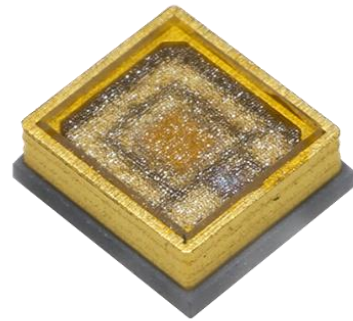


IR Laser

EDVCSEL 3235 940nm 8W(Time of Flight)

DATASHEET

Edison offers VCSEL solutions for 3D sensing, AGV logistics, smart factories, and wearables. High-power VCSELs enable ToF and structured light, while low-power VCSELs suit biometric sensing and beauty devices. Edison ensures precision, efficiency, and reliability across industries.



Features

- Vertical Cavity Surface Emitting Laser (VCSEL) Technology.
- Various Rectangle Emitting Light Pattern.
- Compact Package Size: 3.2×3.5×1.45mm.
- Narrow spectral width (< 4 nm typ.).
- High Power Applications.
- Photodiode Detection Mechanism.
- High Reliability.

Applications

- 3D TOF Applications.
- Gesture.
- Distance Detection.
- Infrared Uniform Lighting.

Table of Contents

Ordering Code Format.....	2
Product Code Information.....	2
Optical and Electrical Characteristics.....	3
Temperature-dependent Characteristics.....	4
Emitting Angle (Field of View) Categories.....	4
Mechanical Dimensions.....	5
Typical Electrical/Optical/Characteristics.....	6
Product Packaging Information.....	8
Reflow Profile.....	9
Label Information.....	10
Precaution for Use.....	11
Environmental Compliance.....	11
Datasheet History.....	11
About EDISON OPTO.....	12

General Information

Ordering Code Format

<u>R</u>	<u>V</u>	<u>IC</u>	<u>20</u>	<u>L7</u>	<u>T7</u>	<u>XXXX</u>	<u>04</u>
X1	X2	X3-X4	X5-X6	X7-X8	X9-X10	X11-X14	X15-X16
X1 Type		X2 Component		X3-X4 Substrate		X5-X6 Series	
R	Infrared	V	EDVCSEL	IC	Ceramics	20	3235
X7-X8 code		X9-X10 Wavelength		X11-X14 Beam angle		X15-16 code	
-	-	T7	940nm	6045	60°x45°	-	-
				8767	87°x67°		
				B090	110°x90°		

Product Code Information

Part No.	Description
RVIC20L7T7604504	EDVCSEL_3235(TOF)_940nm(TJ)_60x45_1.5A
RVIC20L7T7876704	EDVCSEL_3235(TOF)_940nm(TJ)_87x67_1.5A
RVIC20L7T7B09004	EDVCSEL_3235(TOF)_940nm(TJ)_110x90_1.5A

Optical and Electrical Characteristics

at room temperature, $T_a=25^\circ\text{C}$

Parameter	Symbol	Operating Pulse Condition	Value			Units
			Min.	Typ.	Max.	
Radiant Power	P_o	$I_F=1.5\text{A}, t_p=500\mu\text{s}$	-	2,700	-	mW
Threshold Current	I_{th}	-	-	500	-	mA
Forward Voltage	V_F	$I_F=1.5\text{A}, t_p=500\mu\text{s}$	4.35	4.55	4.75	V
Slope Efficiency	η_s	$I_F=1.5\text{A}, t_p=500\mu\text{s}$	-	2.7	-	W/A
Power Conversion Efficiency	PCE	$I_F=1.5\text{A}, t_p=500\mu\text{s}$	35	40	45	%
Center Wavelength	λ_c	$I_F=1.5\text{A}, t_p=500\mu\text{s}$	930	940	950	nm
Spectral Width (FWHM)	-	$I_F=1.5\text{A}, t_p=500\mu\text{s}$	-	4	6	nm
Chip Via Numbers	-	-	-	180	-	-
PD Forward Voltage	V_{FPD}	$I_{FPD}=10\text{mA}$	0.5	-	1.3	V
PD Reverse Breakdown Voltage	V_{BRPD}	$I_{RPD}=100\mu\text{A}$	35	-	-	V
PD Reverse Dark Current	I_D	$V_{RPD}=10\text{V}$	-	0.2	10	nA
Light Current	I_L	$V_g=5\text{V}, 1\text{mW}/\text{cm}^2$	-	0.85	-	mA
PD Junction Capacitance	C_J	$V_{RPD}=3\text{V}, F=1\text{MHZ}$	-	0.5	-	pF
PD Peak Sensing Wavelength	-	-	-	940	-	nm

NOTE:

1. Forward Voltage tolerance is $\pm 0.1\text{ V}$
2. Optical output power tolerance is $\pm 10\%$.
3. The pulse operation was tested on good thermal management with 2.25 cm^2 MCPCB.

