Preliminary Datasheet

InPHRED SA-E02 single-mode VCSEL emits at 1,380 nm wavelength with single transverse emission modes. The single 7um aperture offers 2~3mW output power at 25°C, power conversion efficiency (PCE) of ~27%, and is optimized for a broad range of high-volume consumer applications such as proximity, 3D sensing, and optical interconnects.

Electro-Optical Characteristics

All characteristics are specified at 25°C, continuous wave operation, unless otherwise noted.

Parameter	Symbol	Condition	Ratings			Unit
			Min	Typ	Max	
Threshold Current	I_{th}			0.6		mA
Wavelength coefficient	dλ/dT			0.1		nm/°C
Operating current (mode 1)	$I_{op1,\ 25°C}$			1.5		mA
Operating power (mode 1)	$P_{op1,\ 25°C}$	$I=I_{op1,\ 25°C}$		0.4		mW
Operating voltage (mode 1)	$U_{op1,\ 25°C}$	$I=I_{op1,\ 25°C}$		1.1		V
PCE (mode 1)	$PCE_{op1,\ 25°C}$	$I=I_{op1,\ 25°C}$		22.7		%
Operating current (mode 2)	$I_{op2,\ 25°C}$			3.5		mA
Operating power (mode 2)	$P_{op2,\ 25°C}$	$I=I_{op2,\ 25°C}$		1.2		mW
Operating voltage (mode 2)	$U_{op2,\ 25°C}$	$I=I_{op2,\ 25°C}$		1.3		V
PCE (mode 2)	$PCE_{op2,\ 25°C}$	$I=I_{op2,\ 25°C}$		27.4		%
Operating current (mode 3)	$I_{op3,\ 25°C}$			7.0		mA
Operating power (mode 3)	$P_{op3,\ 25°C}$	$I=I_{op3,\ 25°C}$		2.7		mW
Operating voltage (mode 3)	$U_{op3,\ 25°C}$	$I=I_{op3,\ 25°C}$		1.5		V
PCE (mode 3)	$PCE_{op3,\ 25°C}$	$I=I_{op3,\ 25°C}$		25.4		%

Typical Performance Measurements

All measurements are representative of performance with continuous ramping operation.

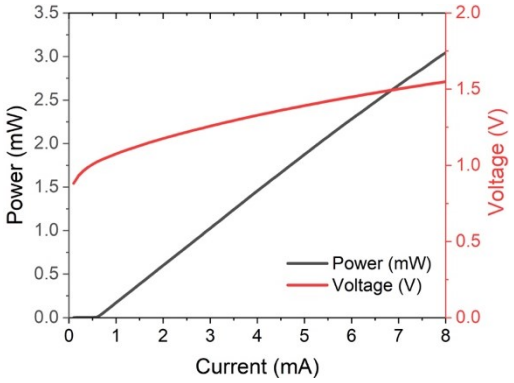

Figure 1. Light versus current (black) and voltage versus current (red) at 25°C.

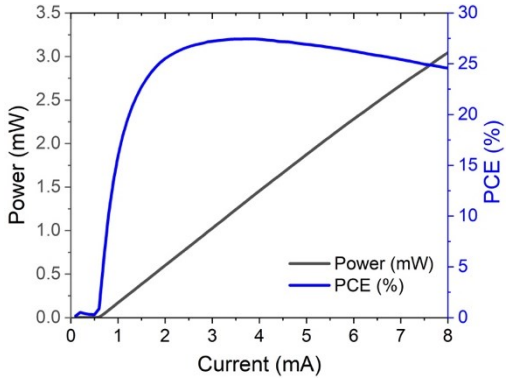

Figure 2. Light versus current (black) and PCE versus current (blue) at 25°C.