# FS-SANOS-1064-15ps-1

## Data sheet of free-space SANOS @ λ = 1064 nm with one RSAM

**SANOS – Saturable noise suppressor**

**Other resonance wavelengths in the region 1050 nm – 1064 nm are possible on request**

### *SANOS applications*

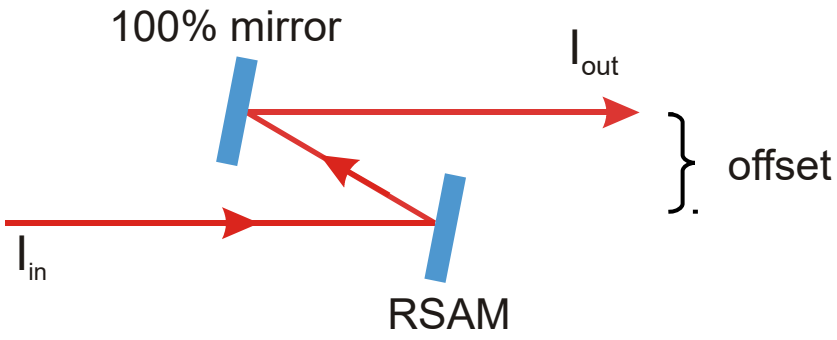
- Suppression of noise (ASE – amplified spontaneous emission) after an optical amplifier
- Suppression of remaining pulses after a pulse picker

### *Main FS-SANOS data*

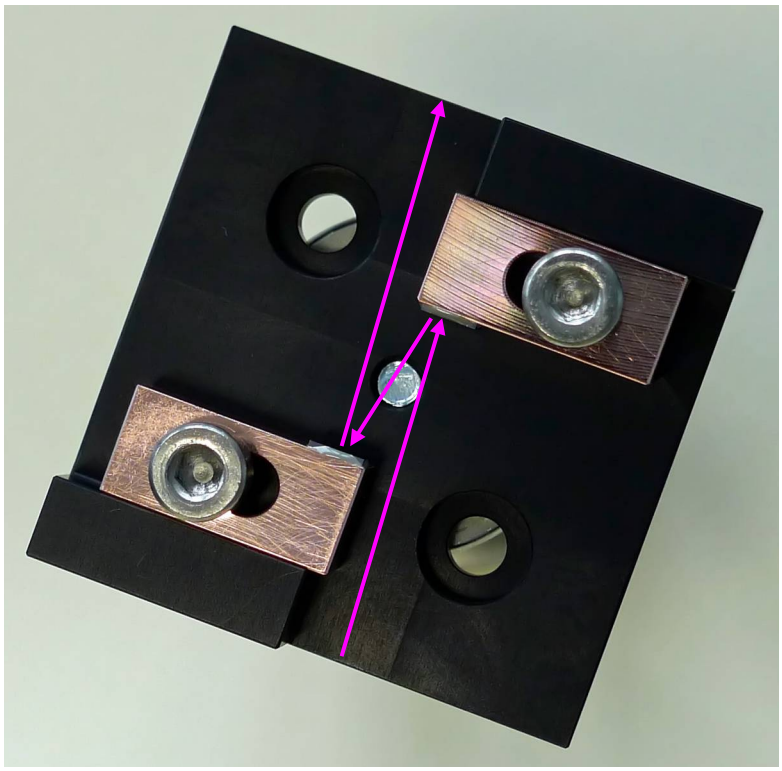
| | |
|---|---|
| Resonance wavelength | λ = 1064 nm ( 1050 nm – 1064 nm on request) |
| Full width at half maximum | FWHM = 20 nm |
| Noise suppression ratio | 14 dB |
| Insertion loss | 3 dB |
| Saturation fluence | $\Phi_{sat}$ = 4 µJ/cm$^2$ @ noise suppression of 10 dB |
| Relaxation time constant | τ = 15 ps |
| Parallel beam offset | 2 mm |
| Mirrors | one RSAM and one dielectric mirror with R > 99%, size: 4 mm x 4 mm |
| Angle of incidence on mirrors | 8° |

