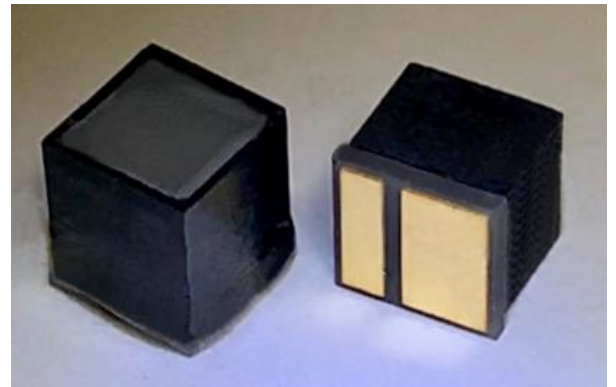


E216_7x6 PS

Low power consumption, ultra-compact VCSEL 850nm emitter

Description

The E216_7x6 PS surface mounted VCSEL 850nm emitter incorporates a unique VCSEL chip along with Digigram's advanced diffractive optical element (DOE). It is specially designed for open-space visible 3D structure light. The E216_7x6 PS comes in an ultra-small thermally-efficient COB package. Its compact footprint enables economies of scale and excellent integration flexibility.



Features

- High uniform pattern
- Ultra-small COB package
- Standard solder reflow-able
- Low power consumption
- IEC 60825 eye safety standards

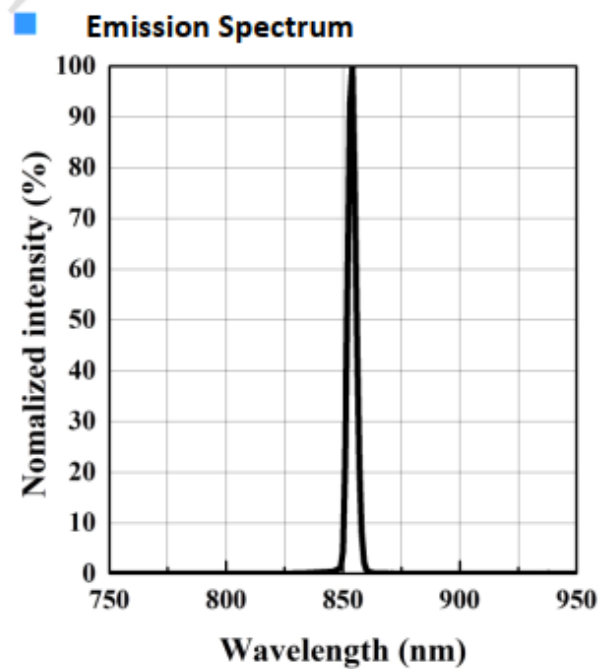
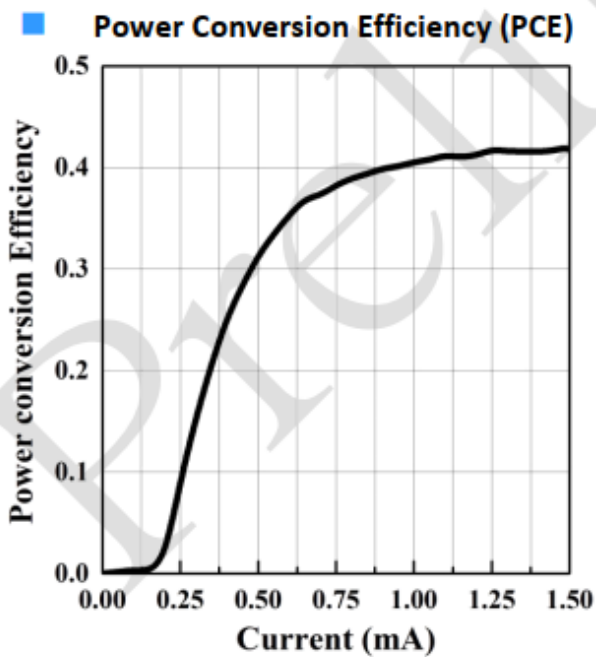
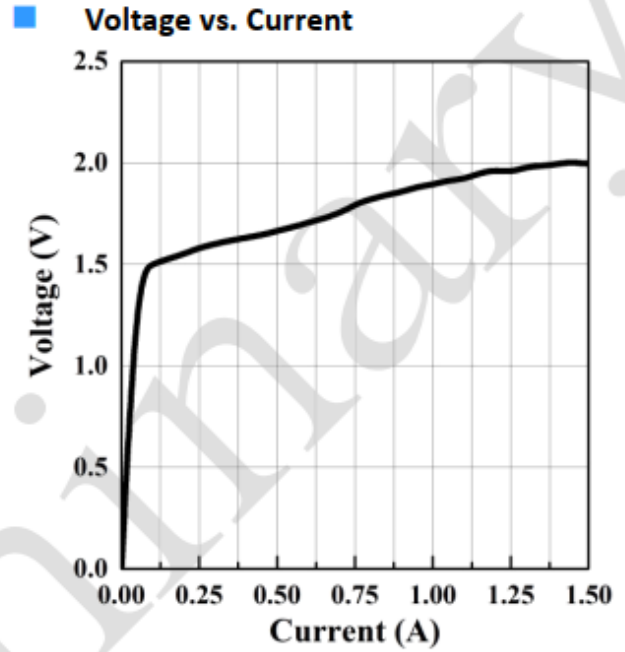
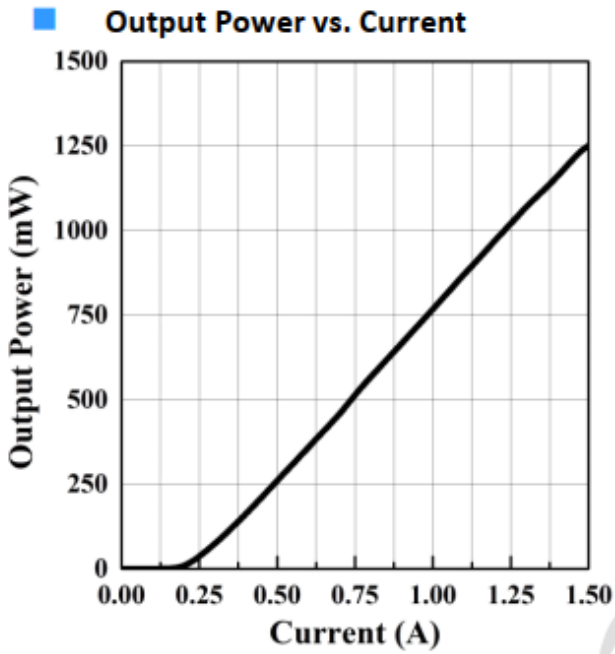
Applications

