





Drawing No.	*Rev.	Date	Page
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# APPROVAL SHEET

Part No: **BAG3235C-ZDDD**

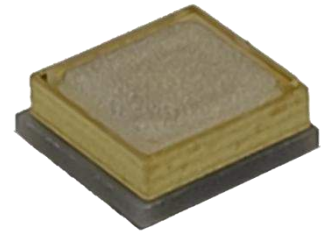
NOTE : **Green Part**

MAKER			CUSTOMER	
				
R&D	QA	Sales	Checked	Approved
				

Prepared	Checked	Approved
Rachel Lee	Sky Lin	Kenneth Wu

# VCSEL 3235 940nm 8W

## Datasheet



### 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

### Typical Applications:

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

### Optical and Electrical Characteristics (at room temperature, $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Operating Condition	Value			Units
			Min.	Typ.	Max.	
Optical Output power(1)	$P_o$	$I_F=1.5\text{A}$ , $t_p=500\mu\text{s}$	-	2700	-	mW
Optical Output power(2)	$P_o$	$I_F=3.0\text{A}$ , $t_p=500\mu\text{s}$	-	6500	-	mW
Threshold current	$I_{th}$	-	-	600	-	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	$\eta_s$	$I_F=1.5\text{A}$ , $t_p=500\mu\text{s}$	-	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	$\lambda_c$	$I_F=1.5\text{A}$ , $t_p=500\mu\text{s}$	930	940	950	nm
Spectral width (FWHM)	-	$I_F=1.5\text{A}$ , $t_p=500\mu\text{s}$	-	4	6	nm
PD Forward voltage	$V_{FPD}$	$I_{FPD}=10\text{mA}$	0.5	-	1.3	V

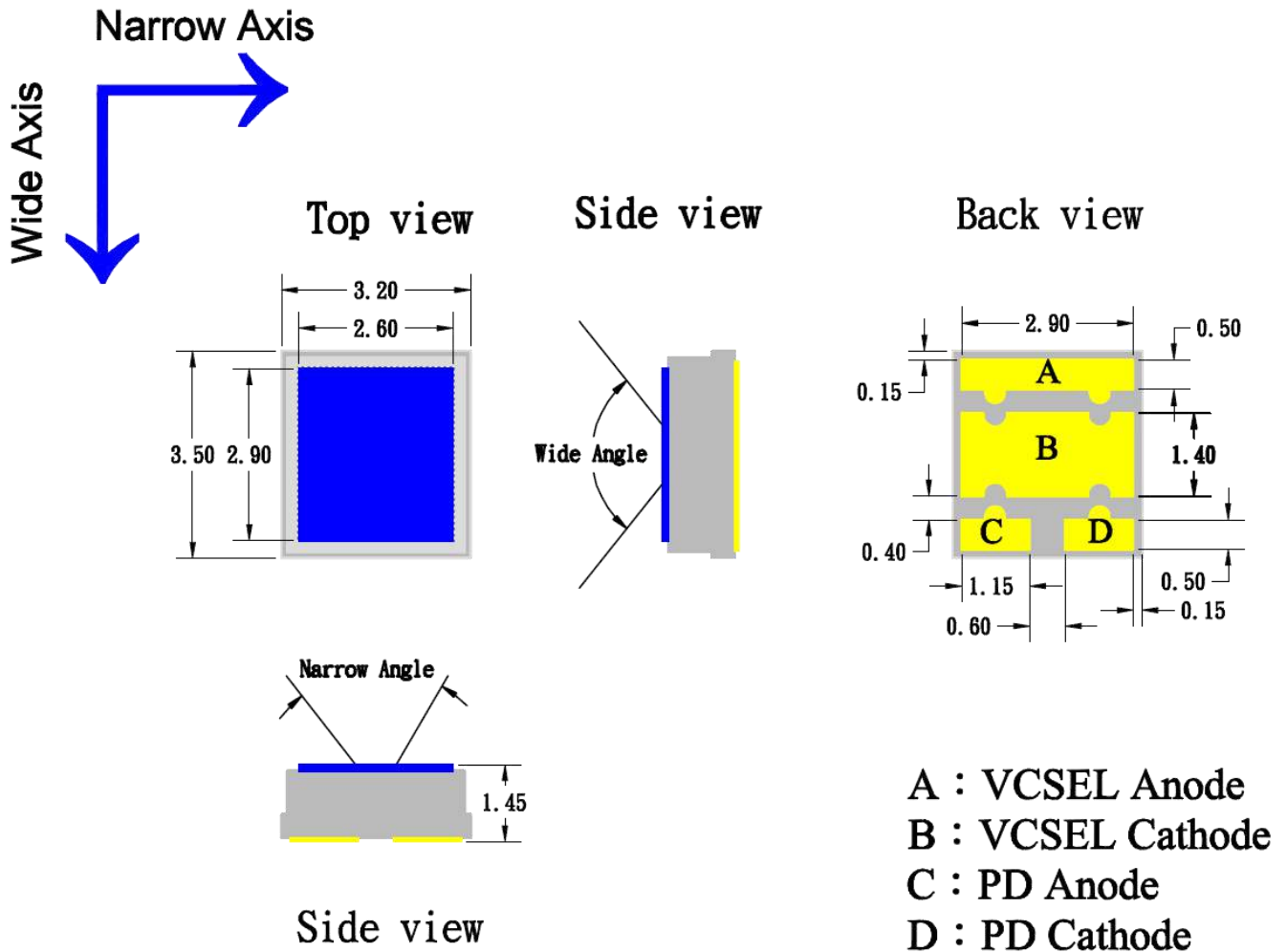
#### Notes:

1. Forward Voltage tolerance is  $\pm 0.1\text{ V}$
2. Optical output power tolerance is  $\pm 10\%$ .
3. Optical and Electrical Characteristics of VCSEL measured under duty cycle = 1%.
4. The pulse operation was tested on good thermal management with  $2.25\text{ cm}^2$  MCPCB.

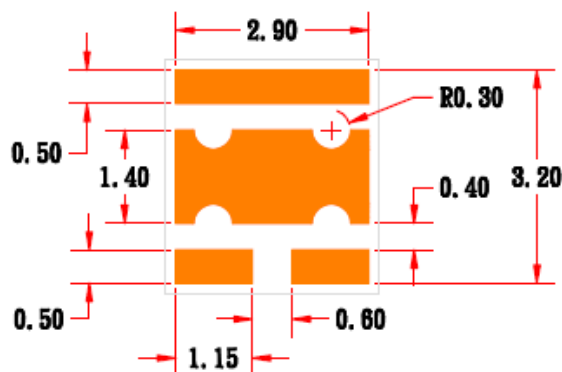
### Emitting Angle (Field of View) Categories

Emitting Angle (Rectangle)	Lens Type (Material)	Order Code	Note
$110^\circ \times 90^\circ$	MLA (Glass)	BAG3235C-ZDDD	-

