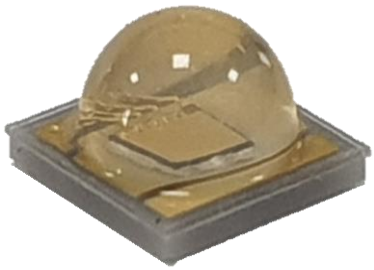
IR Laser

EDVCSEL 3535 810nm 2W

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.
- Light Emitting angle 18°±10°
- Compact Package Size: 3.5×3.5×2.31mm.
- Narrow spectral width (< 4 nm typ.).
- High Power Applications.
- High Reliability.

Applications

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

Table of Contents

Ordering Code Format

R	V	FC	06	12	S3	1818	06
X1	X2	X3-X4	X5-X6	X7-X8	X9-X10	X11-X14	X15-X16

X1		X2		X3-X4		X5-X6	
Type		Component		Substrate		Series	
R	Infrared	V	EDVCSEL	FC	Molding	06	3535

X7-X8		X9-X10		X11-X14		X15-16	
code		Wavelength		Beam angle		code	
-	-	S3	810nm	1818	18°x18°	-	-

Product Code Information

Part No.	Description
RVFC0612S3181806	EDVCSEL_3535(MT)_810nm_18x18_2700mA

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Optical and Electrical Characteristics

at room temperature, Ta=25°C

Parameter	Symbol	Operating Pulse Condition	Value			Units
			Min.	Typ.	Max.	
Radiant Power	P_o	I_F=2.7A, t_p=500μs	-	2,400	-	mW
Threshold Current	I_{th}	-	-	300	-	mA
Forward Voltage	V_F	I_F=2.7A, t_p=500μs	-	1.9	2.1	V
Slope Efficiency	η_s	I_F=2.7A, t_p=500μs	0.8	1.0	-	W/A
Power Conversion Efficiency	PCE	I_F=2.7A, t_p=500μs	42	46	50	%
Center Wavelength	λ_c	I_F=2.7A, t_p=500μs	800	810	820	nm
Spectral Width (FWHM)	-	I_F=2.7A, t_p=500μs	1	4	6	nm
Viewing Angle	$2\theta_{1/2}$	I_F=0.5A	-	18	-	degree

NOTE:
1. Forward Voltage tolerance is ±0.1 V
2. Optical output power tolerance is ±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	-	0.068	-	nm/°C
Output Power Decay	$\Delta P_o/\Delta T$	25~100°C	-	-0.78	-	mW/°C
Forward Voltage Decay	$\Delta V_F/\Delta T$	25~100°C	-	-0.0012	-	V/°C

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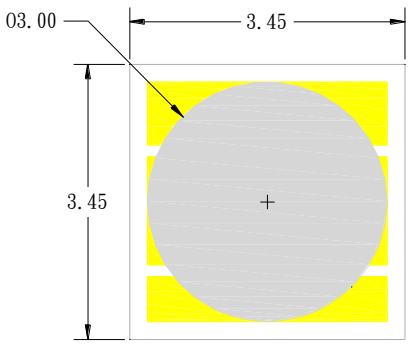
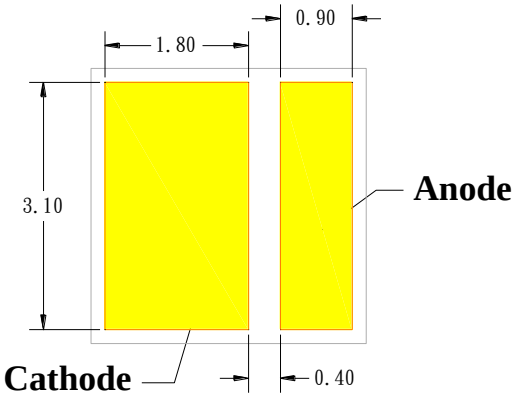
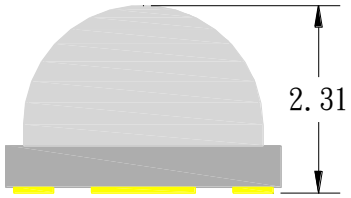
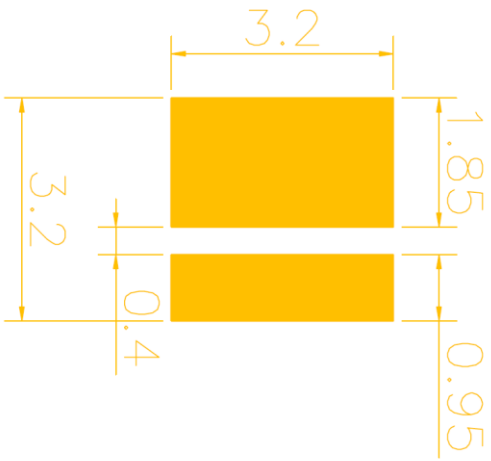
Mechanical Dimensions