- Structure Light for 3D sensing
- Portable device

Electrical Optical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Operation Temperature	T_{op}	0	35	60	$^{\circ}C$	Measured at the bottom of the VCSEL die substrate during typical operating conditions
CW Output Power	P_o	--	750	--	mW	$I_f=1.0A, t_p=10ms$
	P_o	--	75	--	mW	$I_f=0.3A, t_p=10ms$
	P_o	--	35	--	mW	$I_f=0.25A, t_p=10ms$
	P_o	--	5	--	mW	$I_f=0.2A, t_p=10ms$
Threshold Current	I_{th}	--	200	--	mA	
Forward Voltage	V_f	1.65	1.95	2.25	V	$I_f=1.0A, t_p=10ms$
Center Wavelength	λ	840	850	860	nm	$I_f=1.0A, t_p=10ms$
Spectral Width (FWHM)			3	5	nm	$I_f=1.0A, t_p=10ms$
Slope efficiency	η_s		0.95		W/A	$I_f=1.0A, t_p=10ms$
Power Conversion Efficiency	PCE	34.5	38.5	42.5	%	$I_f=1.0A, t_p=10ms$

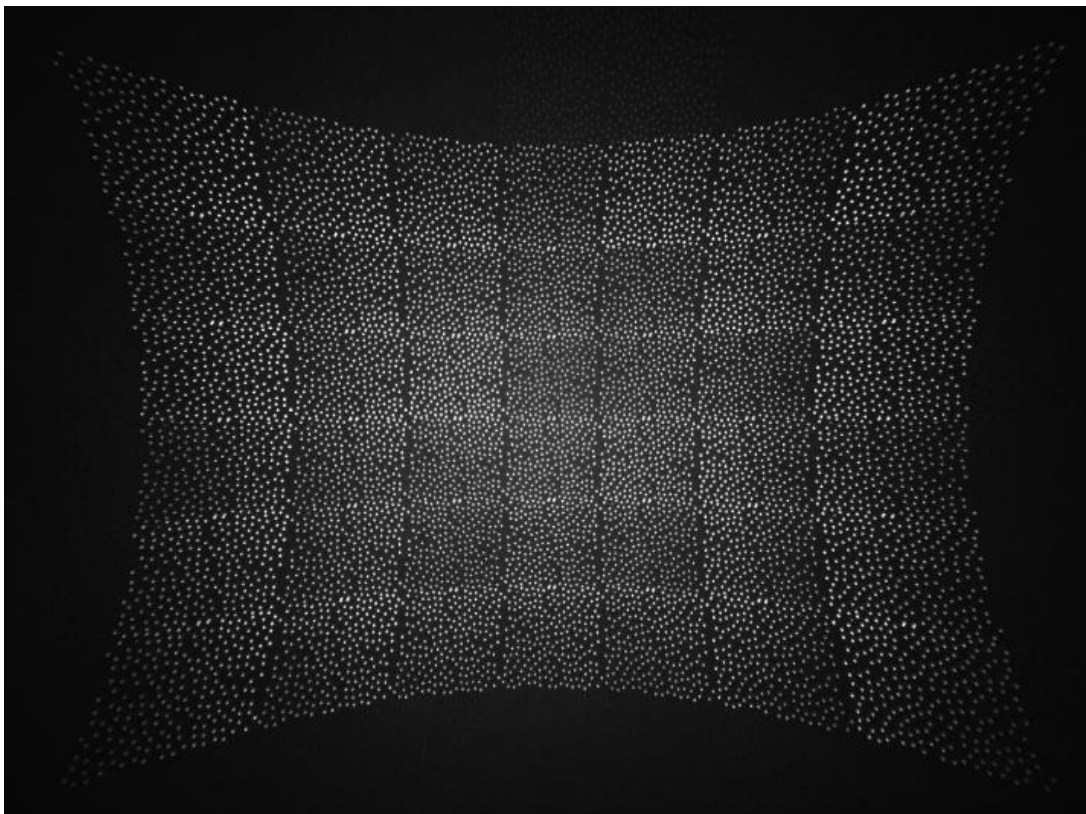
Characteristic Curves



Optical Specifications

Pattern Size @1000mm	1652.6 × 1019 mm (HxV)
Total dots	9,072
Field of View (FOV)	76° × 54 ° (HxV)
Contrast ¹	≥ 7.5
Uniformity ²	≥ 35%