### Mechanical Dimensions



### Recommended Soldering Pad:

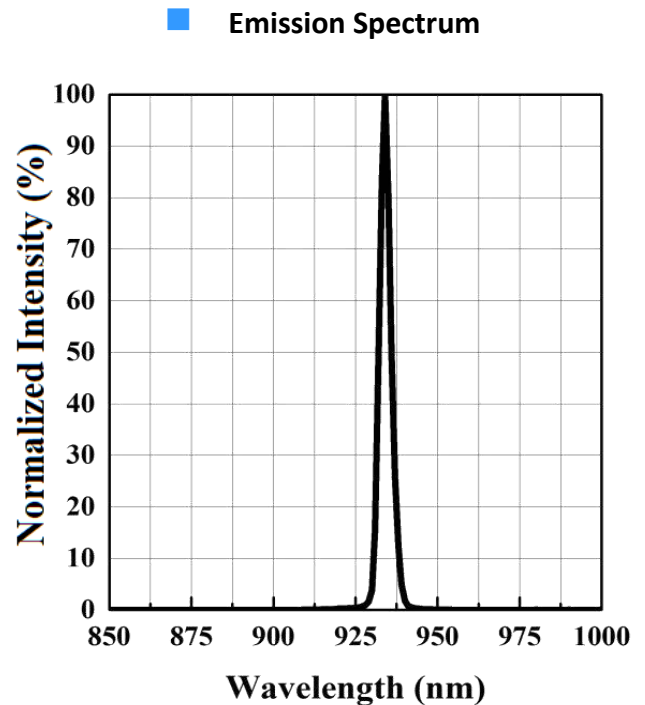
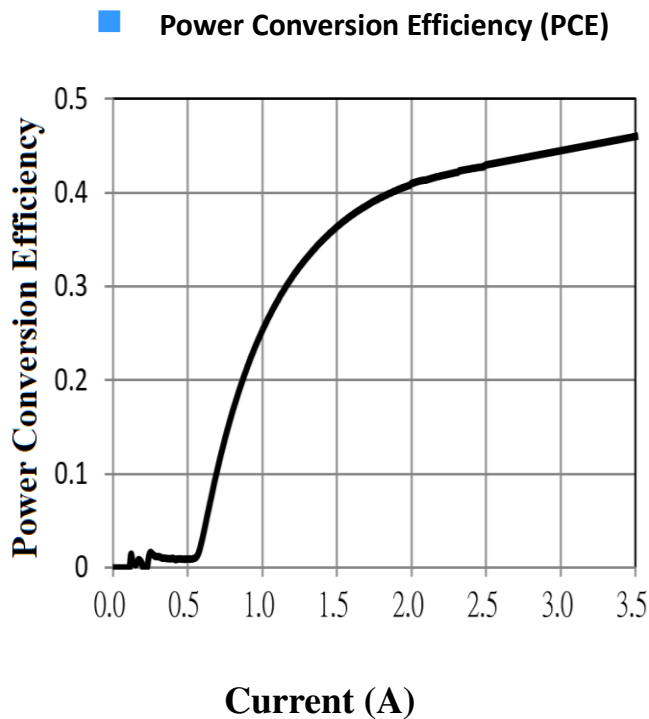
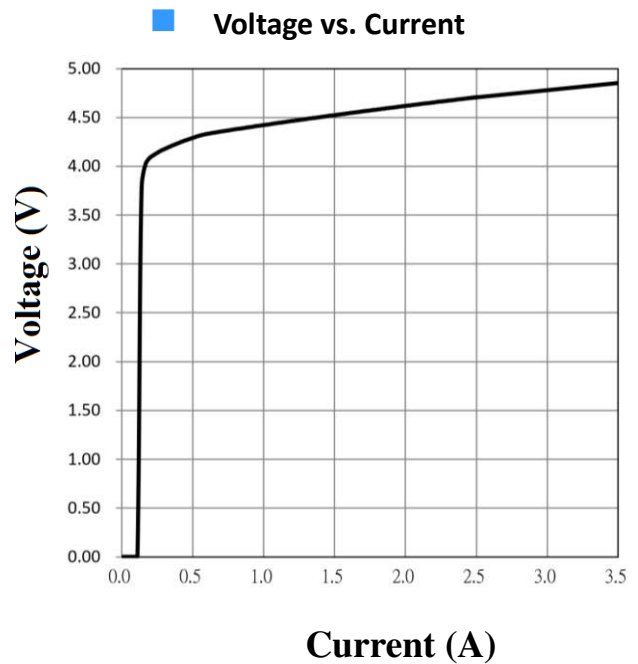
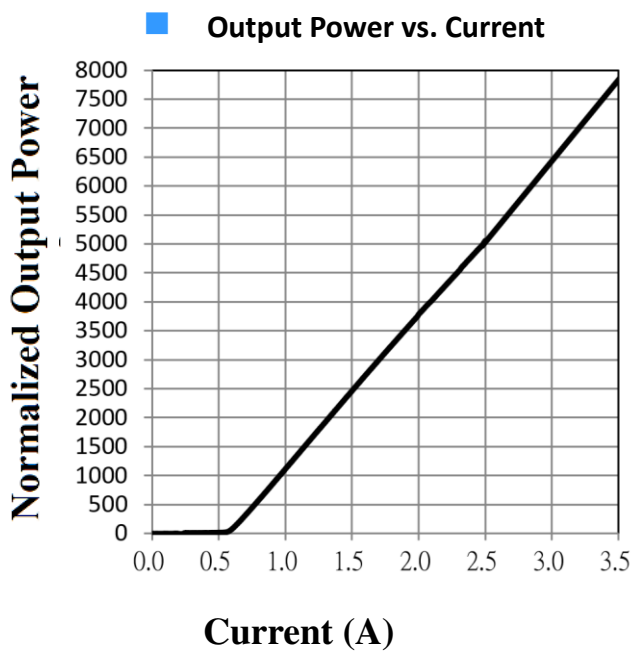