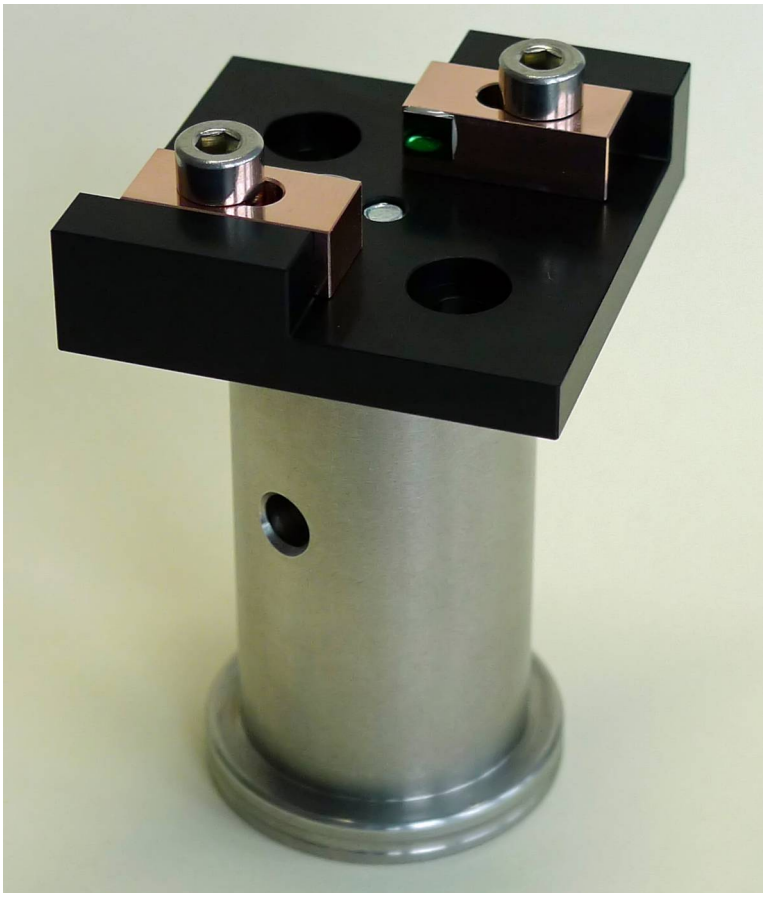
### *FS-SANOS description*

A FS-SANOS consists of a resonant saturable absorber mirror (RSAM) and a conventional 100% mirror. The beam goes true the FS-SANOS without changing of the direction, but with a parallel offset of 2 mm. The RSAM has a strong non-linear reflectance. For a low input signal level the transmittance of the FS-SANOS is only 2 % (98 % loss), whereas high intensity pulses are transmitted with a lower loss of 50 %. The input is isolated better than 50 dB. To meet exactly the low-intensity reflectance minimum the input beam inclination can be changed by some degrees.



