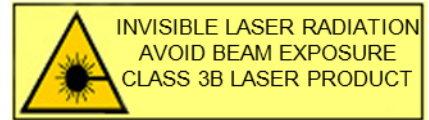
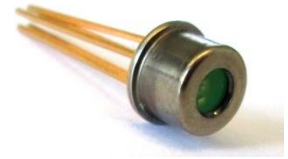


794.7 nm single-mode VCSEL



TO46 & TEC

- Vertical Cavity Surface-Emitting Laser
- Designed for resonant Rubidium excitation
- Internal TEC and Thermistor
- Narrow linewidth
- 2 nm tunability with TEC



PRELIMINARY

ELECTRO-OPTICAL CHARACTERISTICS						
Specified according to our Recommend Operating Conditions:				Laser current		$I_{OP} = 2 \text{ mA}$
				Target wavelength		$\lambda_t = 794.7 \text{ nm @ } T_{OP}$ (adjusted by TEC)
PARAMETER	SYMBOL	UNITS	MIN	TYP	MAX	TEST CONDITIONS
Emission wavelength	λ	nm		794.7		
TO temperature	T_{TO}	°C	-10		55	
Chip temperature	T_{OP}	°C	20		55	adjusted by TEC
Threshold current	I_{th}	mA		0.5		
Threshold voltage	U_{th}	V		1.80		
Optical output power	P_{opt}	mW	0.25		1.00	
Laser voltage	U_{OP}	V		2.3		
Wallplug efficiency	η_{WP}	%		12		
Slope Efficiency	η_s	W/A		0.3		
Differential series resistance	R_S	Ω		250		
Relative intensity noise	RIN	dB/Hz		-130	-120	@ 1 GHz
Wavelength tuning over current		nm/mA		0.6		
Wavelength tuning over temp.		nm/K		0.06		
Thermal resistance (VCSEL chip)	$R_{Thermal}$	K/mW	3		5	
Side mode suppression		dB	25			
Beam divergence	θ	deg	10		25	full width $1/exp^2$
Spectral bandwidth	$\Delta\nu$	MHz		30		
TEC current	I_{TEC}	mA	-300		+500	proper heatsink required
			for heating		for cooling	
NTC Thermistor Resistance		k Ω	9.5	10.0	10.5	$T_{OP} = 25^\circ\text{C}, I_{OP} = 0, I_{TEC} = 0$
NTC Temperature Dependence		k Ω	$10/exp[3892 \cdot (1/298K - 1/T_{OP})]$			

NOTICE: Stresses greater than those listed under „Absolute Maximum Ratings“ may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated for extended periods of time may effect device reliability.



ATTENTION: Electrostatic Sensitive Devices
Observe Precautions for Handling

Absolute Maximum Ratings

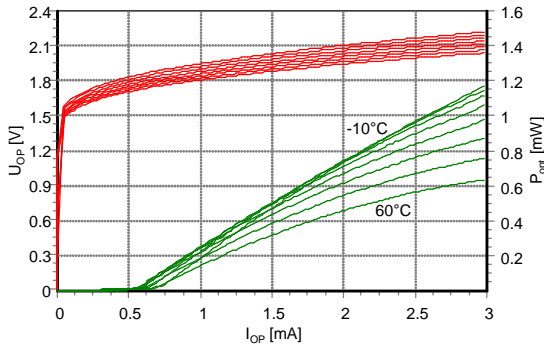
Storage temperature	- 40 .. 125°C
Operating TO temperature	-20 .. 80°C
Continuous forward current	3 mA
VCSEL reverse voltage	8 V
Soldering Temperature*	270°C

(*TEC temperature must be below 150°C)

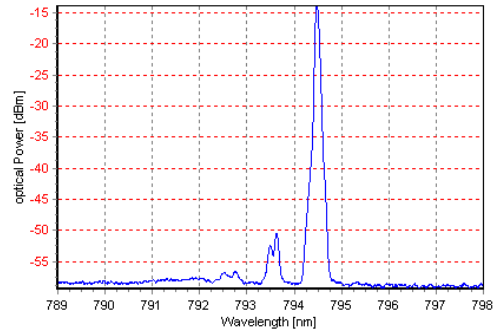
WAVELENGTH SELECTION CRITERIA

PARAMETER	SYMBOL	UNITS	MIN	TYP	MAX	TEST CONDITIONS
Emission wavelength	λ_0	nm	792.7		794.7	@ $T_{OP} = 20^\circ\text{C}$, $I_{OP} = 2\text{ mA}$
Target wavelength	λ_t	nm		794.7		adjusted by TEC

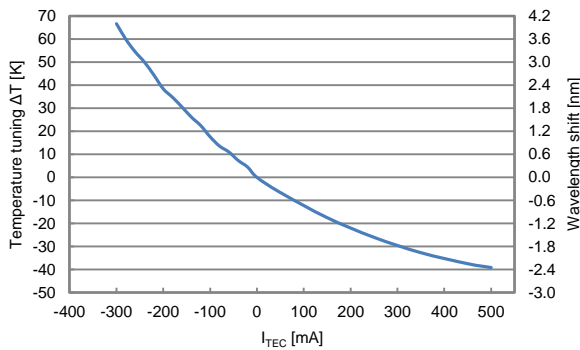
LIVT



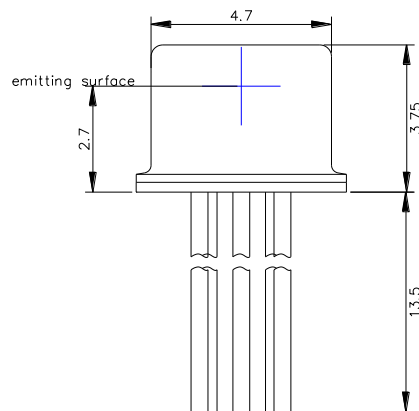
Spectral characteristics



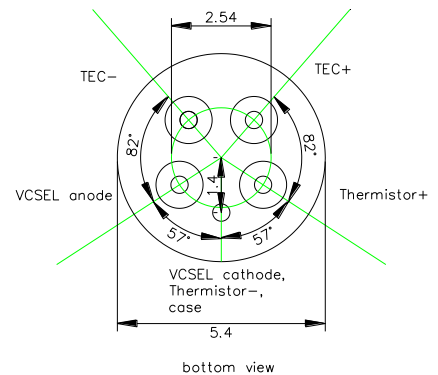
Temperature / wavelength tuning over TEC current



TO dimensions



Pin configuration



Unit: mm

For order please use:

ULM794-01-TN-S46FTT

OPTION:

- Customer specific wavelength selection on request



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Philips Photonics GmbH
Tel +49 731 550194-011
Fax +49 731 550194-026
philips.photonics.ulm@philips.com
www.photonics.philips.com