APPROVAL SHEET

Part No: BAG323AC-ZVD-3000mA

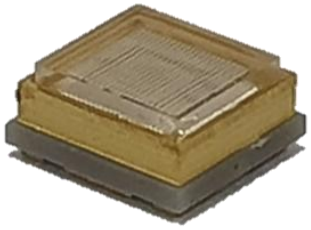
NOTE :

Green Part

MAKER			CUSTOMER	
SOLIDLITE				
R&D	QA	Sales	Checked	Approved

Prepared	Checked	Approved
Rachel Lee	Sky Lin	Kenneth Wu

VCSEL 3235 940nm 2W 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°C)

Parameter	Symbol	Operating Condition	Value			Units
			Min.	Typ.	Max.	
Output power	P_o	I_F=3.0A, t_p=500μs	1800	2250	2800	mW
Threshold current	I_{th}	-	-	500	-	mA
Forward voltage	V_F	I_F=3.0A, t_p=500μs	1.80	2.00	2.20	V
Slope efficiency	η_s	I_F=3.0A, t_p=500μs	0.75	0.85	-	W/A
Power conversion efficiency	PCE	I_F=3.0A, t_p=500μs	34	37	40	%
Center wavelength	λ_c	I_F=3.0A, t_p=500μs	930	940	950	nm
Spectral width (FWHM)	-	I_F=3.0A, t_p=500μs	1	4	6	nm
Chip Via Numbers	-	-	-	544	-	-
PD Forward voltage	V_{FPD}	I_{FPD}=10mA	0.5	-	1.3	V
PD Reverse Breakdown Voltage	V_{BRPD}	I_{RPD}=100μA	35	-	-	V
PD Reverse Dark Current	I_D	V_{RPD}=10V	-	2	10	nA
PD Junction Capacitance	C_J	V_{RPD}=3V, F=1MHZ	-	2	10	pF
PD Peak Sensing Wavelength	-	-	-	940	-	nm

Notes:

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^2MCPCB.

