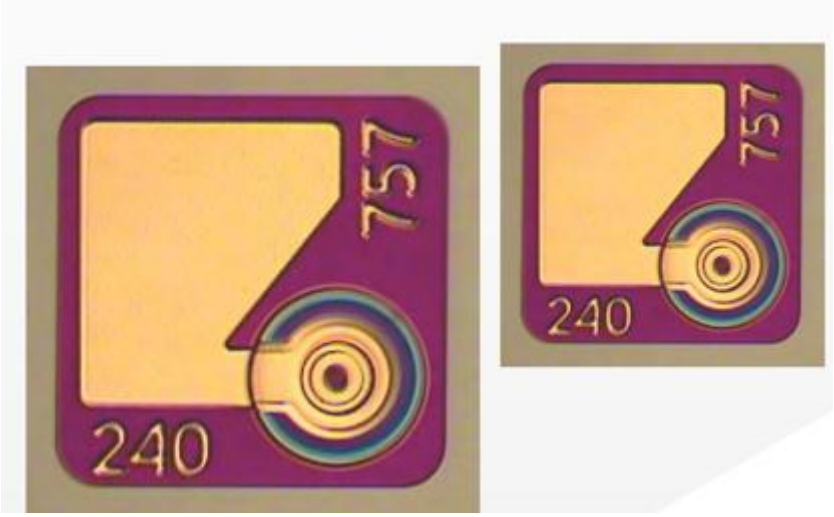
850nm polarization locked single mode VCSEL chip laser



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.

Part Number

APA8501010001

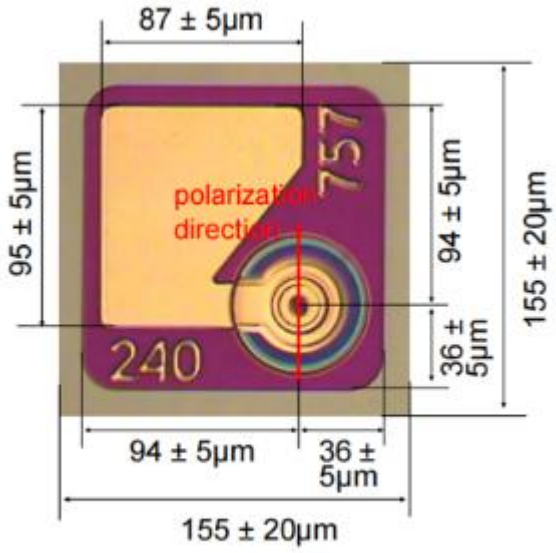
Product features

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

Application area

Laser mouse、 Optical sensor applications、 Photoelectric encoder

Dimensional Drawing



Chip thickness: 150 ± 15 μm

Parameters

Technical parameters:

Test conditions: temperature 25℃Operating conditions: Top = 5°- 45℃; Iop = const., set at 25℃ so that Pop = 0.55mW

Parameters	Symbol	Min.	Typ.	Max.	Unit	Note
Threshold current	ITH	1	3	5	mA	T = 25°C
Slope efficiency	η	0.20	0.40	0.65	mW/mA	T = 25°C, I = Ith+1mA
Operating current	IOP	2.3		6	mA	T = 25°C, Pop=0.55mW
Operating voltage	UOP			2.3	V	Working conditions
Differential resistance	Rd	20		90	Ω	T = 25°C, Pop=0.55mW
SM optical output power	PSM	0.9			mW	T = 25°C

Side mode suppression ratio	SMSR	10			dB	T = 25°C, Pop=0.9mW
Polarization direction accuracy	δpo	-15		+15	deg	T = 25°C, Pop=0.2...0.9mW
Emitted wavelength	λpeak	840	850	860	nm	Working conditions
Beam divergence	θFW1/e2	13	17	21	deg	T = 25°C, Pop=0.5mW
Change of optical power with temperature	P(T) – Pop	-200		+120	μW	Iop, T=5...45°C

SM = Single Mode; FW1/e2 = Full Width 1/e2

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