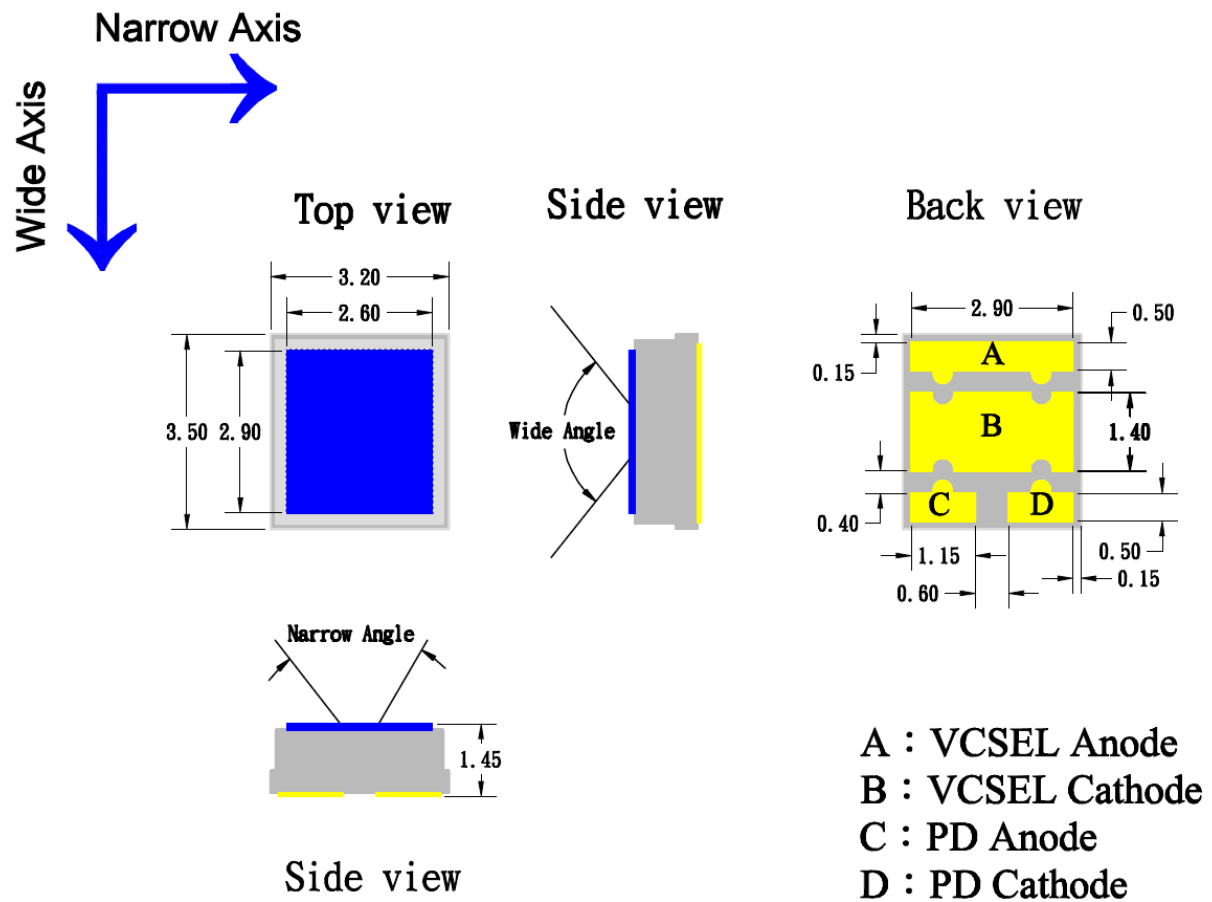
Temperature-dependent Characteristics

Parameter	Symbol	Operating Condition	Value			Units
			Min.	Typ.	Max.	
Wavelength Shift	$\Delta\lambda/\Delta T$	25~100°C	-	0.08	-	nm/°C
Output Power Decay	$\Delta P_o/\Delta T$	25~100°C	-	-0.52	-	mW/°C
Forward Voltage Decay	$\Delta V_F/\Delta T$	25~100°C	-	-0.0017	-	V/°C

