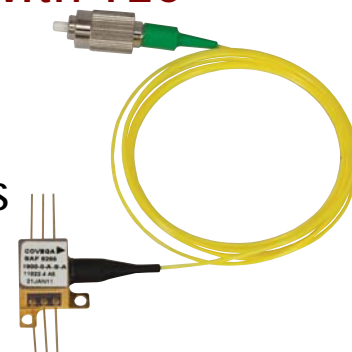SAF1900S

Description

The SAF1900S 1900 nm Single-Angled-Facet (SAF) gain chip (AR-coated laser diode) features an angled waveguide, AR coating, and a proven gain structure, which gives designers of external cavity lasers (ECLs) the highest power and widest tuning range available in the market. The butterfly assembly features a TEC and an optical isolator to improve the stability of the laser.

Laser Cavity Performance*

*Different external laser cavities will produce different performance specifications. The data given here is only valid for the specified reference cavity.

		SAF1900S		
		Min	Typical	Max
Reference Laser Cavity		Littman Cavity: TLK-L1900M		
Center Wavelength		1870 nm	1900 nm	1930 nm
Tuning Range[a]		130 nm	170 nm	-
Peak Power		5 mW	7 mW	-
Wavelength Tuning Resolution		4 pm	-	-
Tuning Speed		-	-	57 nm/s
Linewidth		-	100 kHz	130 kHz
Side Mode Suppression Ratio (SMSR)		30 dB	45 dB	-
Polarization Extinction Ratio		-	-	-
Power Stability[b]	30 s	1%	-	-
	24 hr	10%	-	-
Wavelength Stability[b]	30 s	-	-	2 pm
	24 hr	-	-	100 pm

[a] 10 dB, [b] Running open loop, measured using ITC4020 current controller.

ASE Performance

T_{OP} = 25 °C

	SAF1900S		
	Min	Typical	Max
Center Wavelength	1850 nm	1930 nm	1990 nm
3 dB Bandwidth	100 nm	150 nm	-
Operating Current	-	400 mA	-
Chip Forward Voltage	-	-	2 V
Gain Ripple, RMS[a]	-	-	1.5 dB
Power, Front Facet[b]	0.07 mW	-	-

[a] @ I_{OP}, Measured using OSA with 0.1 nm resolution bandwidth; [b]Free-space output power
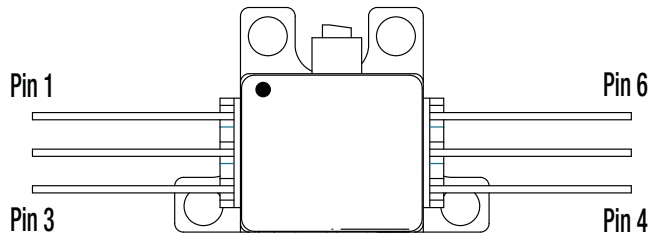
Pin 1   Pin 6

Pin 3   Pin 4

Additional Specifications

		SAF1900S		
		Min	Typical	Max
Chip Gain[a]		-	18 dB	-
Angled Facet Reflectivity[b] (R_1)		-	.005%	0.01%
Normal Facet Reflectivity (R_2)		-	20%	-
Lateral Beam Exit Angle		-	26.5°	-
Beam Divergence (FWHM)	θ_T	-	35°	-
	θ_L	-	19°	-
Operating Current[c]		-	500 mA	800 mA
Operating Temperature (Non-Condensing)		-	25 °C	-
TEC Forward Voltage		-	-	3.6 V
TEC Forward Current		-	-	2.1 A
Chip Length		-	2 mm	-
Waveguide Refractive Index		-	3.2	-
Astigmatism		-	1 μm	3 μm
Fiber Type		SM2000		
Fiber Connector		FC/APC		
Peak Optical Isolation		-	-	-
Fiber Coupling Efficiency		-	50%	-

[a] Single pass optical gain at center of gain curve; [b] SAF chip reflectivity diagram (see below); [c] @ T_{OP}

SAF Gain Chip

Reflective Coating

R_2* $R_1 < 0.01\%$
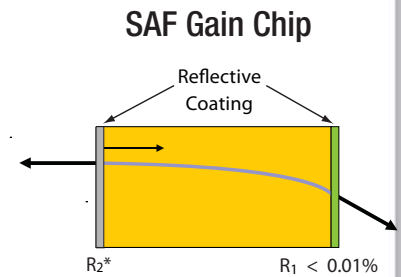
*R_2 is between 10 and 30%, depending on model.

Graphs

TLK-L1900M Power vs. Drive Current

Power (mW) vs. Current (mA)

TLK-L1900M Tuning Range

Power (dB) vs. Wavelength (nm)