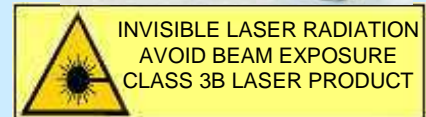


## Low cost Single Mode VCSEL 850nm, TO46, 1.0mW

- ◆ Ideal circular gaussian beam
- ◆ Built-in ESD protection structure
- ◆ High reliability, 10 years @ 85°C



### ELECTRO-OPTICAL CHARACTERISTICS

T=20°C unless otherwise stated

PARAMETER	SYMBOL	UNITS	MIN	TYP	MAX	TEST CONDITIONS
Emission wavelength	$\lambda_R$	nm	845	855	860	$P_{OP}=1.0\text{ mW}$
Threshold current	$I_{TH}$	mA	0.2		1.0	
Laser current	$I_{OP}$	mA	1.2		2.0	$P_{opt}=1.0\text{ mW}$
Laser voltage	$U_{OP}$	V			2.6	$P_{opt}=1.0\text{ mW}$
Slope efficiency	$\eta_S$	W/A	0.5		0.9	
Output power	$P_{opt}$	mW	1			$I_{OP}=2.0\text{ mA}$
Differential series resistance	$R_S$	$\Omega$	30		350	$P_{opt}=1.0\text{ mW}$
Thermal resistance (VCSEL chip)	$R_{thermal}$	K/mW	3		5	
Beam divergence	$\theta$	°	10		20	$P_{opt}=1.0\text{ mW}$ , FWHM
Side mode suppression ratio	SMSR	dB	10			$P_{opt}=1.0\text{ mW}$
ESD damage threshold		V	2000			human body model
Wavelength tuning over temperature		nm/K		0.06		

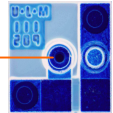
### ABSOLUTE MAXIMUM RATINGS

Storage temperature	-40 .. 125°C
Operating temperature	-40 .. 85°C
Electrical power dissipation	7.5 mW
Continuous forward laser current	2.5 mA
Laser reverse voltage	8V
Soldering temperature	330°C

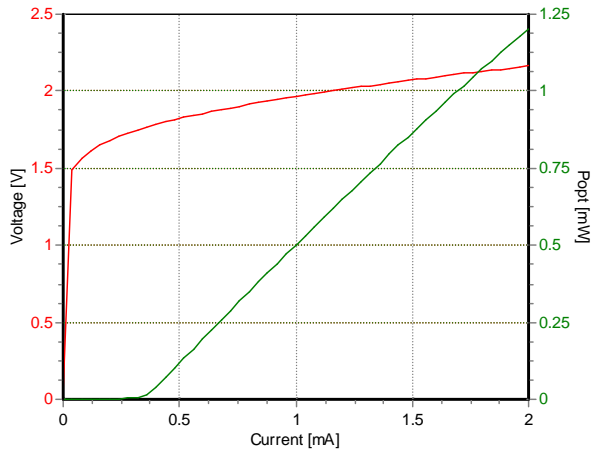
**NOTICE:** Stresses greater than those listed under „Absolute Maximum Ratings“ may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated for extended periods of time may effect device reliability.



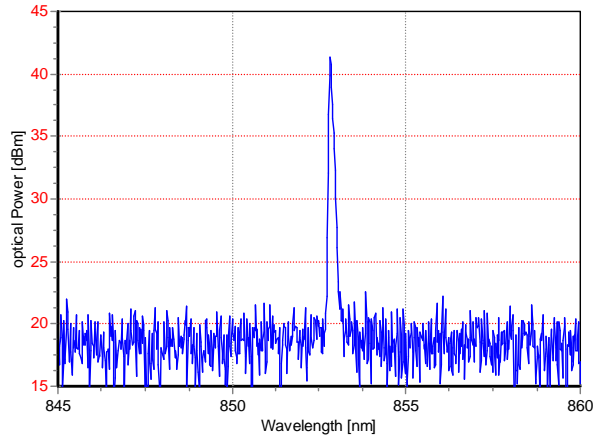
**ATTENTION:** Electrostatic Sensitive Devices  
Observe Precautions for Handling



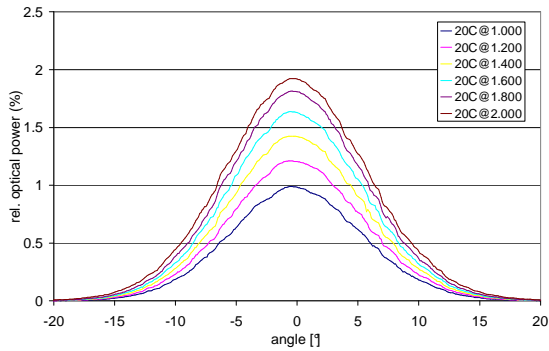
### Electro-optical characteristics



### Spectral Characteristics



### Farfield

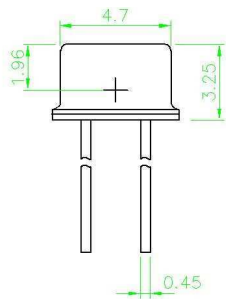


<b>Typ</b>	<b>ULM850-PM-TN-S46XZP</b>
<b>Descriptn.</b>	850nm SM VCSEL TO46
<b>Cap</b>	Cap without glass window
<b>Typ</b>	<b>ULM850-PM-TN-S46FZP</b>
<b>Cap</b>	Flat window cap



### Package / pin layout

without glass window



flat glass window