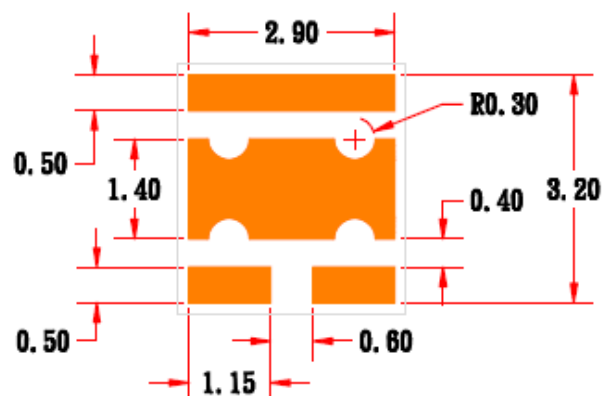
Emitting Angle (Field of View) Categories

Emitting Angle (Rectangle)	Lens Type (Material)	Order Code	Note
60° × 45°	MLA (Glass)	RVIC20L7T7604504	H=1.45
87° × 67°	MLA (Glass)	RVIC20L7T7876704	H=1.45
110° x 90°	MLA (Glass)	RVIC20L7T7B09004	H=1.45

Mechanical Dimensions



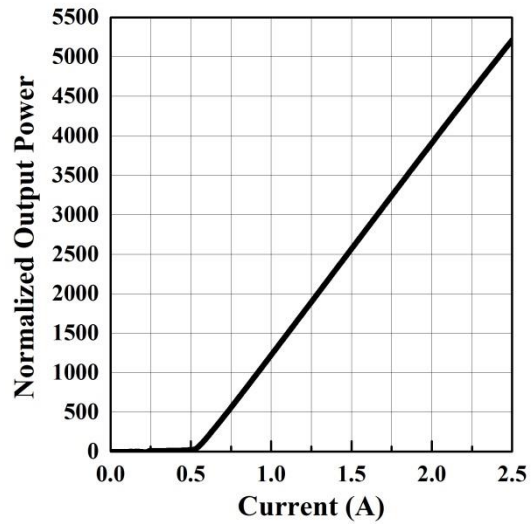
Recommended Soldering Pad:



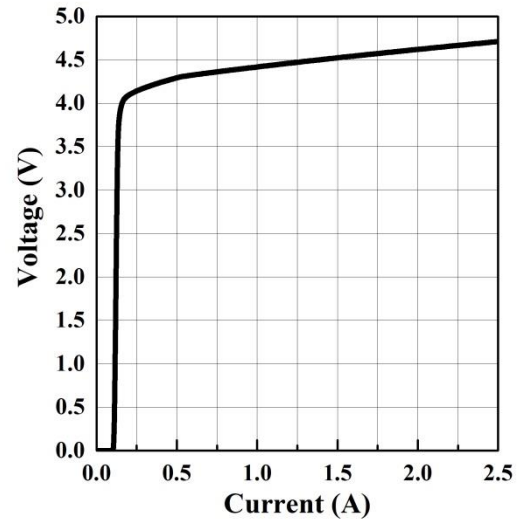
Unit: mm
 Tolerance: $\pm 0.15\text{mm}$