Recommended Soldering Pad:



Unit: mm
Tolerance: ±0.15mm

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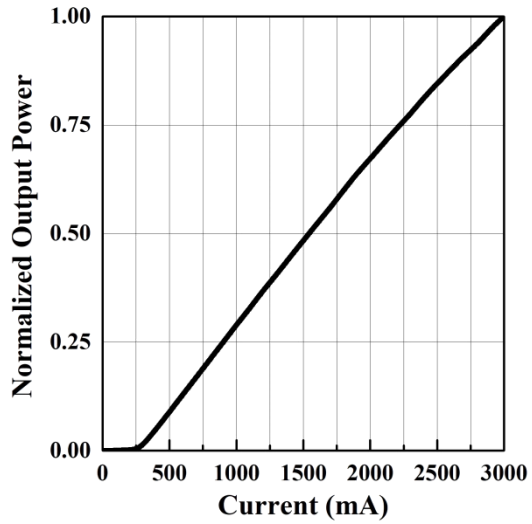
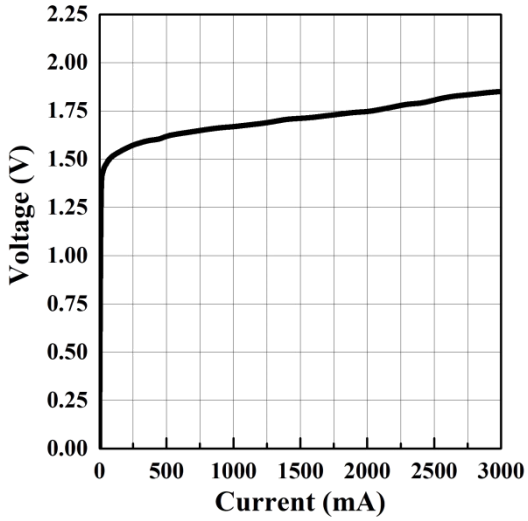
Typical Electrical/Optical/Characteristics