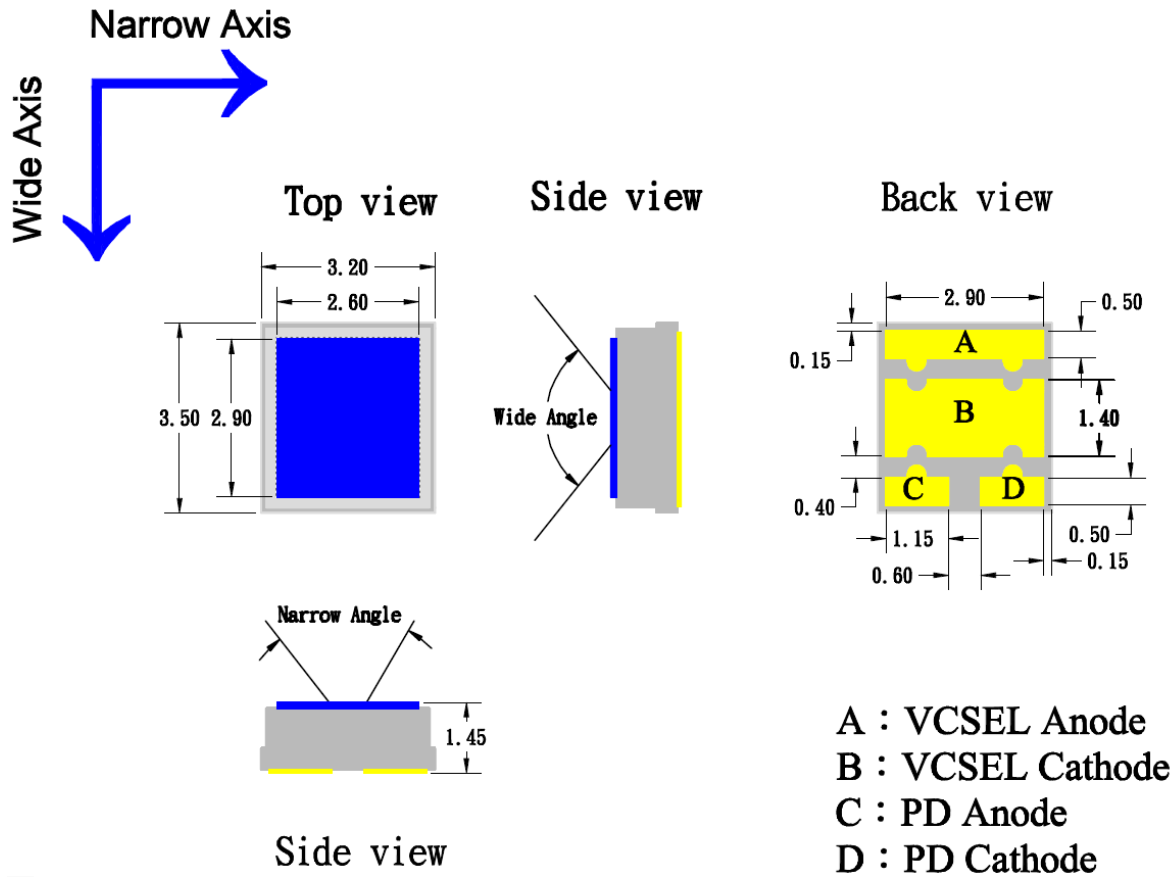
Temperature-dependent Characteristics

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	-	%/°C
Forward Voltage Decay	$\Delta V_F/\Delta T$	25~100°C	-	-0.0017	-	V/°C

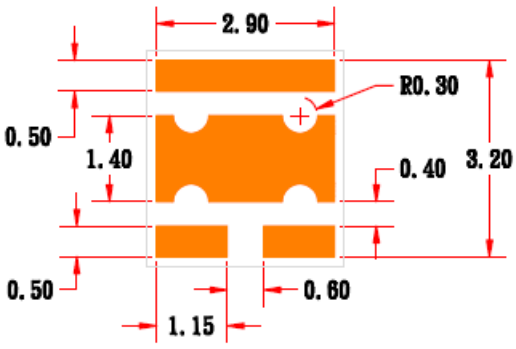
Emitting Angle (Field of View) Categories

Emitting Angle (Rectangle)	Lens Type (Material)	Order Code	Note
110°×90°	MLA (Glass)	BAG323AC-ZVD-3000mA	H=1.45
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Mechanical Dimensions



Recommended Soldering Pad:

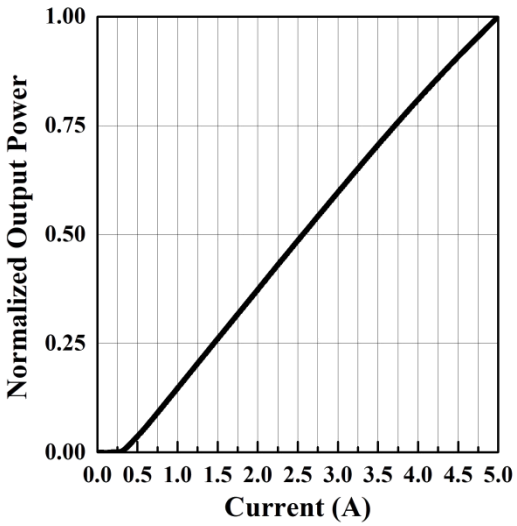


Unit:mm

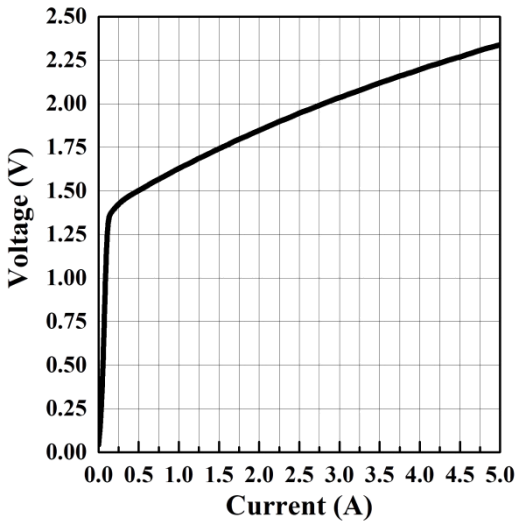
Tolerance: ±0.15mm

Figures

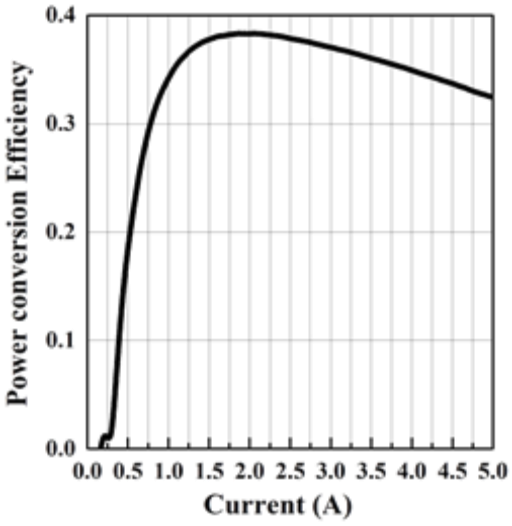
Output Power vs. Current



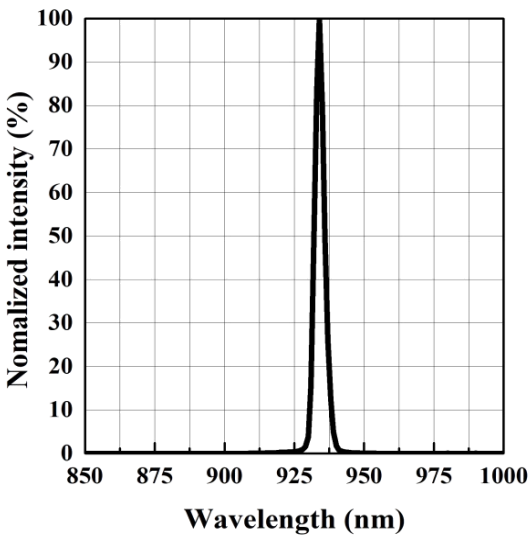
Voltage vs. Current



Power Conversion Efficiency (PCE)