Typical Electrical/Optical/Characteristics

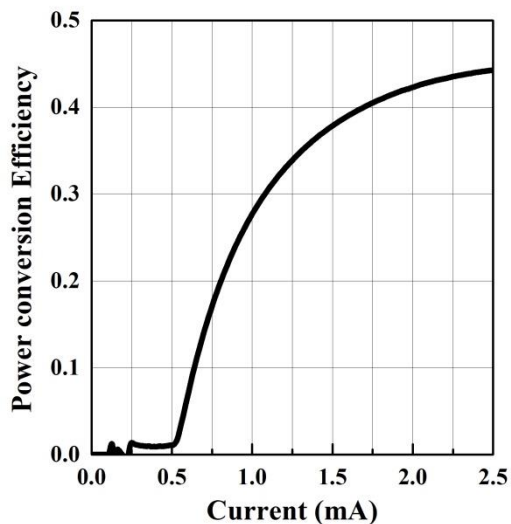
■ Radiant Power vs. Current



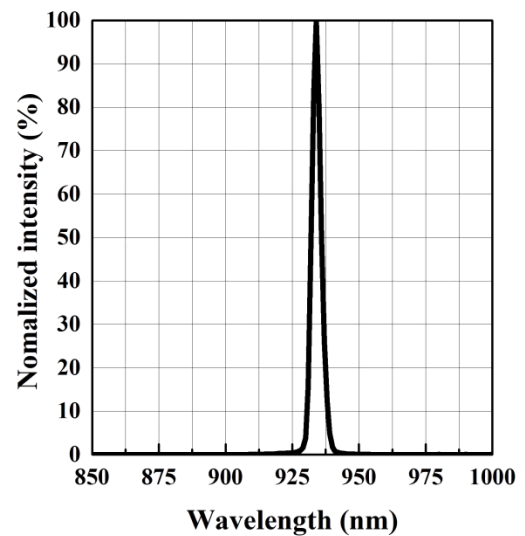
■ Voltage vs. Current



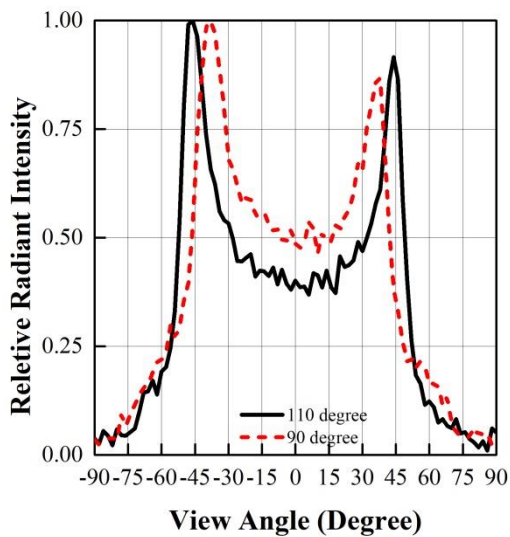
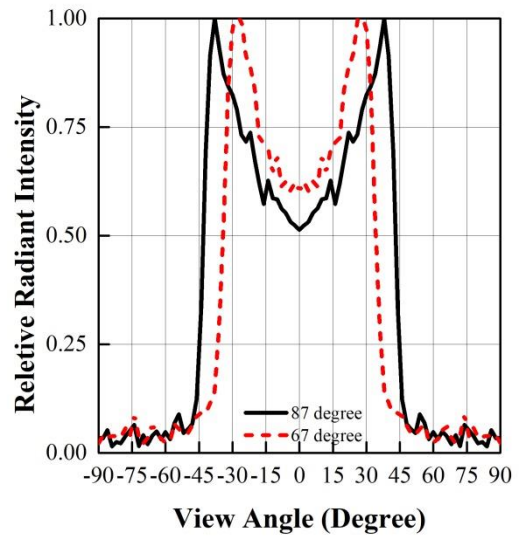
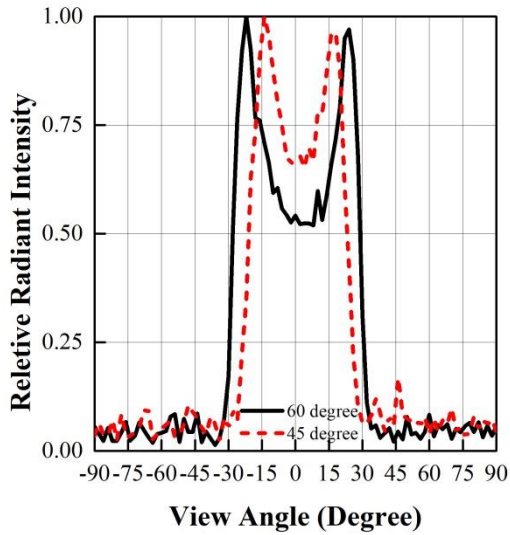
■ Power Conversion Efficiency (PCE)