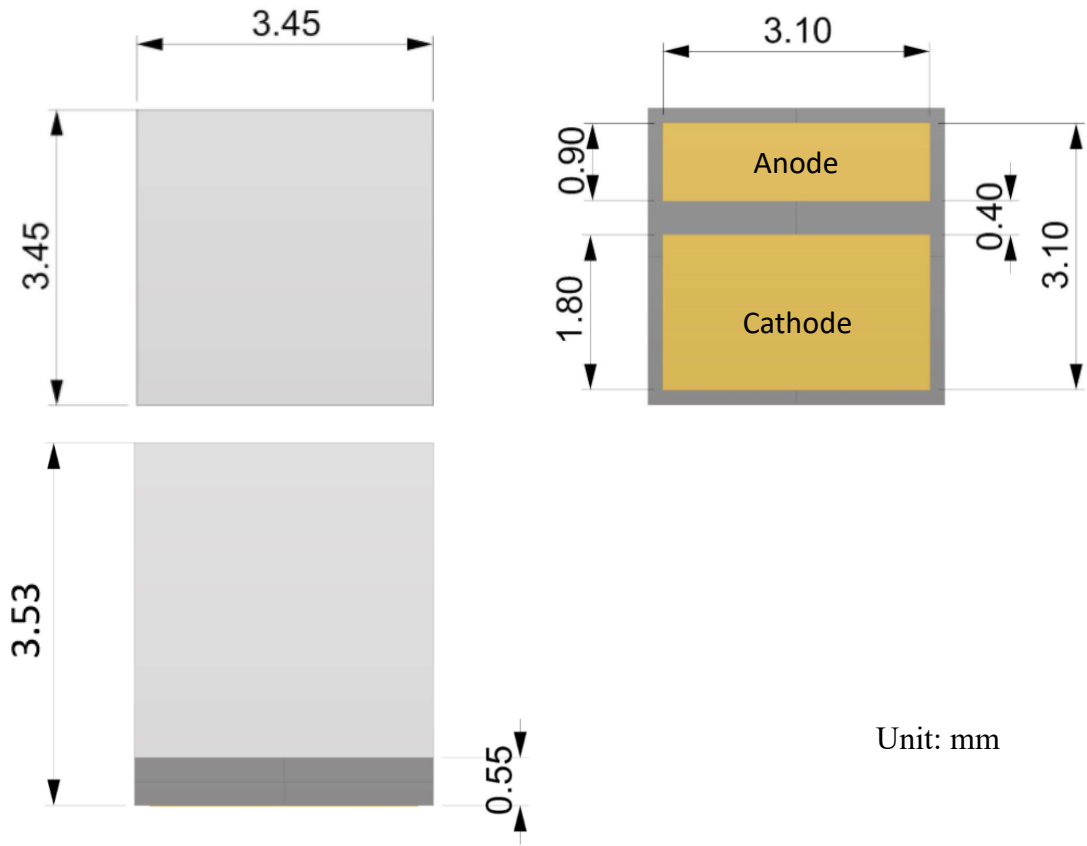
Projecting Pattern



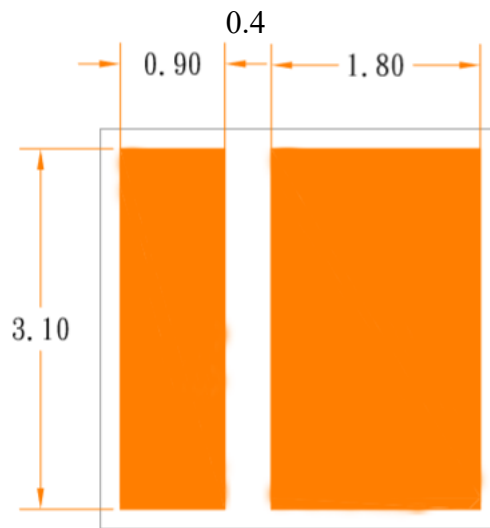
¹ **Contrast:** in the defined area, the ratio of the 95th percentile of the grayscale value over the median grayscale value of the background, $C=I_{95\%}/I_{\text{median}}$

² **Uniformity:** the ratio of the grayscale value of the area at a given location to the grayscale value of the area in the center of the pattern, $U=I_{\text{each area}}/I_{\text{max of each area}}$

Mechanical Dimensions



Recommended Solder Pad



Unit: mm

Cautions

1. Treat heat dissipation before setting the module to full power.
2. Avoid touching the emitting area or optical components of the module.
3. Never look directly at the light from the emitting area.



Disclaimer

1. Semiconductor devices generally fail due to intrinsic characteristics. A DTC module includes an laser chip and a laser diode. Hence, a customer's product needs to be designed with full regard to safety which includes incorporating features to take care of redundancy, fire hazards, and human errors such that any problems or errors arising from the DTC module, does not cause any accidents resulting in injury, death, fire, or property damage. In case the customer uses the module in a system requiring a higher safety level, the customer is responsible to review the conditions for consistency of the entire system to make sure it meets all safety concerns. The DTC is not liable to the user for any losses, costs, damages or expenses incurred arising directly or indirectly from any misuse or unintended use of the product.
2. According to the above specs as provided, DTC reserves the rights to modify, to insert, and/or to withdraw any part of the rules specified herein.

About Digigram

Digigram Technology Co., Ltd., established in 2017, is a leading advanced Diffractive Optical Elements (DOE) manufacturer based in Taiwan. The shareholders of Digigram have more than two decades of experience in diffractive optical design, illumination design and optical system integration for industrial applications. Digigram has close ties with many industrial corporations as well as research institutes in Taiwan through collaborative projects and joint developments, with special emphasis on diffractive optical elements and optical technology. Digigram has state-of-the-art technology and can offer customers the best DOE solution.

Digigram looks forward to hearing from you.

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