X6500-xEA

Optical EDFA Amplifier Family

Product Highlights

- Optical Amplifier family that includes Booster, Line and pre-amp versions
- Output power up to 23dBm
- Standard mode: Constant gain (AGC), optional modes constant output power (APC) or constant pump curent (ACC)
- Low noise Optical Preamplifier

X6500-xEA is a family of cost effective Erbidium Doped Fiber optical Amplifiers that is compatible with X6500 and X6200 XenOpt transport chassis that includes Booster, Line and Pre-amp versions. Each amplifier is a single height X6500 module.

Amplifiers can be managed through snmp with ability to control gain and receive alarm conditions when limit values for select optical values or temperature and current are exceeded. For network based management X5600 chassis must include X6500-SC management module. For installations that do not require remote management these optical amplifiers can also be managed through on board serial interface.

All these amplifiers operate in standard version as constant gain mode (AGC) – amplifying all signals for set amount. but can be modified to work in constant output power mode (APC) – assuring output is at set power as long as input power is within specified range, or in (laser pump) constant current mode (ACC). All **X6500-xEA** family amplifiers can operate in full C band with bandwidth from 1528nm to 1565nm.

X6500-BEA is a single stage Booster EDFA Amplifier intended for amplifying transmission signals ether single channel or multiplexed multichannel. Maximum output optical power can be up to 23dBm (200mW). It is the most cost effective solution for boosting optical signals.

X6500-LEA is a Line EDFA Amplifier that can be used at all locations of the network, especially where DCM, high gain and/or where adjustments in wider range is needed. It can work as booster or preamplifier, but is most effective as mid line amplifier located at intermediate location(s) of a long track.. It is two stage EDFA amplifier with optional mid-point connections for connecting additional CD correction modules (DCM). When DCM is not needed these connections can be directly connected with patch cable.

X6500-PEA is a low noise single stage EDFA Preamplifier that is optimal for amplification of low level signals at the end of an optical track. Due to its low noise factor it reduces OSNR less than alternative optical amplifiers

Line and Booster Amplifiers can come in fixed gain version, that support only ±1dB gain variations or in variable gain versions that allow ±3dB gain adjustments from nominal gain value. Preamplifiers have fixed gain and output power. Line and Booster models come in five different maximum power versions among these also 17, 20 and 23dBm

Typical application:

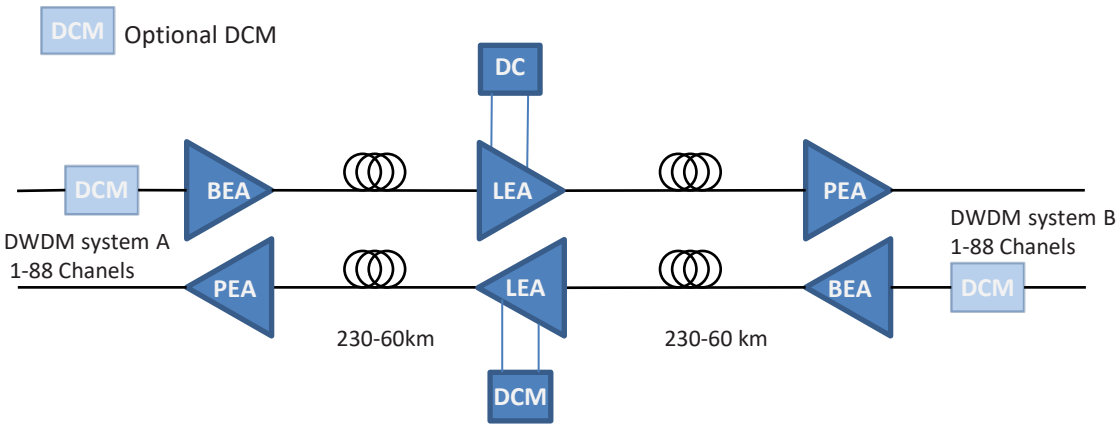

Table 1 Maximum safe conditions

	Min.	Typ.	Max.	Unit	Note
Power consumption	6		30	W	Depending on model and operating mode
Operating temperature range	0		50	˚C	
Storage temperature range	-40		80	˚C	
Humidity			90%	%RH	Non condensing