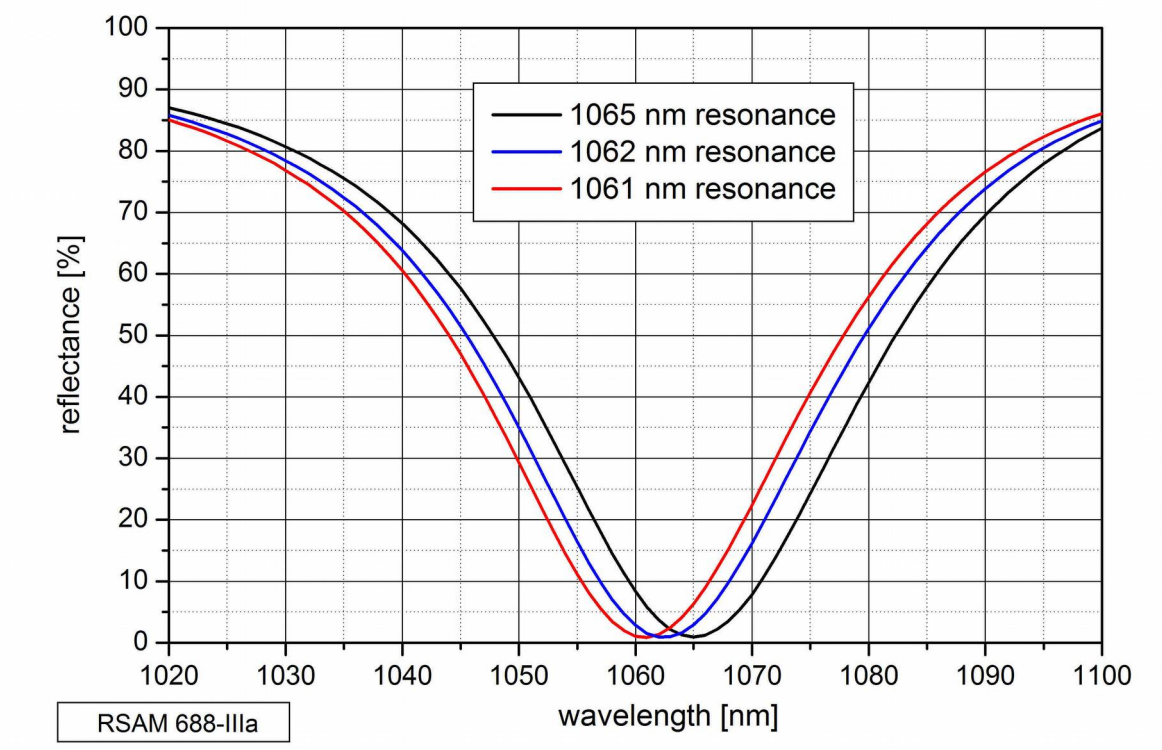
FS-SANOS-1064-1

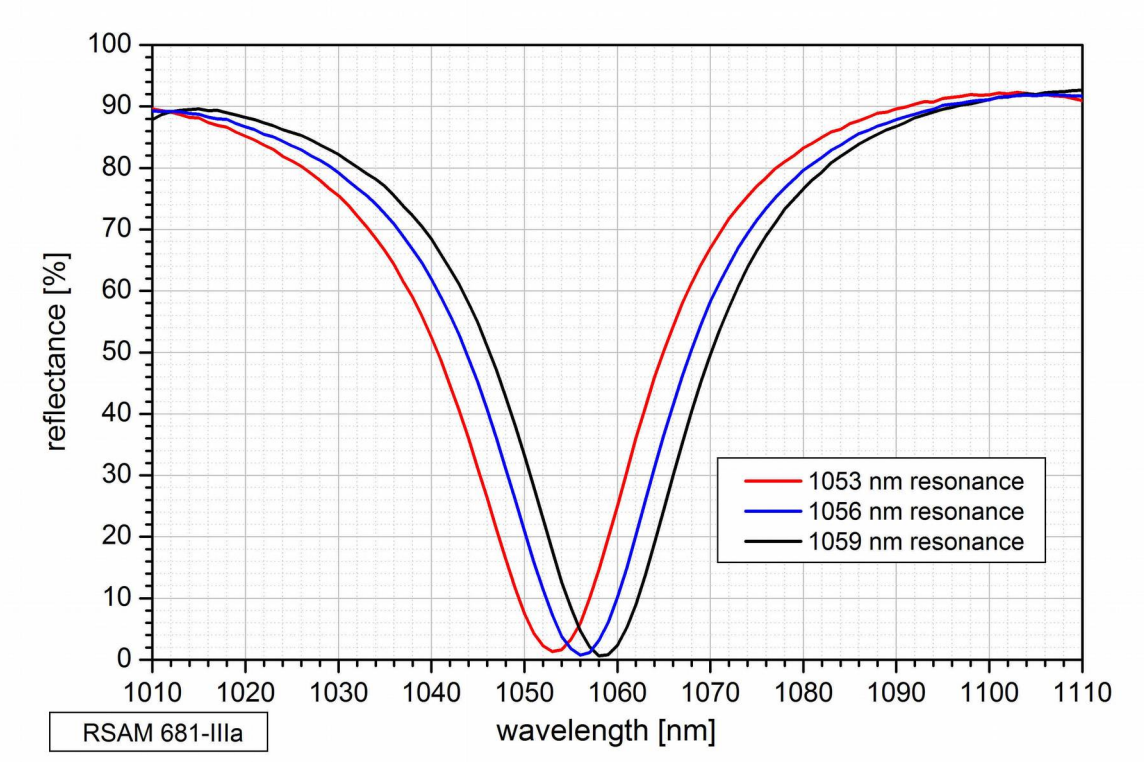




## *Spectral transmittance $I_{out}/I_{in}$*

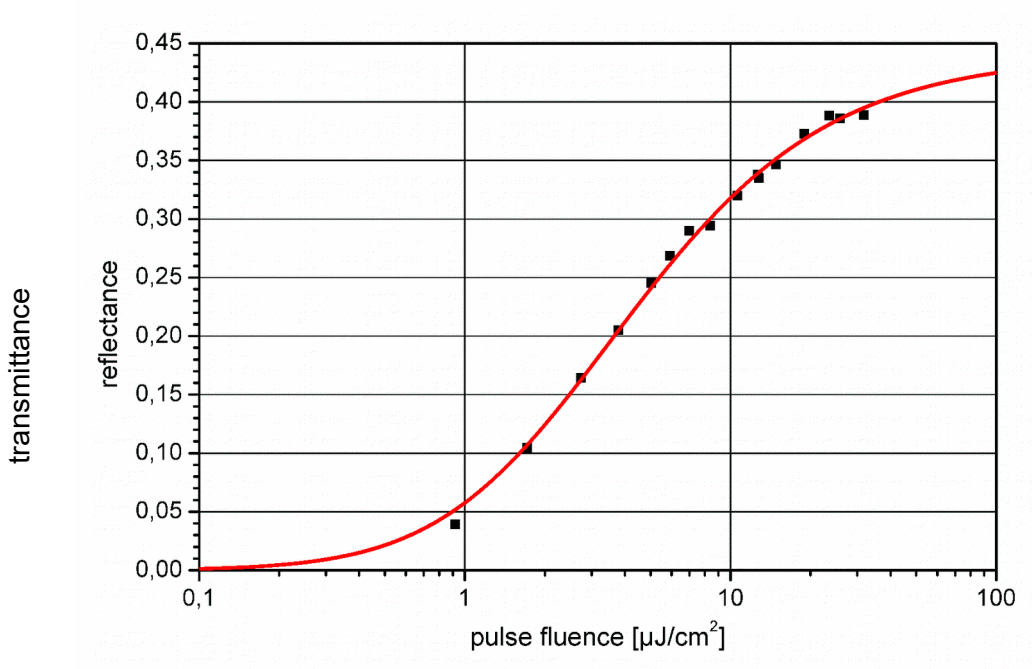
*Low intensity, unsaturated transmittance, 0° incidence angle*



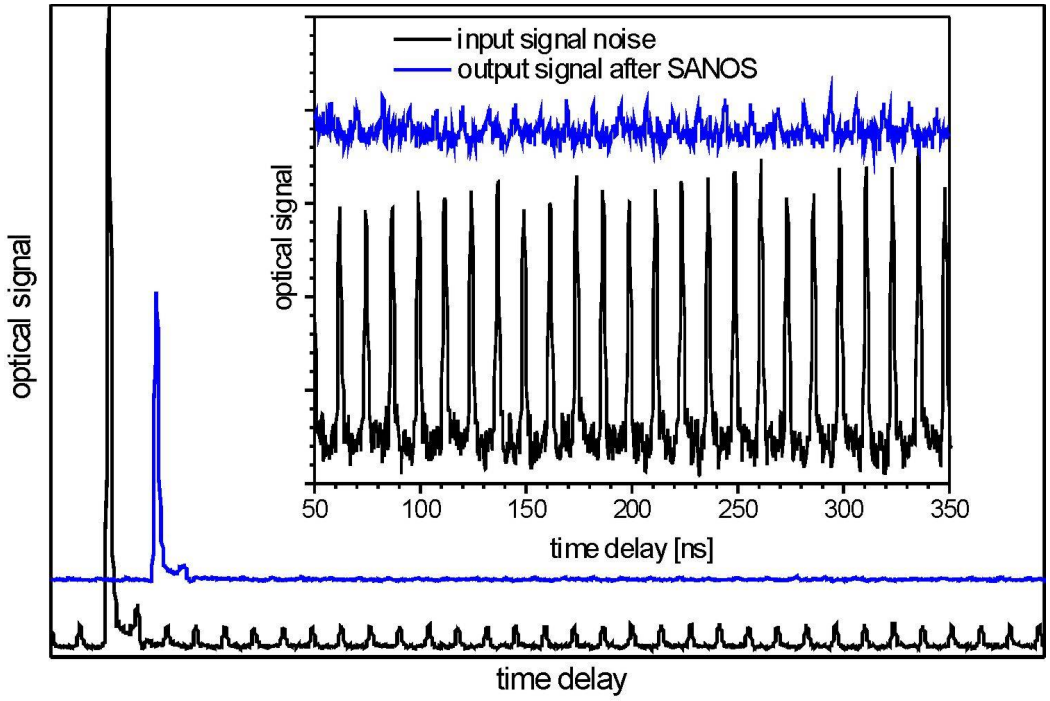
### *Saturation curve*

Dependency of the transmittance on the input pulse fluence (pulse duration 8 ps)




### Noise suppression measurement

Measured suppression of small pulses (after a pulse picker) using a SANOS. The black curve is the time dependent optical signal, which hits the SANOS and the blue curve is the SANOS output signal.




The large signal peak is decreased after the SANOS by a factor of about two, whereas the small noise pulses are decreased by about one order of magnitude.