

Applications

- High performance supertrunking links
- High power distribution networks
- Fiber Deep architectures
- FTTx networks

Features

- Full Function Fiber Optic Amplifier Ready for Integration
- Output power range +30 to +35 dBm
- Input Power Range: -10 dBm to +12 dBm
- Low Noise figure < 6 dB
- Complete solution with input and output monitors
- Remote interface for full control of unit RS-232 (RS-485 or I²C optional)
- 2 outputs are available
- Polarization Mode Dispersion < 0.5 ps
- Polarization Dependant Gain < 0.1 dB
- Input / Output Isolation > 40/40 dB
- Low Electrical Power Consumption

MAFA 3000 Series Erbium Doped Fiber Amplifier



The ORTEL MAFA 3000 Series Fiber Optical Amplifier gain block is an ideal building block for OEM system integrators. The family of MAFA 3000 Optical Amplifiers is designed to meet the most demanding noise performance requirements of CATV and FTTx applications, and performs all the functions required of an optical amplifier for system integration. MAFA 3000 series optical amplifiers provide optical isolation on the input and output of the gain block for stable, low noise operation. The input and output optical signal power levels are detected for monitoring and control. The input optical signal is amplified with active gain control for a constant output power level, or with active output power control for constant gain mode. The MAFA 3000 series optical amplifiers also provide monitors and associated alarms for all vital characteristics. The optical output of the MAFA 3000 series optical amplifiers can be split into number of ports by an optional internal splitter.

Specifications

PROPERTY	UNIT	LIMIT	MAFA MODELS			COMMENT
Product Code			3030	3032	3035	
PERFORMANCE						(note 1)
Operating Input Power	Pin (dBm)	Max	+12	+12	+12	
Operating Input Power	Pin (dBm)	Min	-10	-10	-10	
Output Power	Po (dBm)		30.0	32.0	35.0	Nominal (note 2)
Noise Figure	NF (dB)	Typ/Max	5.5/6.0	5.5/6.0	5.5/6.0	(note 3)
Static Gain Flatness	GF (dB)	Max	+/-1.0	+/-1.0	+/-1.0	(note 4)
Dynamic Gain Flatness	(dB)	Max	+/-2.00	+/-2.25	+/-2.50	(note 5)
Output Power Stability	(dB)	Max	+/- 0.25	+/- 0.25	+/- 0.25	(note 6)
Power Consumption (steady state regime)	Psys (W)	Max	50 30	65 40	80 50	70°C Case (premium) 55°C Case (economy) (note7)
Remnant pump power to output	Prp (dBm)	Nom.	<-30	<-30	<-30	

Notes:

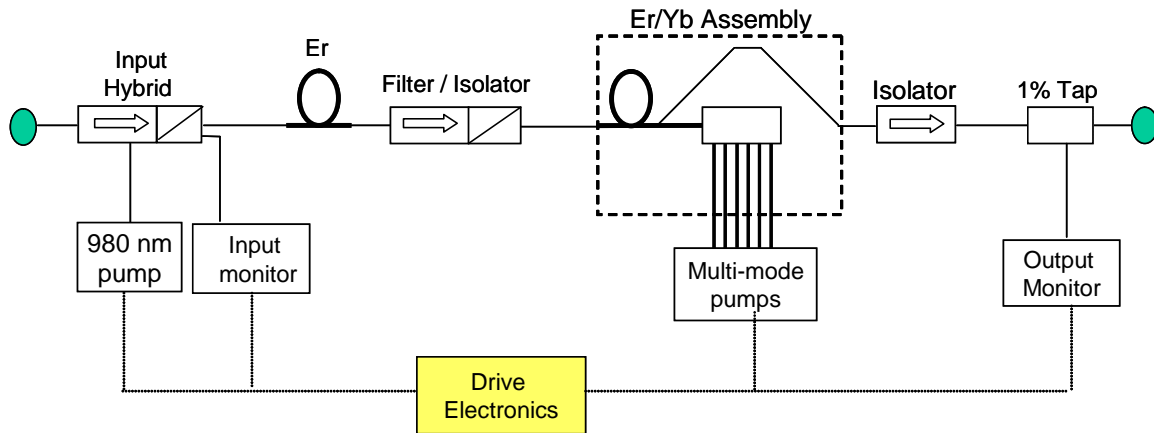
- 1) Unless stated otherwise all specifications apply over the full temperature range and humidity
- 2) Depending on the fiber optic patchcord interface the measured value can vary up to 0.5 dB less than the actual value.
- 3) Measured @ 25°C, ΣPin = 0 dBm
- 4) Measured with a swept Probe Signal (Pp), where Pp = 0 dBm @ 25°C
- 5) Measured with a swept Probe Signal (Pp), and a fixed Tone Signal (Pt) @ 1553nm; (Pt = Pp+20 dB; Pt + Pp = 0 dBm) @ 25°C;
- 6) Stability over polarization and temperature
- 7) Premium version – MAFA with cooled, Telcordia qualified pumps
Economy version – MAFA with uncooled pumps

