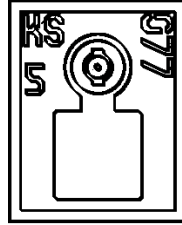


Part Number: V00140

Die; 895; S; 1M; S5,S6,S7; 0.2mW; 0.16mm X 0.20mm;



PRODUCT DESCRIPTION

A true single-mode 895nm VCSEL, with linear polarized emission designed.

Applications:

- Spectroscopic sensors
- Atomic clock
- Magnetometer
- Interferometry

Features:

- Low divergence angle
- Circular beam profile
- Single Spectral & Spatial mode
- Narrow spectral width
- Stable SM beam divergence emission over both temperature and current
- Linear stable polarization orientated along chip edge



COMPLIES WITH IEC 60825-1, 2nd 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 top of this table;

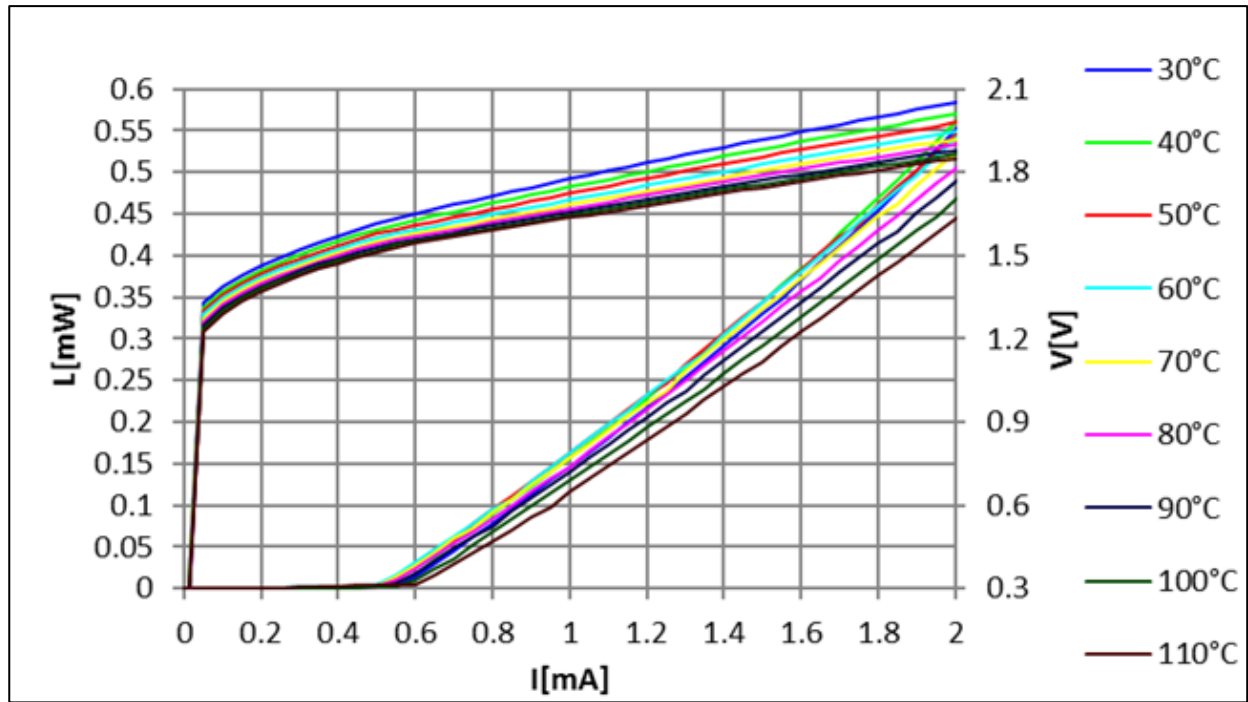
Note 2: For details refer to the Vixar Application Note "VCSEL EOS/ESD Considerations and Lifetime Optimization".

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Functional operation of the device beyond the Absolute Maximum Ratings for extended periods of time may affect device reliability.

Electro-Optical Characteristics

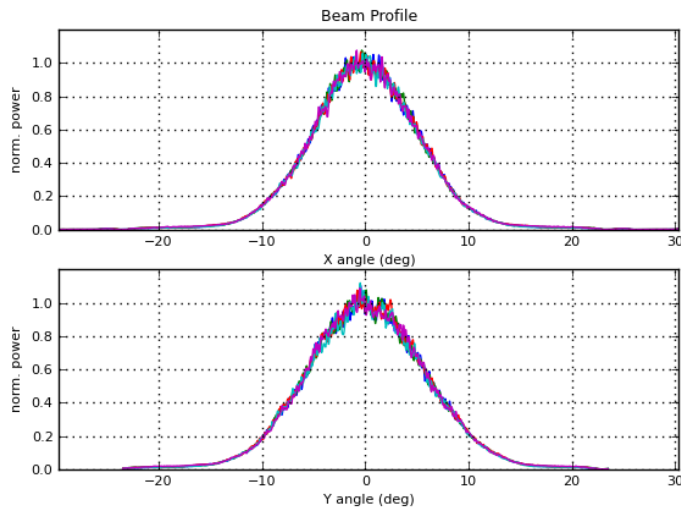
VCSEL Operating Temp (Top) = 80°C & Operating Current = 1.2mA unless otherwise stated

