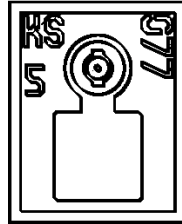


## V00145

**Desc: Die; 795; S; 1M; S5,S6,S7; 0.15mW; 0.16mm X 0.20mm;**



### PRODUCT DESCRIPTION

A true single mode 795nm VCSEL (spectrally Single Mode and Gaussian beam shape), with single linear polarized emission. Qualities such as, polarization & spectral stability make this product ideal for OEM applications.

### Major Applications:

- Spectroscopic sensors
- Atomic clock
- Magnetometer
- Interferometry

### Features:

- Low divergence angle
- Circular beam profile
- Single Spectral & Spatial mode
- Narrow spectral width
- Linear stable polarization orientated along chip edge



COMPLIES WITH IEC 60825-1, 2<sup>nd</sup> Edition 2007.  
 COMPLIES WITH 21 CFR 1040.10 AND 1040-10.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER  
 NOTICE NO.50 DATED 27 MAY 2001.

## Absolute Maximum Ratings

Parameter	Rating	Notes
Storage temperature	-40 to 125 °C	
Operating temperature (VCSEL)	-20 to 110 °C	
Lead solder temperature	260°C, 10 seconds	
CW current (VCSEL)	2 mA	(Note 1)
Laser reverse voltage	5 V	(Note 2)

Note 1: The maximum CW laser current in the Absolute Maximum Ratings is valid for the operating temperature noted at the table above. The maximum CW laser current decreases with increasing temperature. Contact Vixar for maximum CW laser current values at other temperatures.

Note 2: For details refer to the Vixar Application Note "VCSEL EOS/ESD Considerations and Lifetime Optimization".

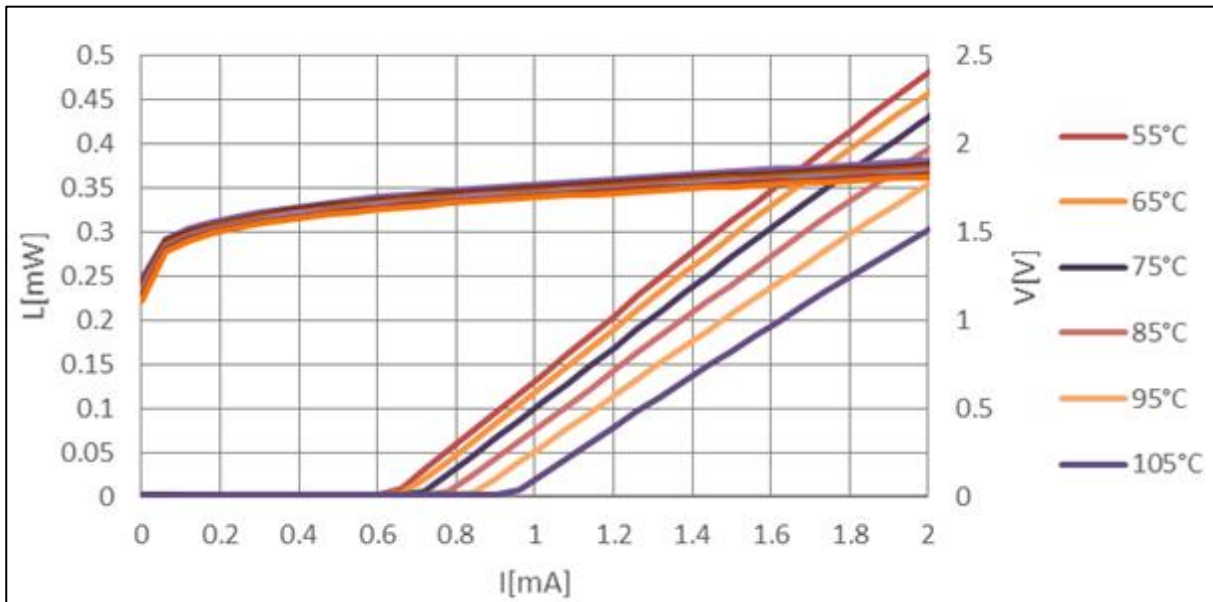
**Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated for extended periods of time may affect device reliability.**

## Electro-Optical Characteristics

VCSEL Operating Temp ( $T_v$ ) = 75°C & Operating Current = 1.2mA unless otherwise stated)