Unit: mm

Tolerance:  $\pm 0.15$ mm

Note: This package is not suitable for any kind of wet cleaning or ultrasonic cleaning.

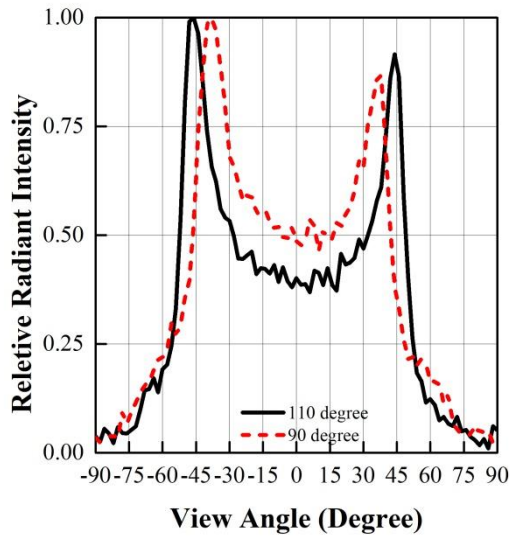
### Figures



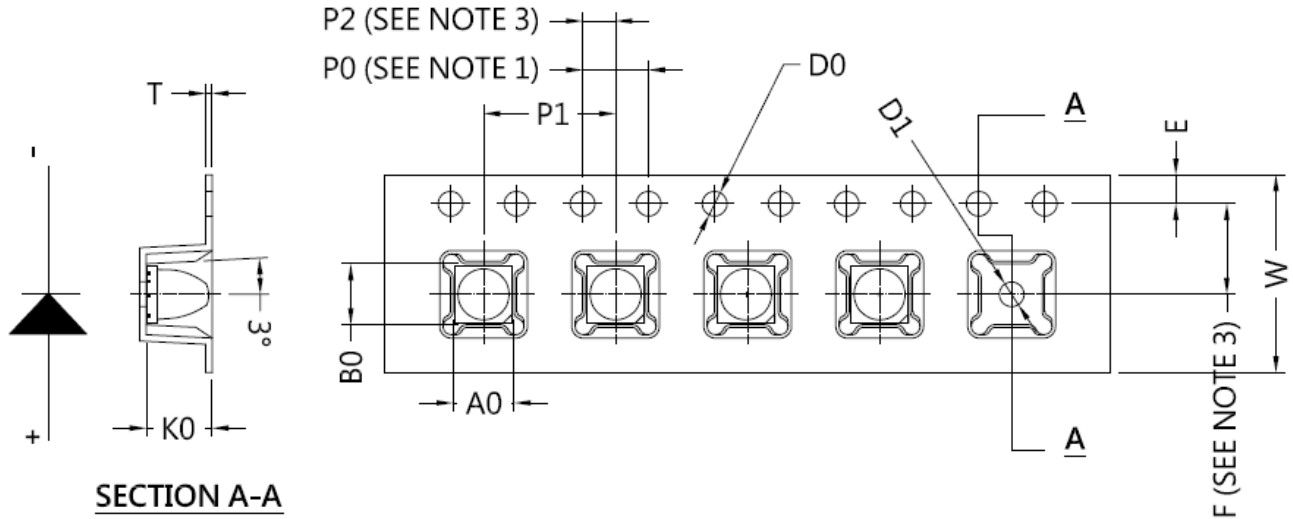
※Pulse Width = 500μs, Duty = 1%

## Figures

■ Emitting Angle



## Product Packaging Information



Unit: mm

symbol	Ao	Bo	Ko	Po	P1	P2
spec	3.65±0.10	3.65±0.10	2.15±0.10	4.00±0.1	8.00±0.10	2.00±0.1
symbol	E	F	Do	D1	W	T
spec	1.75±0.10	5.50±0.1	1.50±0.10	1.50±0.10	12.0±0.30	0.30±0.05

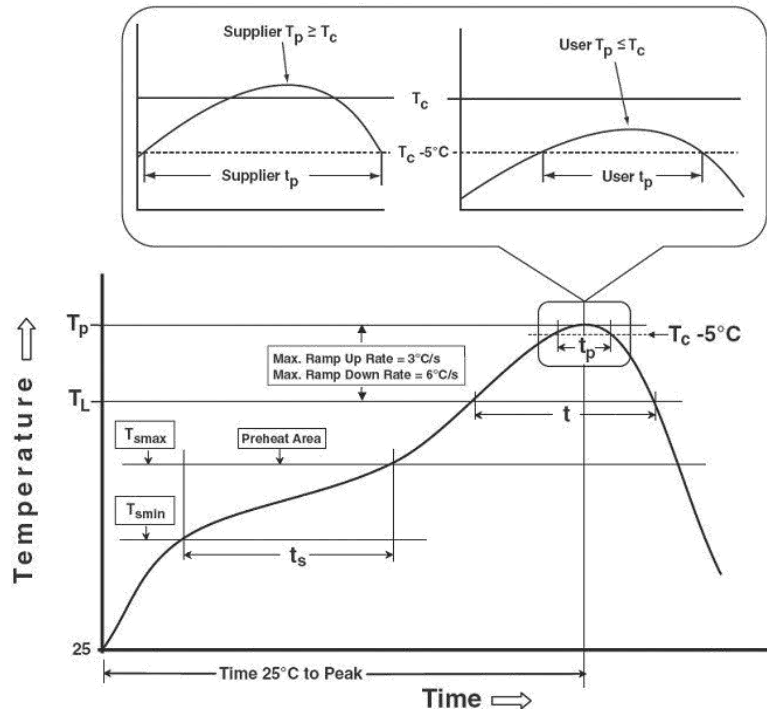
Note:

1. 10 sprocket hole pitch cumulative tolerance  $\pm 0.2$
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	R-178
Box	4 Reels	2,400pcs	245×240×70
Carton	7 boxes	16,800pcs	520×285×255
Starting with 50pcs empty, and 50pcs empty at the last			

## Reflow Profile

The following reflow profile is from IPC/JEDECJ-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 °C/second max.
Liquidous temperature ( $T_L$ )	220 °C
Time at liquidous ( $t_L$ )	35-70 seconds
Peak package body temperature ( $T_p$ )	240 °C ~245 °C
Classification temperature ( $T_c$ )	240 °C
Average ramp-down rate ( $T_p$ to $T_{smax}$ )	6°C/second max.
Time 25°C to peak temperature	8 minutes max.