Parameter	Symbol	Units	Minimum	Typical	Maximum	Notes
Maximum DC current (CW)		mA	--	--	2.0	To remain single mode & polarization stable
Threshold current	I _{th}	mA	0.3	0.5	0.8	
Operating voltage	V _f	Volts	--	1.65	2.0	
Series resistance (VCSEL)	R _s	Ohms	--	200	--	
Slope efficiency	SE	mW/mA	--	0.35	--	
Optical output power	L _{op}	mW	0.18	0.23	--	T=50°C
Optical output power	L _{op}	mW	0.15	0.20	--	T=80°C
Reverse breakdown voltage		V	10	--	--	I _r ≤ 1nA
Operating wavelength	λ _{op}	nm	894.1	894.6	895.1	
Single mode Suppression Ratio	SMSR	dB	20	--	--	Unmodulated
Spectral width (RMS)	Δλ	MHz	--	--	50	Unmodulated
Polarization Extinction ratio	PER	dB	13	--	--	
Beam divergence 1/e ²		deg	16	20	26	
Beam divergence FWHM	FWHM	deg	9	13	16	
Wavelength current coefficient		nm/mA	0.35	0.5	0.65	
Wavelength temp coefficient		nm/°C	--	0.06	--	
Modulation Frequency		GHz	4.0	--	--	

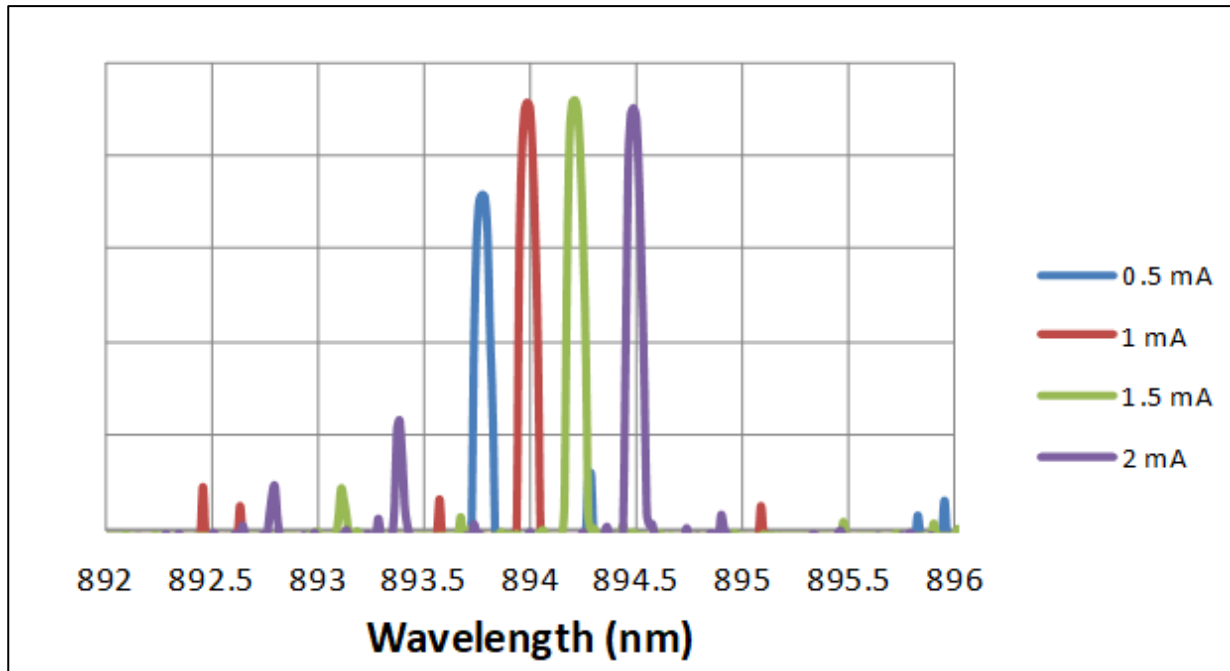


L-I-V performance of V00140 vs Temperature

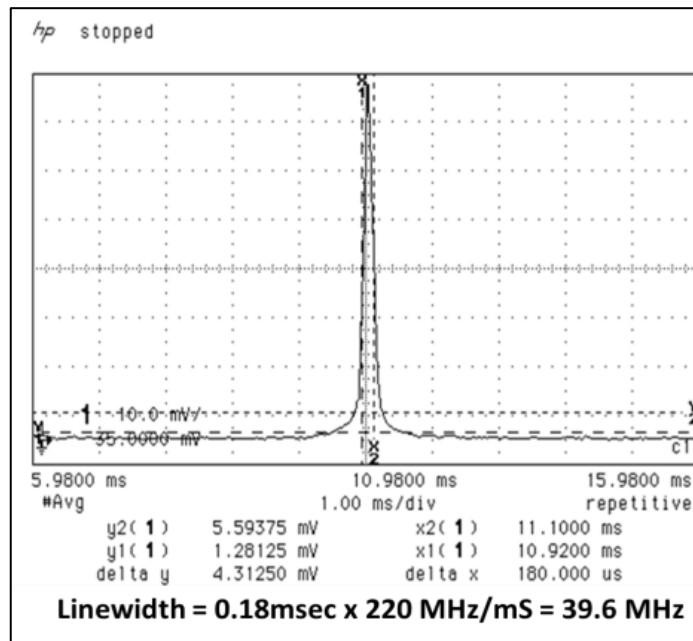
Beam Profile



Beam profile of IO-0895S-0000-X006 at 1.2mA, 80°C. Operational Mode CW



Spectral beam profile of IO-895S-0000-X006 vs Current



Line-width

Description	Part Number
Die; 895; S; 1M; S5,S6,S7; 0.2mW; 0.16mm X 0.20mm;	V00140

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



Opto Semiconductors

2355 Polaris Avenue North, Suite 100

Plymouth, MN 55447

763-746-8045

Email: Sales@vixarinc.com

Website: www.vixarinc.com

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