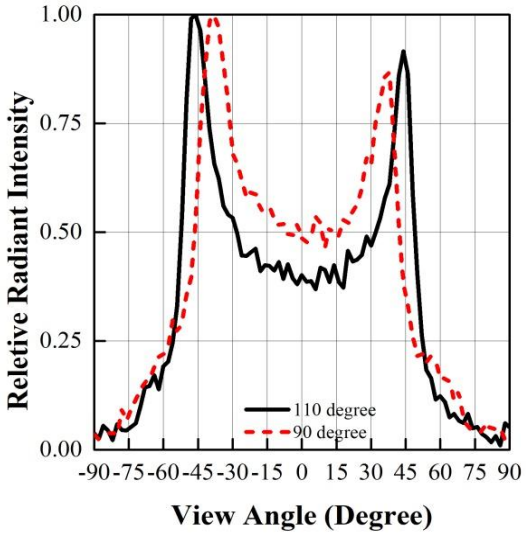


Emission Spectrum

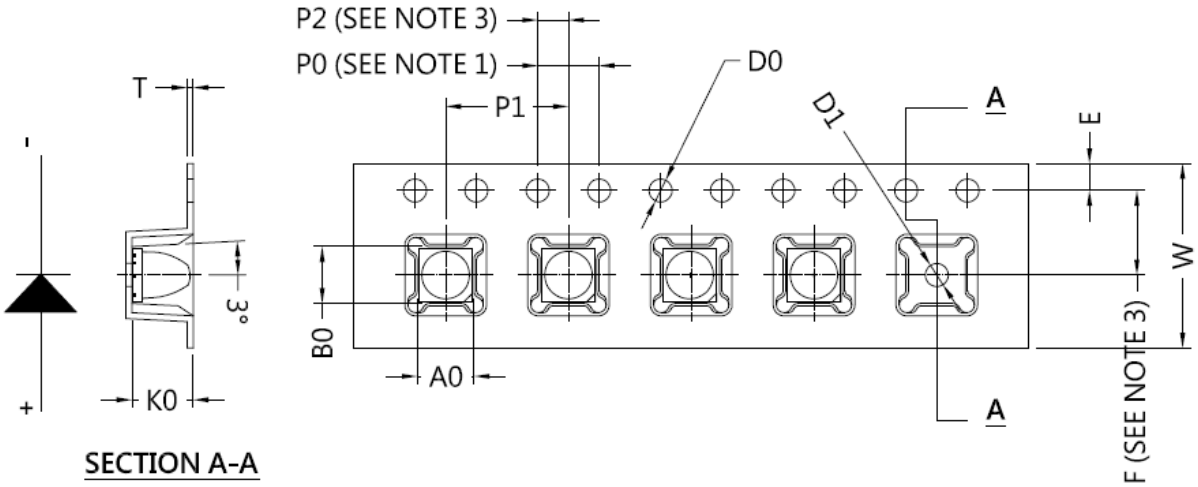


Figures

Emitting Angle



Product Packaging Information



Unit: mm

symbol	Ao	Bo	Ko	Po	P1	P2
spec	3.80±0.10	3.80±0.10	2.70±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

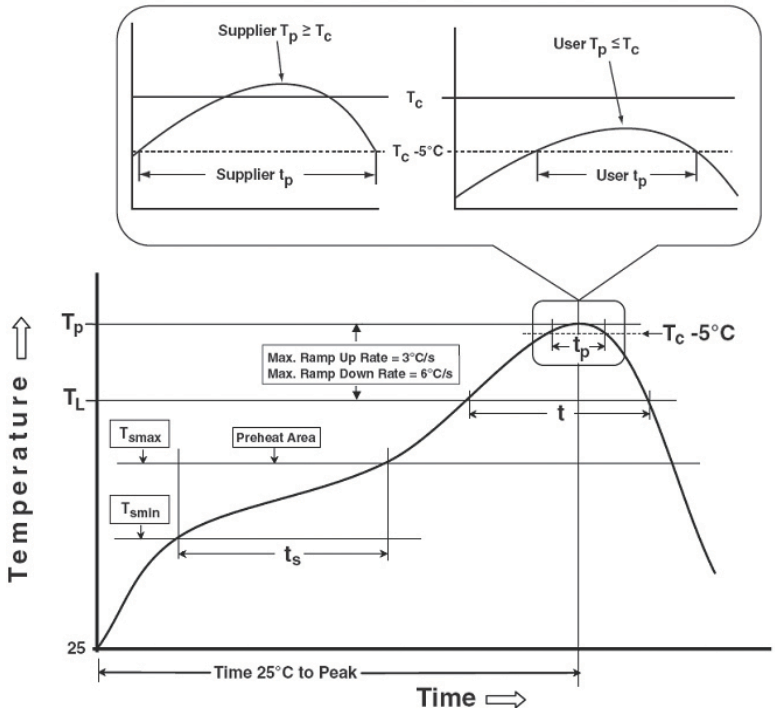
Note:

1. 10 sprocket hole pitch cumulative tolerance ±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 50 pcs empty,and 50 pcs 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 (Tsmin) Temperature max (Tsmax) Time (Tsmin to Tsmax) (ts)	150 °C 200 °C 90-120 seconds
Average ramp-up rate (Tsmax to Tp)	3 °C/second max.
Liquidous temperature (TL) Time at liquidous (tL)	220 °C 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.