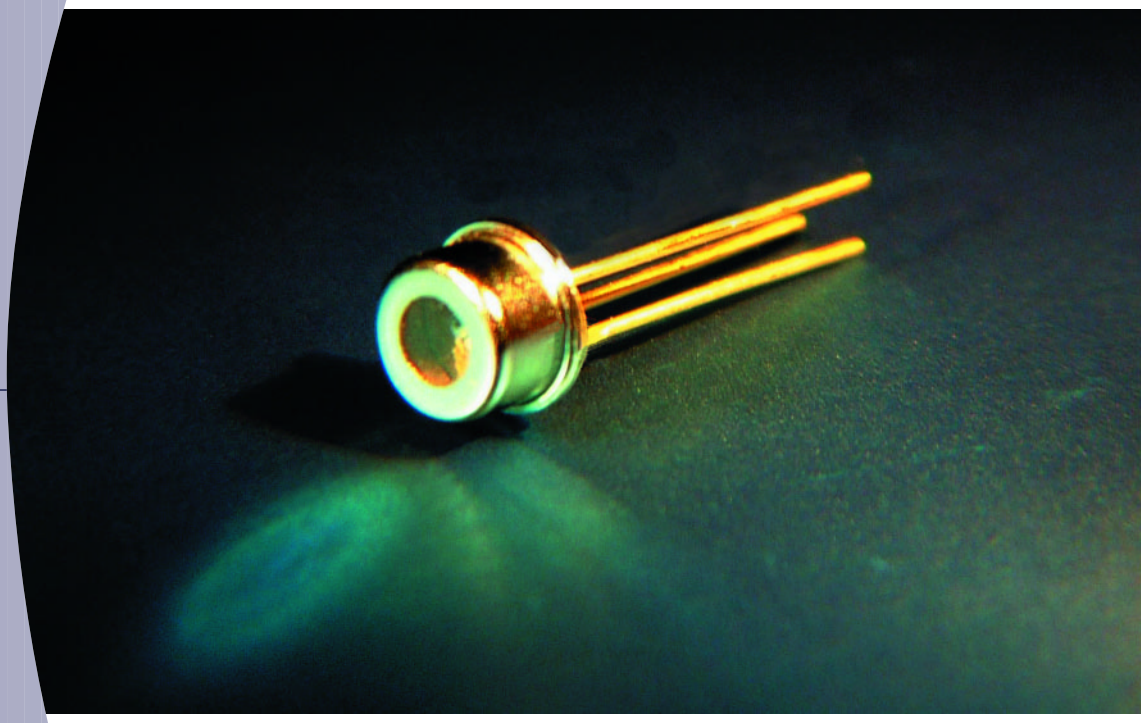
AVAP-850SM

Premium
850 nm Singlemode
VCSEL TO46 w/MPD

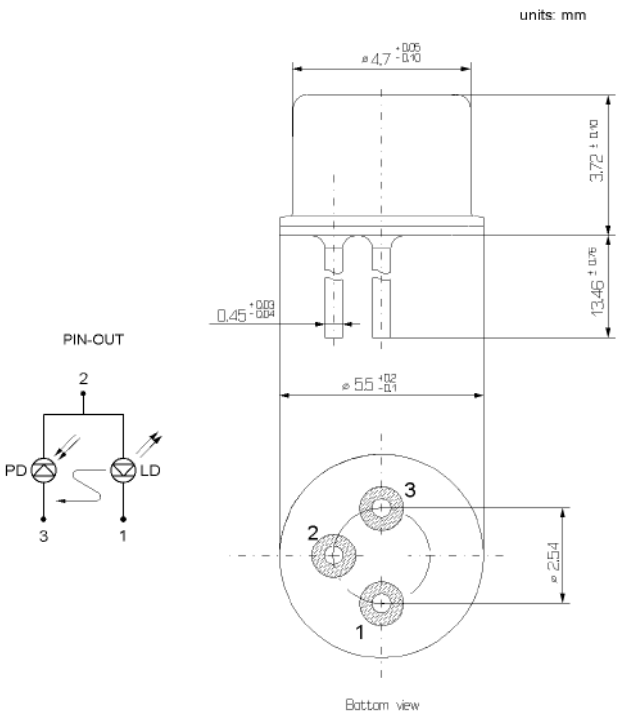
January 2006



Features

- **Single transverse and longitudinal mode**
- **Low power consumption**
- **High reliability**
- **High ESD-resistance**
- **Gaussian beam profile**
- **Small beam divergence**
- **High single mode power**

TO46 pinout



Ordering information

Part Number	Description
AP-A53-0101-1601	Premium 850nm SM VCSEL Chip in TO46 w/MPD
AP-A53-0101-1602	Polarization stable Premium 850nm SM VCSEL Chip in TO46 w/MPD

Premium
850 nm Singlemode
VCSEL TO46 w/MPD

Electro-optical characteristics

Parameter*	Symbol	Conditions	Ratings Min	Typ	Max	Units
VCSEL						
Threshold current	I_{th}		2.3	3.4	4.5	mA
Threshold voltage	V_{th}		1.8	1.9	2.2	V
Operating current	I_{op}	P_{op} = 1.0 mW	5.4	6.8	8.2	mA
Operating voltage	V_{op}	P_{op} = 1.0 mW	1.9	2.15	2.3	V
Differential resistance	R_{op}	P_{op} = 1.0 mW	30	46	60	Ω
Max SM current	I_{sm}	SMSR ≥ 20 dB	6.4	8.2		mA
Optical output power (max SM)	P_{sm}	SMSR ≥ 20 dB	1.10	1.2		mW
Slope efficiency	η	P_{out} = 1.0 mW	0.25	0.33	0.45	mW/mA
Emission wavelength	λ	P_{op} = 1.0 mW	840	850	865	nm
Beam divergence	θ	FWHM		10		°
Linewidth	Δν	P_{op} = 1.0 mW			30	MHz
Back Monitor Photo Diode						
Dark current	Id_{pd}	Bias = 3V		1	30	nA
Capacitance	C_{pd}	Bias = 3V		6		pF
Reverse breakdown voltage	BVRpd		30			V
Monitor current*	I_{pd}	P_{out} = 1mW	0.02	0.035		mA

*uncoated flat window cap

SM = singlemode; MM = multimode; SMSR = side mode suppression ratio; FWHM = full-width half-maximum

Thermal characteristics

Parameter	Symbol	Ratings Min	Typ	Max	Units
Temperature tuning coefficient	$\delta\lambda/\delta T$		0.06		nm/K
Threshold current variation: 0 to +70 °C	ΔI_{th}		0.70		mA
Current tuning coefficient	$\delta\lambda/\delta I$		0.30		nm/mA

Absolute maximum ratings

Parameter*	Symbol	Rating Min	Max	Units
Optical output power	P_{max}		3.5	mW
Peak forward current	I_{max}		10	mA
Electrical power dissipation	P_{tot}		20	mW
Operating temperature	T_{op}	0	+70	°C
Storage temperature	T_{stg}	-40	+100	°C
Lead solder temperature (for 10 sec.)	T_{solder}		260	°C

*(T=25°C unless otherwise noted)

The above specifications are subject to change without notice

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