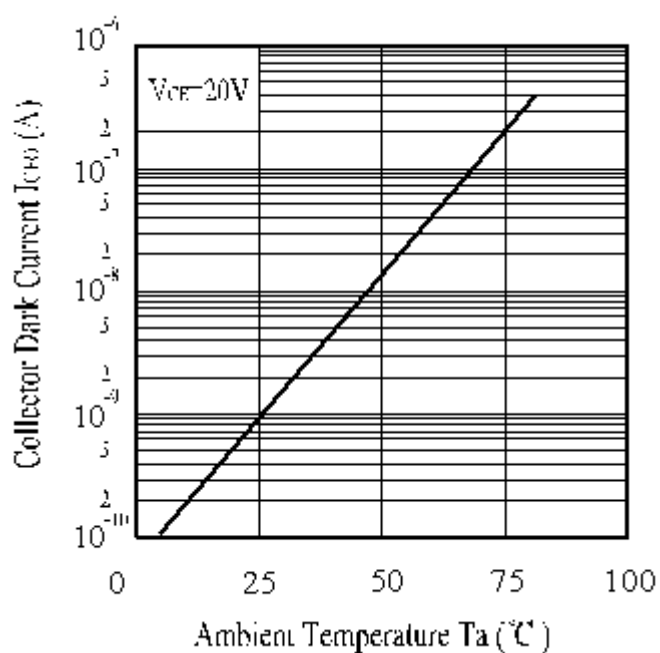
Relative Collector Current vs. Ambient Temperature



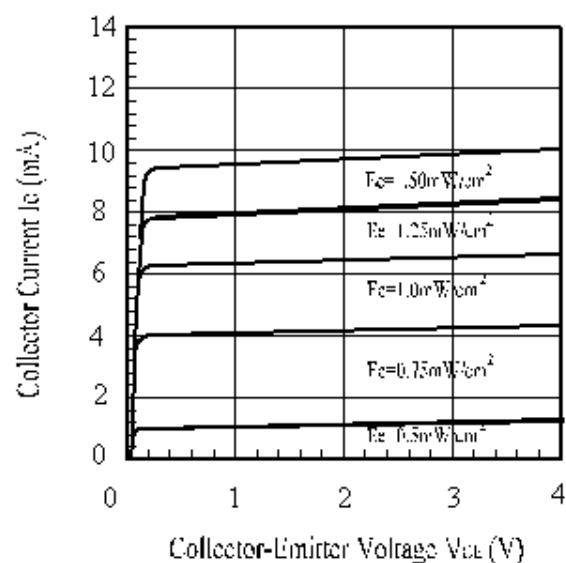
Collector Current vs. Irradiance



Collector Dark Current vs. Ambient Temperature



Collector Current vs. Collector-Emitter Voltage



Reliability Test Item And Condition

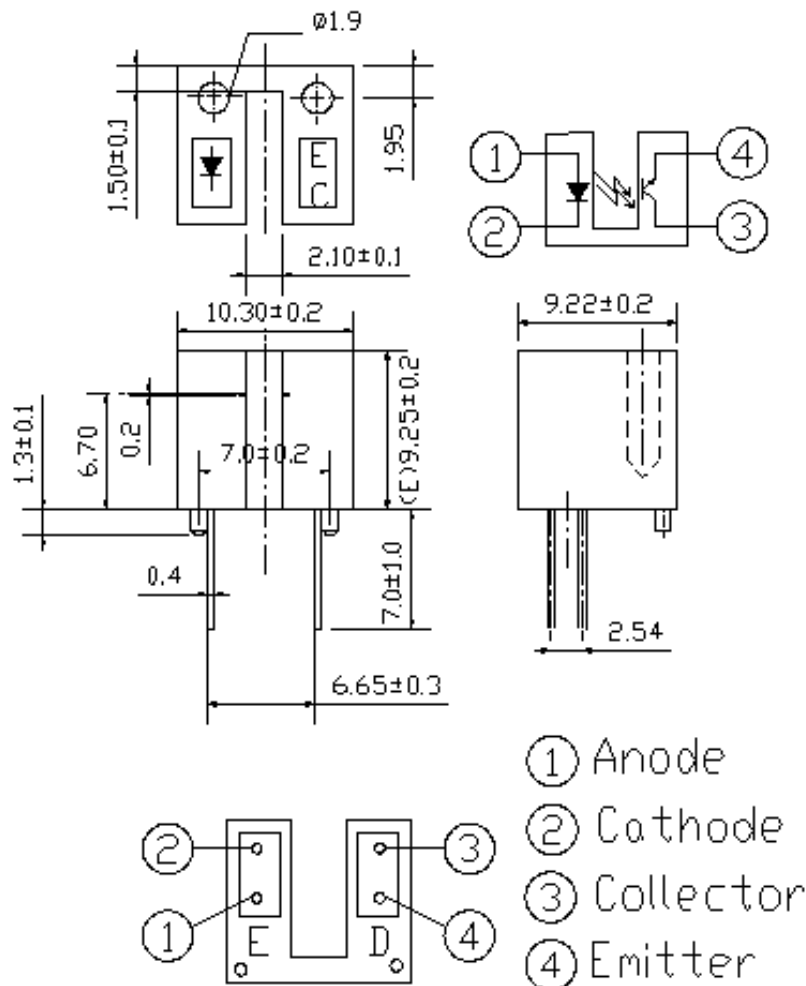
The reliability of products shall be satisfied with items listed below.

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



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
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Packing Quantity Specification

1. 80PCS/1Plate,6Plate/1Boxe
2. 10 boxes/1carton

Label Form Specification

The diagram shows a rectangular label with the following elements:

- Top Left:** A circular logo with the letters "Pb" inside.
- 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 XXXXXXXX:** 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 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

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