■ Emission Spectrum

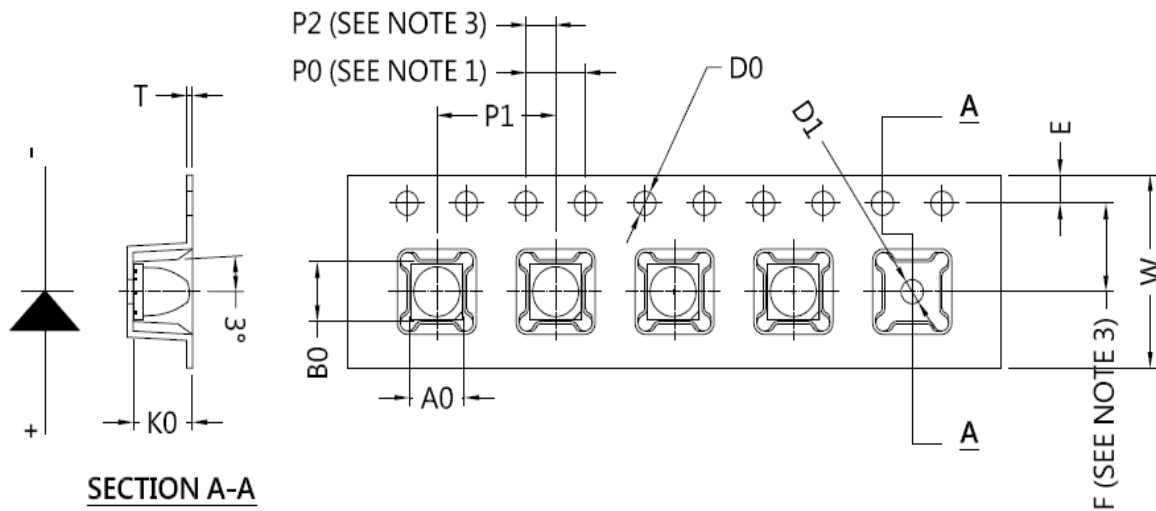


■ Emitting Angle



Product Packaging Information

Unit: mm



Symbol	Ao	Bo	Ko	P0	P1	P2
Spec	3.80±0.10	3.80±0.10	2.70±0.10	4.00±0.10	8.00±0.10	2.00±0.10
Symbol	E	F	D0	D1	W	T
Spec	1.75±0.10	5.50±0.10	Ø1.50±0.10	Ø1.50±0.10	12.0±0.30	0.30±0.05

Note:

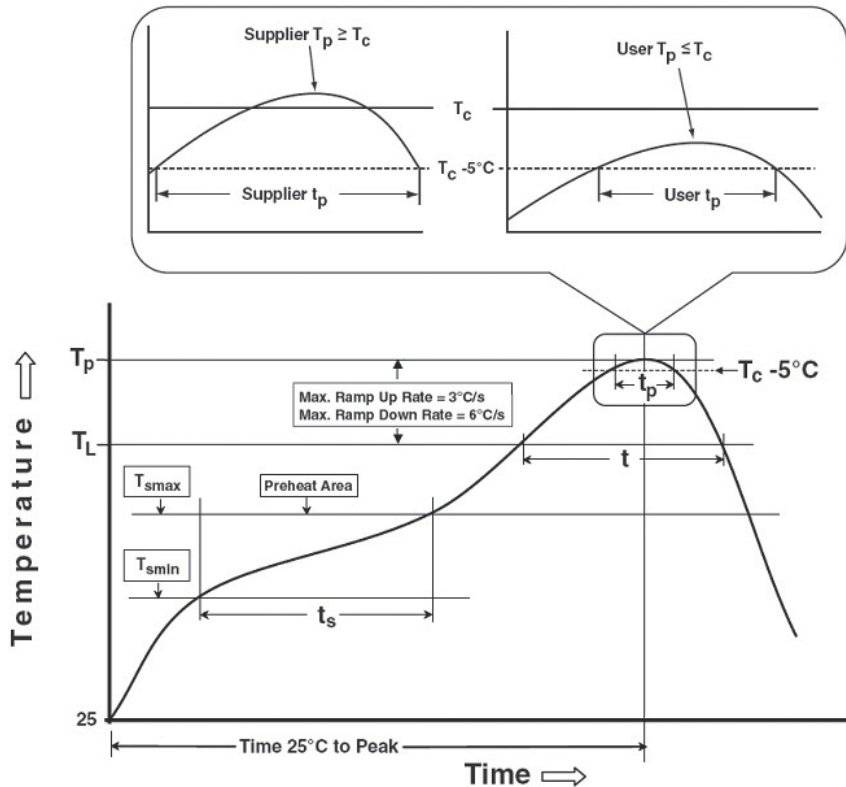
1. 10 sprocket hole pitch cumulative tolerance ± 0.2
2. Camber in compliance with EIA 481
3. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Item	Quantity	Total	Dimensions(mm)
Reel	600pcs	600pcs	D-178

