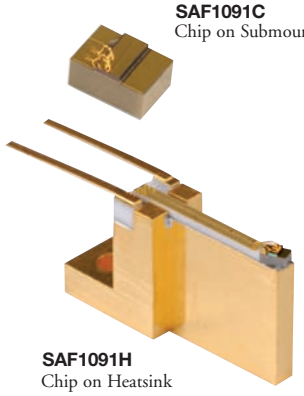
For current pricing, please see our website.

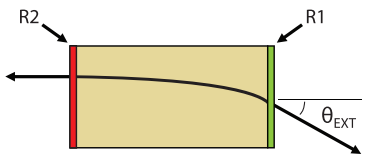
SAF Gain Chips, λ_C = 1650 nm



SAF1091C
Chip on Submount

SAF1091H
Chip on Heatsink

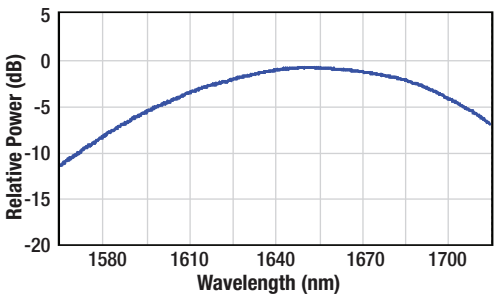
For tunable laser designs in the 1600 to 1700 nm range, Thorlabs offers two versions of single-angled-facet (SAF) gain chips: Chip on Submount (CoS) or Chip on Heatsink (CoH). Both chips are coated with a 90% high-reflection (HR) coating on the normal facet and a <0.01% AR coating on the angled facet, making them ideal for extended cavity setups.

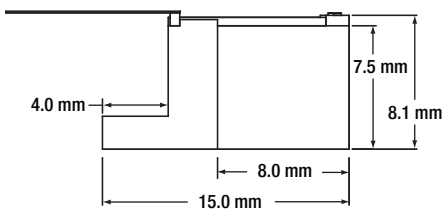


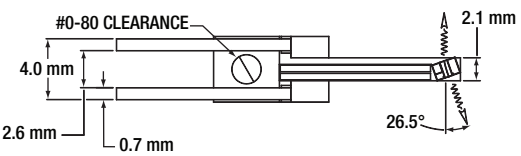
Single-Angled-Facet Gain Chip

These gain chips utilize a geometric technique that further reduces the reflection at the chip facet by combining a curved or angled waveguide with AR coatings to selectively remove reflective feedback from the cavity. This SAF gain chip is a superior gain element for external cavity lasers (ECLs), particularly tunable ECLs, since any residual reflection from the AR-coated FP gain chip facet often limits the stability, output power, and spectral quality of the laser.

SAF1091 Series ASE Spectrum







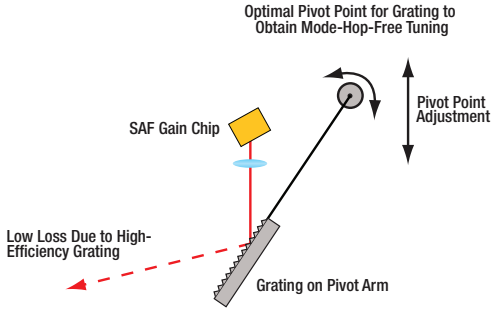
Optical-Electrical Characteristics*

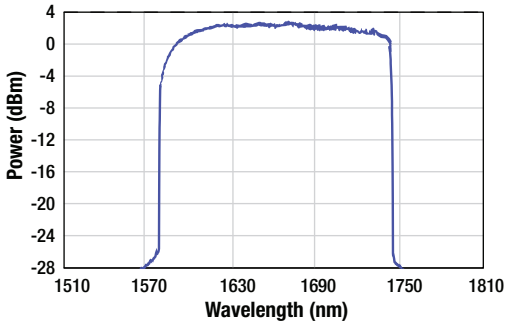
ITEM #		SAF1091C/SAF1091H		
Parameter	**Symbol**	**Min**	**Typical**	**Max**
Center Wavelength	λ	1620 nm	1650 nm	1680 nm
ASE 3 dB Bandwidth	BW	80 nm	90 nm	–
ASE Power @ I_{OP}	P_{OUT}	2.5 mW	3.5 mW	–
Peak Gain @ I_{OP}	G	–	23 dB	–
Gain Ripple, rms**		–	0.1 dB	0.35 dB
Angled Facet Reflectivity	R_1	–	0.005%	0.01%
Normal Facet Reflectivity	R_2	–	90%	–
Lateral Beam Exit Angle	θ_{EXT}	–	26.5°	–
Beam Divergence (FWHM)	θ_T	20°	30°	40°
	θ_L	10°	18°	30°
Operating Current	I_{OP}	–	500 mA	800 mA
Forward Voltage	V_F	–	1.35 V	1.6 V
Chip Length	L	–	1.5 mm	–

* Specifications based on Littrow external cavity configuration, R_2 = 10%, external cavity losses <5 dB, CW T_{CHIP} = 25 °C
** @ I_{OP} (Res. BW = 0.1 nm)

Mechanical Drawings Available on the WEB

Sample Results of SAF1091 Series Gain Chip used in a Basic Littrow Configuration





ITEM #	$	£	€	RMB	DESCRIPTION
SAF1091C	$ 625.00	£ 450.00	€ 543,75	¥ 4,981.25	1650 nm Single-Angled-Facet Gain Chip on Submount, R_2 = 90%
SAF1091H	$ 625.00	£ 450.00	€ 543,75	¥ 4,981.25	1650 nm Single-Angled-Facet Gain Chip on Heatsink, R_2 = 90%