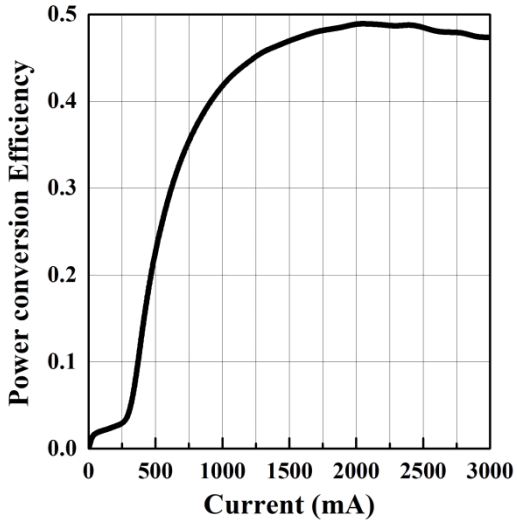
- **Radiant Power vs. Current**



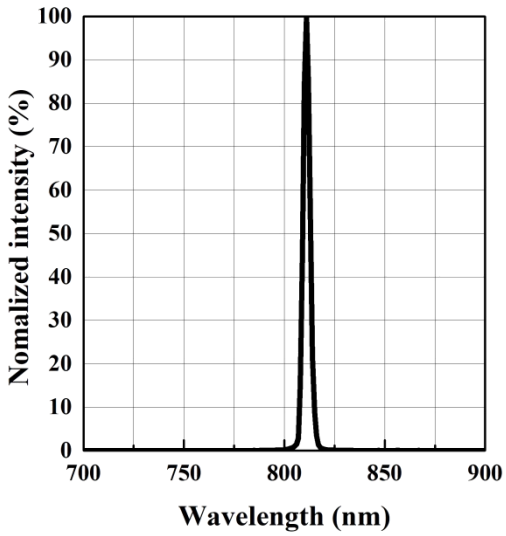
- **Voltage vs. Current**



- **Power Conversion Efficiency (PCE)**



- **Emission Spectrum**



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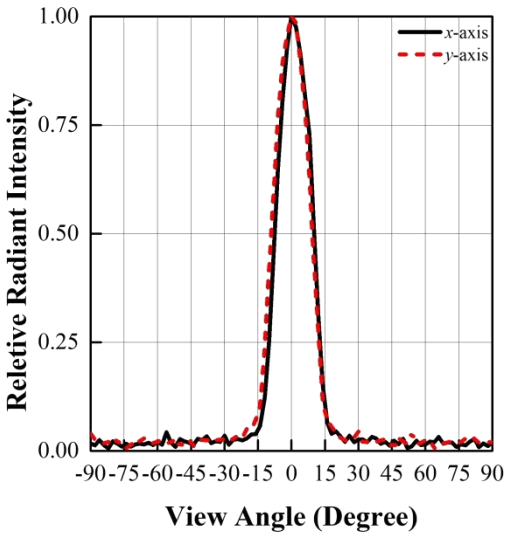
- **Emitting Angle**



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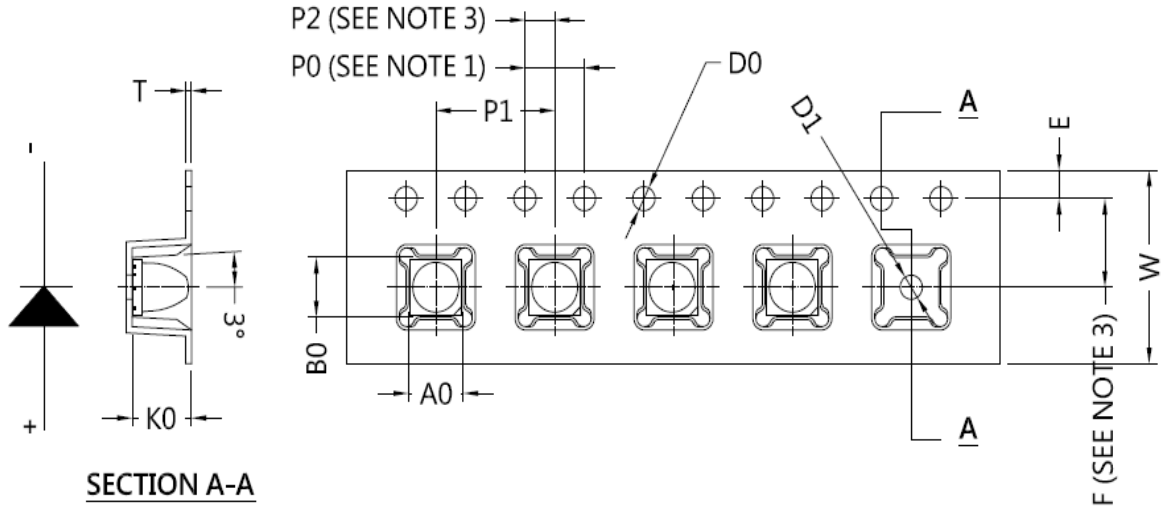
Product Packaging Information