Physical

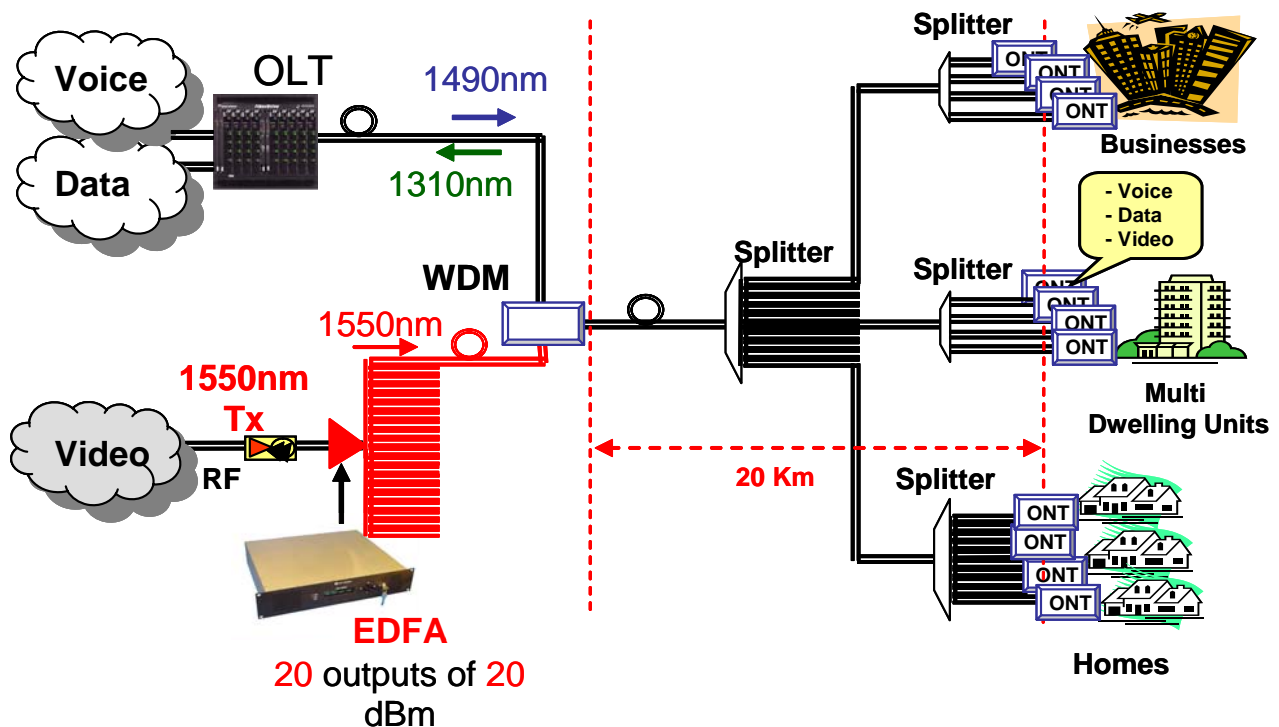
GENERAL PROPERTY	REQUIREMENT	COMMENTS
Operating Wavelength	1545 ~ 1562nm	Standard
Operating Case Temperature	-40°C to 70°C or 0°C to 55°C	Premium Economy
Storage Temperature	-40°C to 85°C	Standard
Operating Humidity	20% to 85%	Non-condensing
Voltage Supply Range	+4.5V to+5.5VDC or +23V to + 25V	+5 V version +24 V version
Optical Connectors	See ordering information	User Specified
Dimensions In Inches	9.5"W x 6.7"D x1.5"H	MAFA 3030 to MAFA 3035 Unit height depends on heatsink used, airflow and other requirements of end user's system

Block Diagram: Cladding Pump Technology

Cladding pump technology uses erbium/ytterbium fiber optic assemblies (double clad fiber and multi-mode pump lasers) to produce cost effective high power optical amplification. This technology enables the development of higher power EDFAs-something that was cost inhibitor when using standard Erbium fiber and single mode pumps.