Starting with 100pcs empty, and 200pcs empty at the last


Reflow Profile

The following reflow profile is from IPC/JEDEC J-STD-020D which provided here for reference.



Profile Feature	Pb-Free Assembly
Preheat & Soak	
Temperature min (T_{smin})	150°C
Temperature max (T_{smax})	200°C
Time (T_{smin} to T_{smax}) (t_s)	90-120 seconds
Average ramp-up rate (T_{smax} to T_p)	$3^\circ\text{C/second max.}$
Liquidous temperature (T_L)	220°C
Time at liquidous (t_L)	35-70 seconds
Peak package body temperature (T_p)	$240^\circ\text{C} \sim 245^\circ\text{C}$
Classification temperature (T_c)	240°C
Average ramp-down rate (T_p to T_{smax})	$6^\circ\text{C/second max.}$
Time 25°C to peak temperature	8 minutes max.

Label Information

①	PN:	RNFC0613D4B0B003
②	Bin Code:	1285027
③	Power:	1200-1400 mW
④	Wavelength:	840-860 nm
⑤	Voltage:	2.85-3.25 V
⑥	QTY:	600 PCS
⑦	Serial No:	1122000028-S26 TS4082790001
		RoHS 

Number	Item	Remark
①	PN	Part Number (Refer to Page 2)
②	Bin code	Batch Information
③	Power	Radiant Power
④	Wavelength	Product Specifications
⑤	Voltage	Product Specifications
⑥	QTY	Quantity
⑦	Serial No	Manufacturing Order
⑧	QR Code	① ~ ⑦.

Precaution for Use

1. Specifications and technical data may be modified without notice. Performance graphs are illustrative; actual results require validation.
2. EDISON disclaims liability for all damages (direct, indirect, incidental, consequential) arising from product use, including personal injury, profit loss, or business disruption.
3. Not authorized for safety-critical systems (e.g., military, medical, aviation) without EDISON' s explicit validation. Users bear full responsibility for suitability assessments.
4. Reproduction, adaptation, or distribution prohibited without written consent.

Environmental Compliance

The entire product line complies with the substance restrictions outlined in the RoHS and REACH regulations, and all contained metals adhere to conflict-free compliance standards.

Datasheet History

Versions	Description	Release Date
1	Update format	2025 / 06 / 01

About EDISON OPTO

Edison Opto provides comprehensive LED and solid-state lighting products from LED Component, Light Module, UV / IR LED, LED sensing, Horticulture and Automotive Lighting. With a view to improve R&D process, Edison Opto develops the vertical platform on TEMOTM (Thermal. Electrical. Mechanical. Optical) to ensure the quality of products and services; Furthermore, Edison Opto creates LDMSTM (LED Design Manufacturing Service) from light source to luminaire manufacturing, to serve our customers a quality experience of customized solutions.

Headquarters

17F., No. 17, Qiaohe Rd., Zhonghe Dist.,
New Taipei City 235029, Taiwan

Taipei Factory

5F., NO. 800, Zhongzheng Rd., Zhonghe Dist.,
New Taipei City, 235015, Taiwan

Yangzhou Edison Opto Corporation

NO. 101, Hua-Yang West Rd.,
Yangzhou City 225009, Jiangsu Province, China

Edison Opto(Dong Guan) Co., Ltd

B16, No.9, Xiju Rd., Xi-Cheng Industrial Park,
Heng-li, DongGuan City 523460, GuangDong Province, China

www.edison-opto.com

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