



Description

The SAF1175S 1220 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.



		SAF1175S		
		Min	Typical	Max
Reference Laser Cavity		Littman Cavity: Internal Laser (Offered as OEM)		
Center Wavelength		1200 nm	1220 nm	1240 nm
Tuning Range ^a		80 nm	90 nm	-
Peak Power		5 mW	10 mW	-
Wavelength Tuning Resolution		-	-	1 pm
Tuning Speed		-	-	40 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	-	-	1 pm
	24 hr	-	-	50 pm

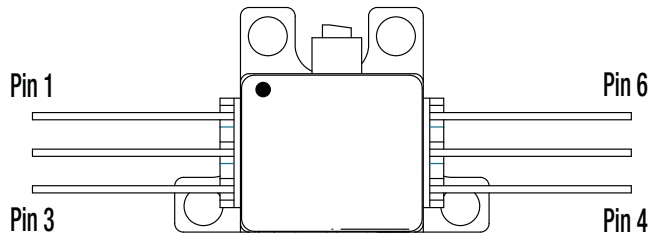
^a 10 dB, ^b Running open loop, measured using ITC4020 current controller.

ASE Performance

T_{OP} = 28 °C

		SAF1175S		
		Min	Typical	Max
Center Wavelength		1190 nm	1220 nm	1250 nm
3 dB Bandwidth		60 nm	80 nm	-
Operating Current		-	200 mA	-
Chip Forward Voltage		-	1.4 V	2 V
Gain Ripple, RMS ^a		-	0.5 dB	1 dB
Power, Front Facet ^b		0.35 mW	-	-

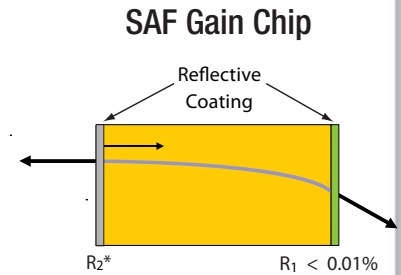
^a @ I_{OP}, Measured using OSA with 0.1 nm resolution bandwidth; ^b Free-space output power



- | Pin Identification | |
|--------------------|--------------|
| 1. | TEC + |
| 2. | Thermistor |
| 3. | Thermistor |
| 4. | Dev. Anode |
| 5. | Dev. Cathode |
| 6. | TEC - |

Additional Specifications

	SAF1175S		
	Min	Typical	Max
Chip Gain ^a	-	17 dB	-
Angled Facet Reflectivity ^b (R ₁)	-	0.005%	0.01%
Normal Facet Reflectivity (R ₂)	8%	10%	12%
Lateral Beam Exit Angle	-	26.5°	-
Beam Divergence (FWHM)	θ_T	20°	40°
	θ_L	10°	30°
Operating Current ^c	-	200 mA	-
Operating Temperature (Non-Condensing)	-	25 °C	-
TEC Forward Voltage	-	-	3.6 V
TEC Forward Current	-	-	2.1 A
Chip Length	-	1 mm	-
Waveguide Refractive Index	-	3.2	-
Astigmatism	-	1 μ m	3 μ m
Fiber Type	Corning HI1060, 1.0 m Long		
Fiber Connector	FC/APC		
Peak Optical Isolation	32 dB ^d	-	-
Fiber Coupling Efficiency	-	50%	-



*R₂ is between 10 and 30%, depending on model.

^a Single pass optical gain at center of gain curve; ^b SAF chip reflectivity diagram (see above); ^c @ T_{op}; ^d @ 1220 nm, 23 °C

Graphs