Sample FTTx Architecture

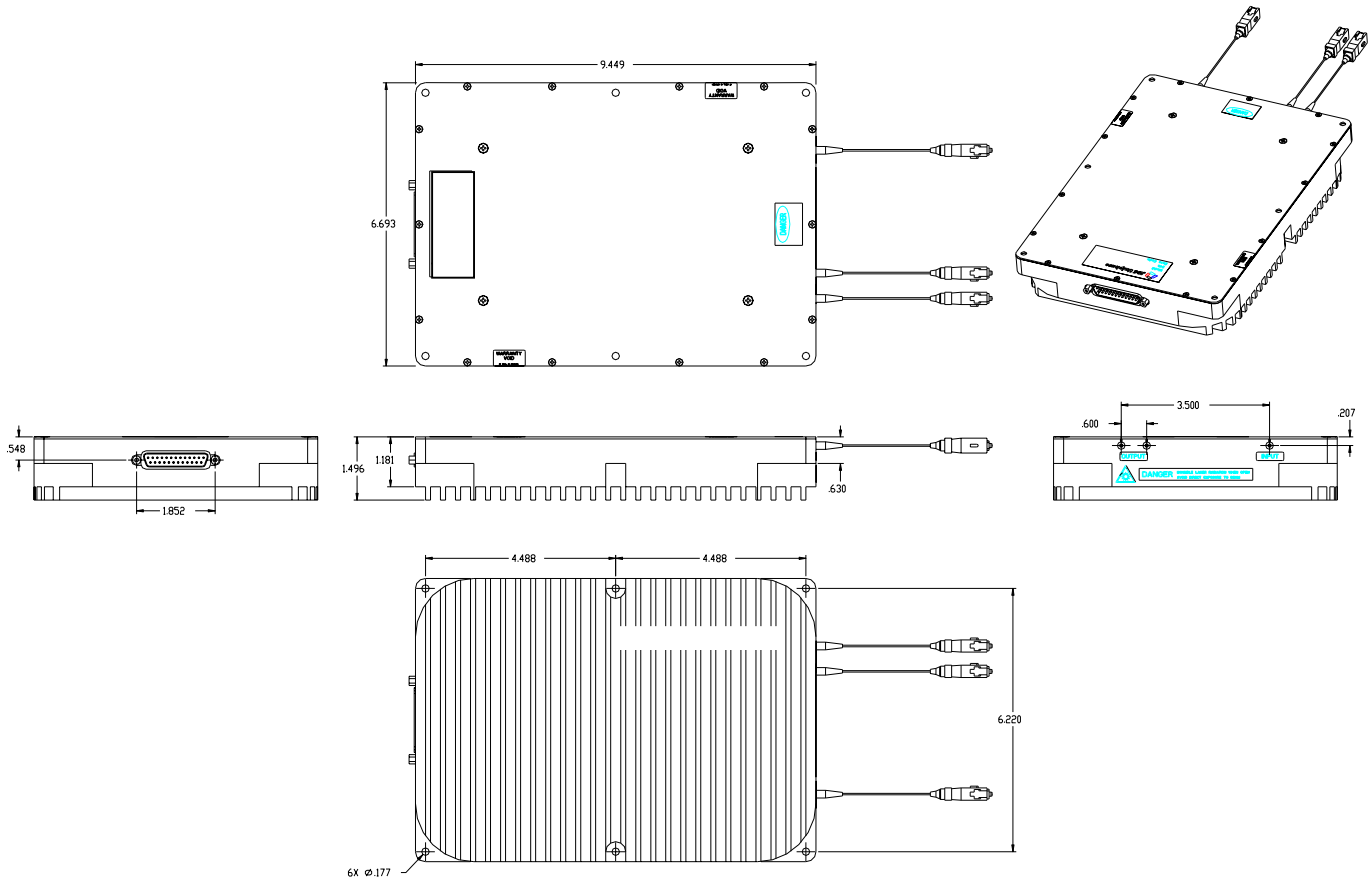


MAFA3000 Series High Power EDFA Gain Block

Revision A

DATA SHEET | JULY 1, 2005

Form Factor



Ordering Information

MAFA30 - - - -

Power Level	Connector Option	# of Output Ports	Class	Voltage Supply
30 – 30 dBm	SC - SC/APC	1 – 1 port	P – Premium	1 – + 5 V
32 – 32 dBm	FC - FC/APC	2 – 2 ports	E – Economy	2 – + 24 V
35 – 35 dBm	EC - E2000/APC			
	TC - SC/UPC			
	GC - FC/UPC			

Class:

Premium: Utilizes cooled pump lasers
 Economy: Utilizes uncooled pump lasers

Qualifications

- FCC: Subpart B. Part 15, class “A” Unintentional Radiators
- CE: EN50083-2, 19995 with Amendment 1, which incorporates EN 55013 Radiated and Conducted Emissions
- EN 61000-4-3 Radiated Immunity
- EN 55020 Conducted Immunity
- EN 61000-3-2 Harmonics
- All components meet Telcordia GR-1312 and GR-486 standards (Except pumps in Economy Class).
- EN 61000-3-2 Harmonics

- Fit Rate:
 - 90% level of confidence < 2000 @ 30°C Premium MAFA 3035
 - 90% level of confidence < 3500 @ 30°C Economy MAFA 3035