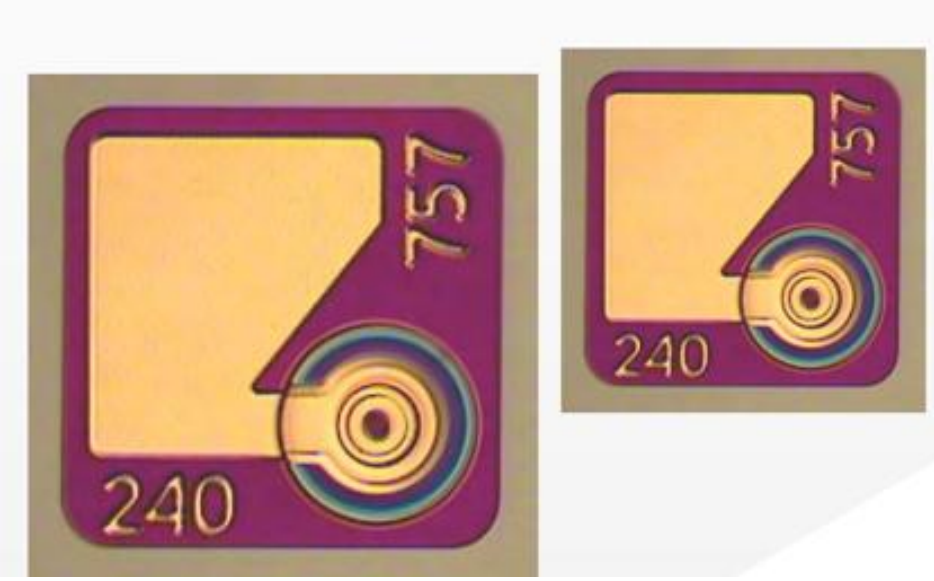
850nm polarization locked single mode VCSEL chip laser



Product Description

Our single-mode VCSELs are designed to meet the stringent specifications of a wide range of optical sensing applications. They provide polarization-stabilized single-mode emission with a symmetrical Gaussian beam profile and typically 1mW output power. Bias currents range from 3 to 6mA.

Product features

Single transverse mode and single longitudinal mode 、 Polarization-stabilized emission、Low power consumption、High reliability、Gaussian beam profile、 Back cathode and top anode configuration、 RoHS certified

Part Number

MP-VCS-850-1-DIE-SM

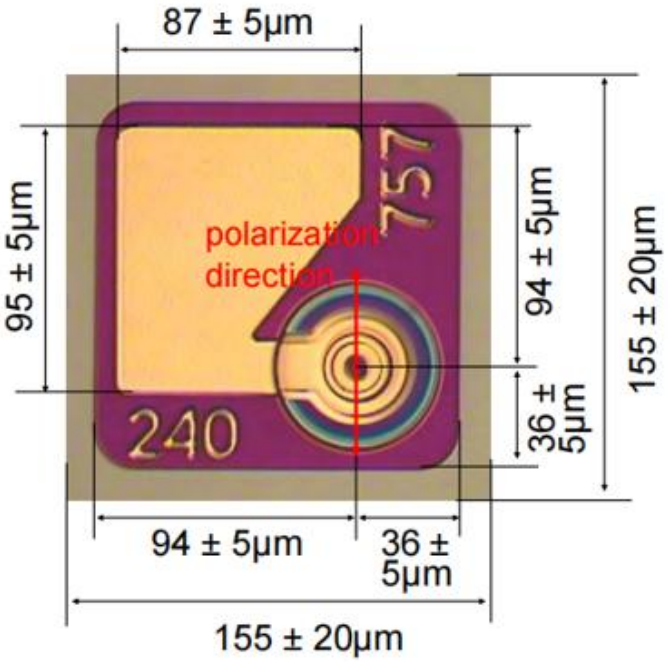
Application area

Laser mouse、 Optical sensor applications、 Photoelectric encoder

Core parameters

Wavelength	Output Power
850nm	0.9mW

Dimension Drawing



Chip thickness: 150 ± 15 μm

General Parameters

Technical parameters:

Test conditions: temperature 25 °C Operating conditions: T_{op} = 5 ° - 45 °C ; I_{op} = const., set at 25°C so that P_{op} = 0.55mW

Parameters	Symbol	Min.	Typ.	Max.	Unit	Note
Threshold current	I_{TH}	1	3	5	mA	T=25℃
Slope efficiency	η	0.20	0.40	0.65	mW/mA	T=25℃, I= I_{th}+1mA
Operating current	I_{OP}	2.3		6	mA	T=25℃, P_{op}=0.55mW
Operating voltage	U_{OP}			2.3	V	Working

						conditions
Differential resistance	R_d	20		90	Ω	T=25° C, P_{op}=0.55mW
SM optical output power	P_{SM}	0.9			mW	T=25℃
Side mode suppression ratio	SMSR	10			dB	T=25℃, P_{op}=0.9mW
Polarization direction accuracy	δ_{po}	-15		+15	deg	T=25℃, P_{op}=0.2...0.9mW
Emitted wavelength	λ_{peak}	840	850	860	nm	Working conditions
Beam divergence	$\theta_{FW1/e2}$	13	17	21	deg	T=25℃, P_{op}=0.5mW
Change of optical power with temperature	P(T) – P_{op}	-200		+120	μW	I_{op}, T=5...45℃

SM = Single Mode; FW1/e^2 = Full Width 1/e^2

Absolute Maximum Ratings:

Parameters	Max	Unit	Note
Continuous operating current	8	mA	3
Continuous reverse voltage	8	V	
PCB solder or reflow temperature	260	°C	Up to 10 seconds

Package size: chip size

Parameters	Min.	Typ.	Max.	Note
Chip width	135	155	175	μm
Chip length	135	155	175	μm
Chip thickness	135	150	165	μm