Unit: mm



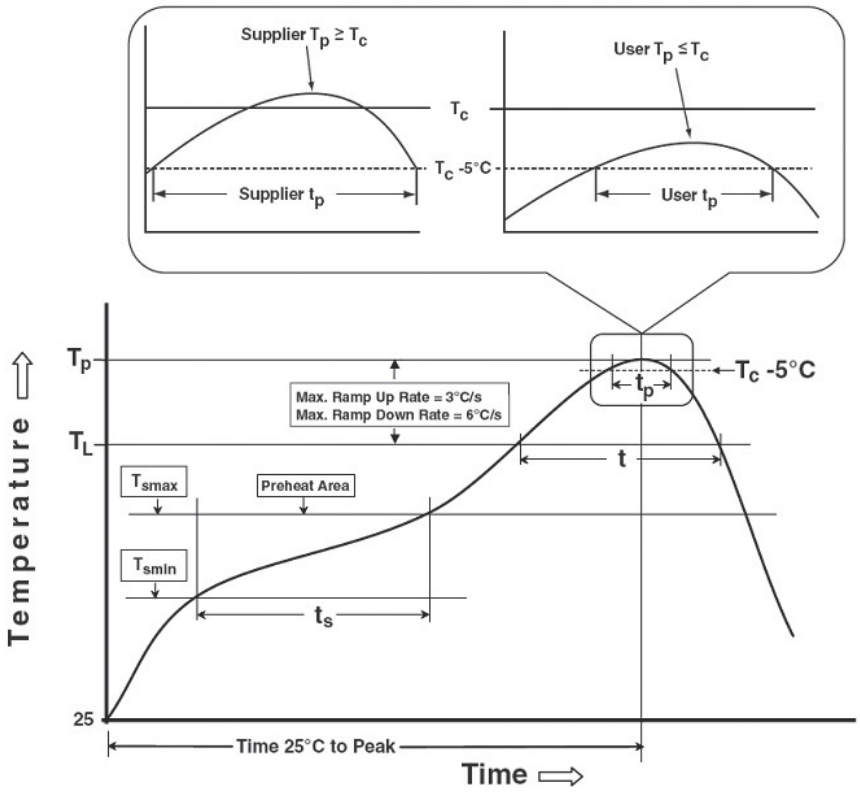
Symbol	Ao	Bo	Ko	P0	P1	P2
Spec	3.80±0.10	3.80±0.10	2.70±0.10	4.00±0.10	8.00±0.10	2.00±0.10
Symbol	**E**	**F**	**D0**	**D1**	**W**	**T**
Spec	1.75±0.10	5.50±0.10	Ø1.50±0.10	Ø1.50±0.10	12.0±0.30	0.30±0.05

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	500pcs	500pcs	D-178
Starting with 50pcs empty, and 100pcs empty at the last			

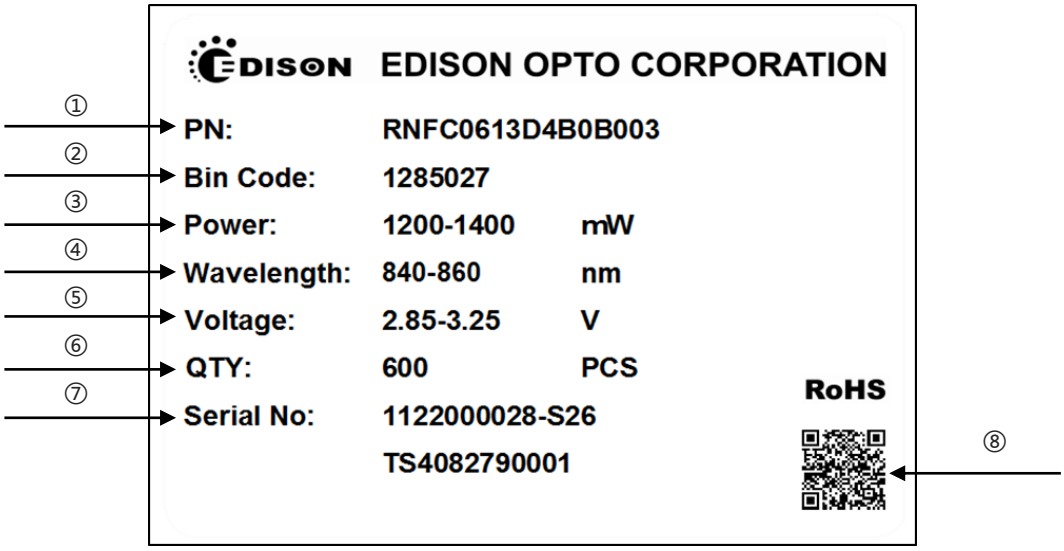
Reflow Profile

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 (Tsmin)	150 °C
Temperature max (Tsmax)	200 °C
Time (Tsmin to Tsmax) (ts)	90-120 seconds
Average ramp-up rate (Tsmax to Tp)	3 °C/second max.
Liquidous temperature (TL)	220 °C
Time at liquidous (tL)	35-70 seconds
Peak package body temperature (Tp)	240 °C ~245 °C
Classification temperature (Tc)	240 °C
Average ramp-down rate (Tp to Tsmax)	6°C/second max.
Time 25°C to peak temperature	8 minutes max.

Label Information



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.

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