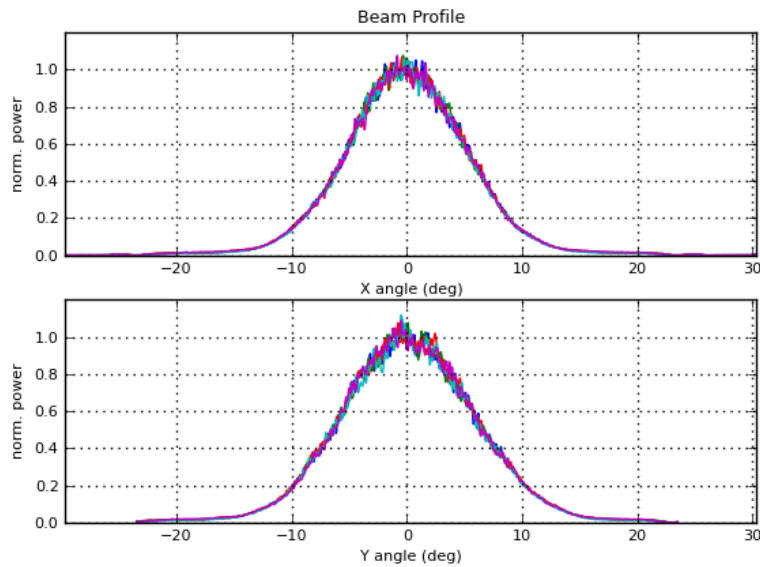
Parameter	Symbol	Units	Minimum	Typical	Maximum	Notes
Maximum DC current (CW)		mA	--	--	1.5	To remain single mode & polarization stable
Threshold current	I <sub>th</sub>	mA	--	0.75	1.0	
Operating voltage	V <sub>f</sub>	Volts	--	1.75	2.3	
Series resistance (VCSEL)	R <sub>s</sub>	Ohms	--	150	--	
Slope efficiency	SE	mW/mA	--	0.35	--	
Optical output power	L <sub>op</sub>	mW	0.15	0.2	--	T=55°C
Optical output power	L <sub>op</sub>	mW	0.1	0.15	--	T=75°C
Reverse breakdown voltage		V	10	--	--	I <sub>r</sub> ≤ 1nA
Operating wavelength	λ <sub>op</sub>	nm	794.5	795	795.5	
Single mode Suppression Ratio	SMSR	dB	20	--	--	Unmodulated
Polarization Extinction ratio	PER	dB	16	--	--	
Beam divergence 1/e <sup>2</sup>		deg	18	20	23	
Beam divergence FWHM	FWHM	deg	10	12	14	
Wavelength current coefficient		nm/mA	0.2	0.4	0.6	
Wavelength temp. coefficient		nm/°C	--	0.055	0.06	
Modulation Frequency		GHz	3.4	--	--	

## Typical Performances

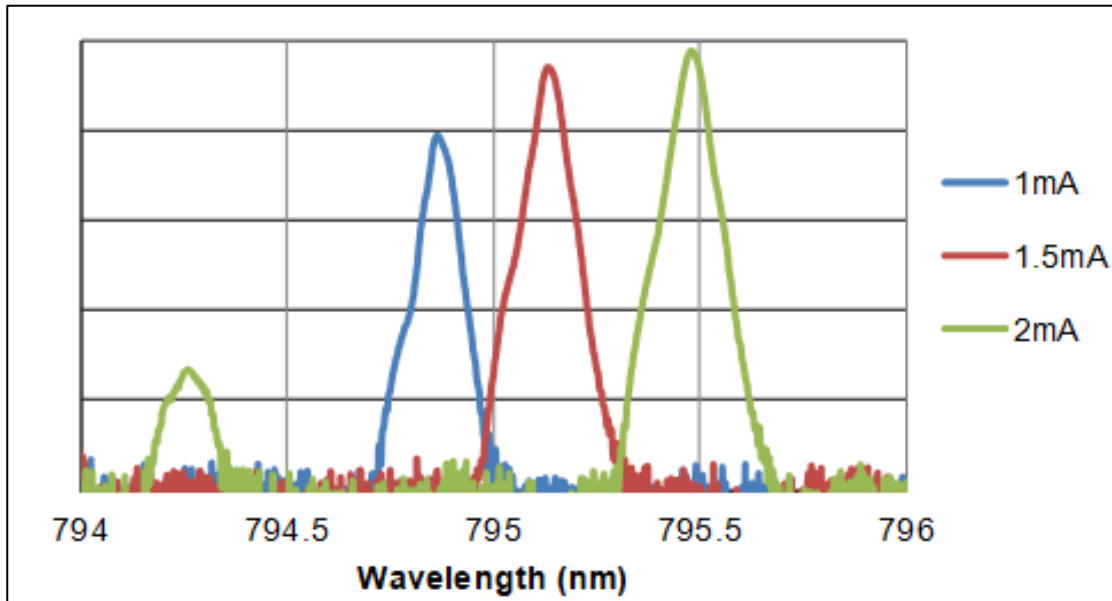


**L-I-V Performance of V00145 vs Temperature. Operational Mode CW.**

## Beam Profile

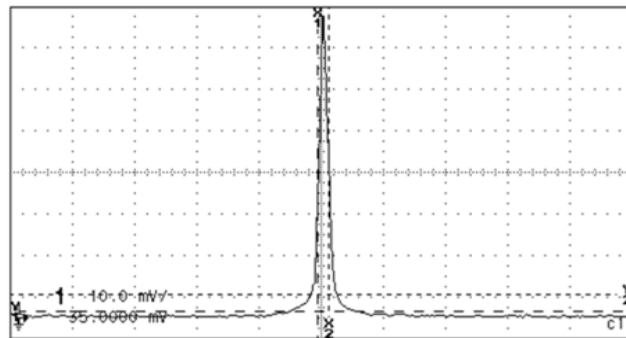


**Beam profile of V00145 at 1.2mA, 75°C. Operational mode CW.**



Spectral Profile over current. Operational mode CW.

hp stopped



#Avg	1		x2(1)	11.1000 ms
y2(1)	5.59375 mV		x1(1)	10.9200 ms
y1(1)	1.28125 mV		delta x	180.000 us
delta y	4.31250 mV			

**Linewidth = 0.18msec x 220 MHz/mS = 39.6 MHz**

**Line-width of V00145**

## Ordering Information

Description	Part Number
Die; 795; S; 1M; S5, S6, S7; 0.15mW; 0.16mm X 0.20mm;	V00145

<sup>(1)</sup> For some applications, a burn-in period for VCSEL die is recommended to stabilize the output power. Please contact Vixar for a recommendation.

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**OSRAM**

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