Table 2 X6500-PEA Fixed gain Preamplifier specification

	Min.	Typ.	Max.	Unit	Note
Operation wavelength	1529		1561	nm	
Input power	-32	-8	-5	dBm	
Gain	14	16	17	dB	For X6500-PEA-16-15 adjustable ±1 dB
Maximum Output power		14.5	15	dBm	For X6500-PEA-16-15
Gain flatness			2	dB	in operational temp range
Noise figure		4.5	5	dB	Input=-8dBm,Gain=26dB
Input threshold	-13			dBm	Can be adjusted

Table 3 X6500-BEA Line Booster Fixed Gain Amplifier specification

	Min.	Typ.	Max.	Unit	Note
Operation wavelength	1529		1561	nm	
Input power	-14		-5	dBm	for X6500-BEA
	-32		-5		for X6500-PEA
Gain	15	16	17	dB	For X6500-LEA-pp-16 and X6500-BEA-pp-16 adjustable ±1 dB
	17	20	23		For X6500-LEA-pp-20 and X6500-BEA-pp-20 adjustable ±1 dB
	22	25	28		For X6500-LEA-pp-25 and X6500-BEA-pp-25 adjustable ±1 dB
Maximum Output power		16	16.5	dBm	For X6500-BEA-16-gg
		20	20.5		For X6500-BEA-20-gg
		21	21.5		For X6500-BEA-21-gg
		22	22.5		For X6500-BEA-22-gg
		23	23.5		For X6500-BEA-23-gg
Gain flatness			2	dB	in operating temp range
Noise figure		5.5	6.0	dB	Input=-8dBm,Gain=26dB
Input threshold	-35			dBm	Can be adjusted

Table 4 X6500-LEA variable two stage gain Line amplifier with mid stage connection

	Min.	Typ.	Max.	Unit	Note
Operation wavelength	1529		1561	nm	
Input power	-30		-5	dBm	
Total Gain	17	20	23	dB	For X6500-LEA-pp-20M adjustable ±3 dB
	22	25	28		For X6500-LEA-pp-25M adjustable ±3 dB
First stage gain	12	15	18	dB	For X6500-LEA-pp-20M adjustable ±3 dB
	17	20	23		For X6500-LEA-pp-25M adjustable ±3 dB
Mid stage loss	0		10	dB	
Maximum Output power		16	16.5	dBm	For X6500-LEA-16-gg
		20	20.5		For X6500-LEA-20-gg
		21	21.5		For X6500-LEA-21-gg
		22	22.5		For X6500-LEA-22-gg
		23	23.5		For X6500-LEA-23-gg
Gain flatness			2	dB	in operating temp range
Noise figure		6	7.0	dB	Input=-8dBm,Gain=26dB
Input threshold	-35			dBm	Can be adjusted

Warranty: Limited lifetime

Ordering information

Part Number	Product Description
X6500-PEA-pp-gg	Optical Pre-Amplifier, pp-max output power, gg-max. gain
X6500-LEA-pp-gg-M	Optical Line-Amplifier, pp-max output power, gg-max. gain, M mid stage option
X6500-BEA-pp-gg	Optical Booster-Amplifier, pp-max output power, gg-max. gain
Other X6500 family products	
6500-I	Optical Transport System 1 U 4 Slot Chassis
X6500-II	Optical Transport System 2 U 8 Slot Chassis
X6500-V	Optical Transport System 5 U 18 Slot Chassis
X6500-SC	Optical Transport System Management Module

Note:

Specification may change without notice. We have taken great care to assure that information in this document is accurate. If there are still errors present we are responsible only to the extent of correcting these errors in revised document. We are not responsible for any consequential damages that it may cause.

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