

Alcatel 1928 OFA D-WDM Straight-line Erbium-Doped Fiber Amplifier

Preliminary

Description

The Alcatel 1928 OFA (Optical Fiber Amplifier) is designed to offer excellent performance characteristics for WDM systems in the 1530 - 1560 nm wavelength range.

The standard, double-stage 17 dBm unit can be supplemented using an external pump module to achieve 20 dBm output power. Tap couplers at each signal port offer full monitoring capability.

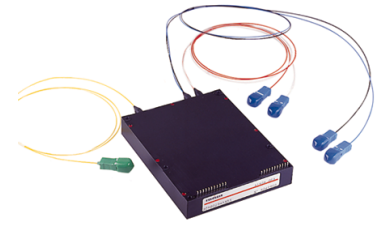
The Alcatel 1928 OFA achieves very flat gain in excess of 22 dB or 26 dB, while limiting gain excursion to < 1 dB (typical) over the entire 30 nm wavelength range. Optimization of the architecture yields very low typical noise figures; < 5 dB for the 17 dBm configurations.

Features

- Optimized for D-WDM transmission
- Dual-stage 17 dBm basic unit can be equipped with an external pump module to offer 20 dBm output power
- Low noise figure for optimal SNR
- Flat gain across wide bandwidth range
- Polarization independent & bit-rate transparent
- Optical isolators at input, monitor taps, and output minimize system susceptibility to reflection
- Compact, rugged low profile package

Applications

- Power booster for D-WDM systems
- Low-noise in-line amplifier for transport systems
- Pre-amplifier for systems in which dispersion compensation access is not required.



Optical characteristics

Parameter	14 dBm basic unit, Pump 980 nm			Unit
	Symb	Min	Max	
Laser pump drive current	I drive	980	330	mA
Laser pump drive current	I drive	1480	875	mA
Laser Voltage	V drive		2.5	V
Photodetector monitor	I mon	100	2500	μ A
TEC drive (70°)	I TEC		1.5	A
TEC Voltage	V TEC		3.8	V

All parameters are specified within the overall temperature range for BoL

Electrical characteristics

Parameter	Symb	+ 17 dBm		+ 20 dBm		Unit
		Min	Typical	Min	Max	
Operating wavelength	λ	1530		1530	1560	nm
Output power	Pout	17		20		dBm
External pump power, 1480 nm	G		NA		180	mW
Input power [1]	Pin		- 5		- 2	dBm
Input power [2]	Pin		- 9		- 6	dBm
Noise figure	NF		< 5		< 5.5	dB
Polarization mode dispersion	PMD			0.5		ps
Gain flatness	Δ G		< 1		< 1	dB

All parameters are specified within the overall temperature range. The typical values are referenced to + 25 °C.

[1] gain = 22 dB / [2] gain = 26 dB

Absolute maximum ratings

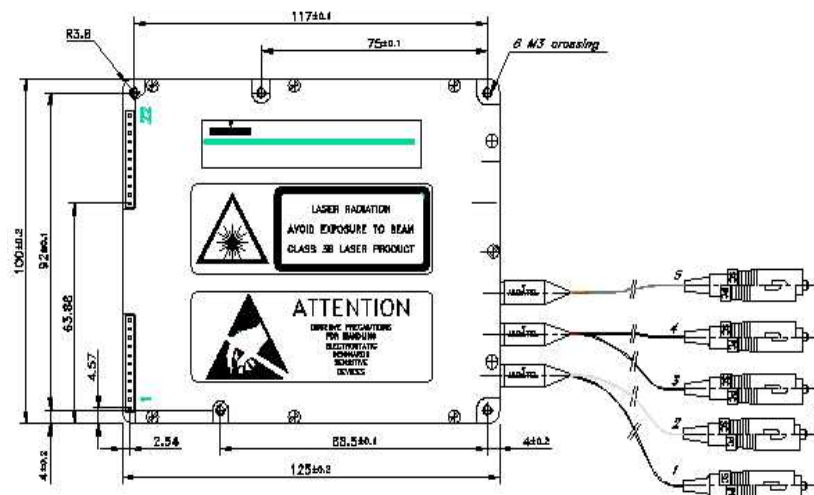
Parameter	Symbol	Min	Max	Unit
Operating temperature	θ Oper	-5	+70	°C
Storage temperature	θ Stor	-40	+85	°C
Pump bias current, end of life	1 Drive 1 max		400	mA
Pump bias current, end of life	1 Drive 2 max		1000	mA
Soldering temperature (3s)	θ Sold		350	°C
Axial pull force on fiber (10s)	/		10	N
Fiber bend radius from package	/		40	mm

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only.



Mechanical details

125 x 100 x 19 mm



Pin out

N°	Description	N°	Description
1	Pump cooler -	12	NC*
2	Pump cooler -	13	Pump cooler +
3	Pump laser cathode	14	Pump cooler +
4	Pumplaser anode	15	Pump Thermistor
5	NC	16	Pump Thermistor
6	NC	17	Pump monitor cathode
7	NC	18	Pump monitor anode
8	NC	19	NC
9	NC	20	NC
10	NC	21	NC
11	Pump EDFA case	22	NC

* Stands for "Not Connected"

Pigtails

N°	Description
1	Red, SC/PC; signal output
2	White, SC/PC; output tap*
3	Blue, SC/PC; signal input
4	Black, SC/PC; input tap*
5	Yellow, SC/APC; External pump input

* photodiode monitoring available instead of pigtail

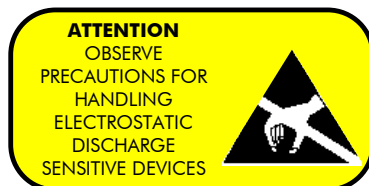
Ordering information

Alcatel 1928 OFA

Part number	Description	Connector type
3CN 00344 AA	17 dBm/22 dB gain	(see pigtail chart)
3CN 00442 AA	17 dBm/26 dB gain	(see pigtail chart)



LASER RADIATION
AVOID EXPOSURE TO BEAM
Class 3 B laser product



Standards

ITU-T G.652 optical fiber
 ITU-T G.653 shifted dispersion fiber
 IEC 68-2 and MIL STD 883 environment

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Customized versions are available for large quantities.

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