

FG-602S-T01

ERBIUM-DOPED FIBER AMPLIFIER

DESCRIPTION

Mitsubishi's FG-602S-T01 is an erbium-doped fiber amplifier (EDFA) used to directly amplify light at 1550nm.

The FG-602S-T01 uses two 1480nm lasers to optically pump an erbium-doped fiber, which acts as the gain media. The wavelength of the pump light is set for optimal absorption into the erbium-doped fiber by electronically controlling the temperature of the pump lasers. The FG-602S-T01 is sufficiently isolated to prevent reflection back to the user's external optical transmitter and to prevent stimulated emission (lasing) from occurring internally.

FEATURES

- Flat gain profile from 1535nm to 1565nm
- High output power (> +15dBm)
- Low noise figure (6dB)
- Isolated input and output ports
- Wide operating temperature range
- Built in pump laser control circuit
- Built in shutdown circuit

APPLICATION

Long-haul telecommunications
Analog transmission systems

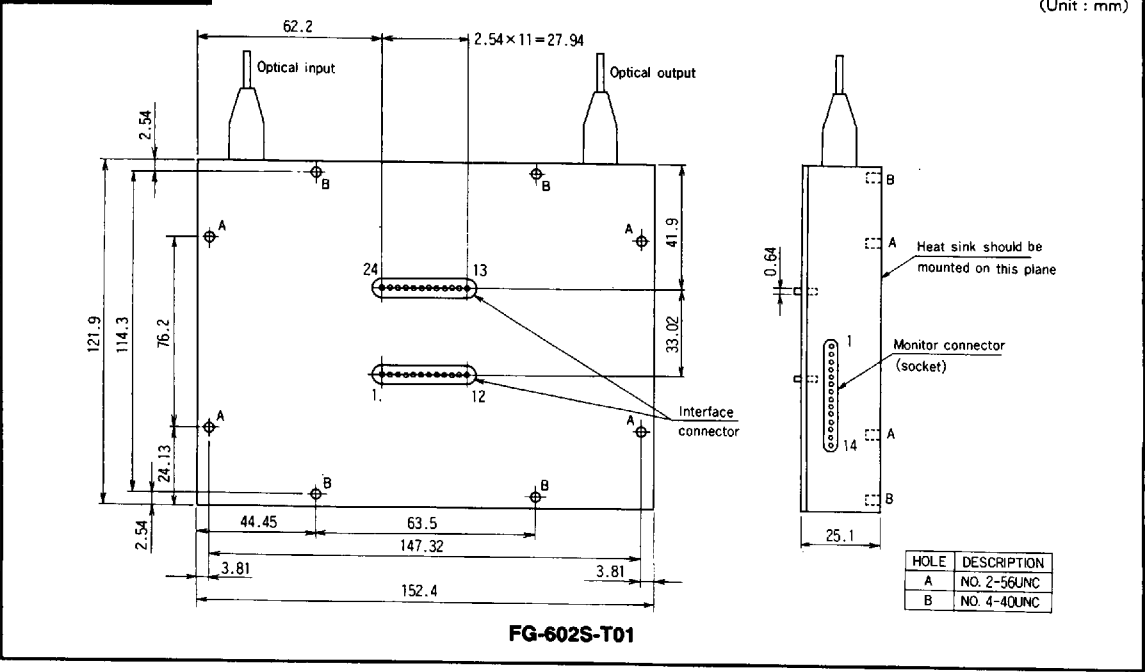
ABSOLUTE MAXIMUM RATINGS (Tc = 25 °C)

Parameter	Symbol	Rating			Unit
		Min.	Typ.	Max.	
Power supply	Positive voltage	Vcc	0	-	V
	Negative voltage	VEE	0	- 6	V
Operating case temperature (Note 1)	Tc	0	25	60	°C
Storage temperature	Tstg	- 40	-	70	°C
Soldering	Temperature	Ts	-	260	°C
	Time	ts	-	10	sec.
Storage relative humidity (Note 2)	RH	10	-	90	%

Note 1. The case never exceeds the maximum value specified above
2. Without condensation

OUTLINE DIAGRAM

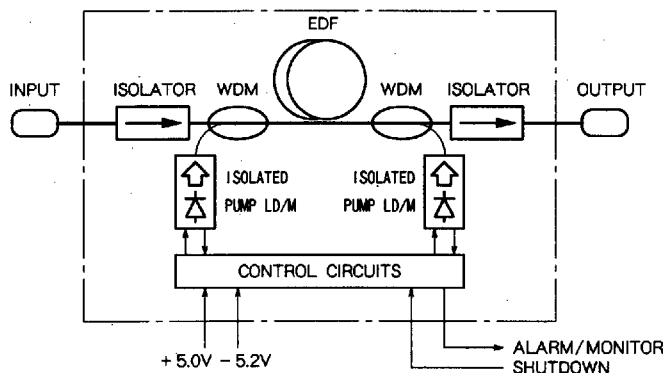
(Unit : mm)



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BLOCK DIAGRAM


CHARACTERISTICS (T_c = 25°C, unless otherwise noted)

OPTICAL CHARACTERISTICS (Large Signal)

Parameter	Symbol	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
Signal wavelength range	λ_{OP}	—	1535	1550	1565	nm
Input signal power	P_{in}	—	-5.5	—	—	dBm
Output signal power	P_{out}	—	15.0	—	—	dBm
Polarization sensitivity	$\Delta P_{out}/\Delta P$	All polarization	—	—	0.5	dB
Temperature sensitivity	$\Delta P_{out}/\Delta T$	T _c = 0 ~ +60°C	—	0.5	1.0	dB
Wavelength sensitivity	$\Delta P_{out}/\Delta \lambda$	P _{in} = -5.5dBm	—	1.0	1.5	dB

CHARACTERISTICS (T_c = 25°C, unless otherwise noted)

OPTICAL CHARACTERISTICS (Small Signal)

Parameter	Symbol	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
Signal wavelength range	λ_{OP}	—	1535	1550	1565	nm
Input signal power	P_{in}	—	-30	—	—	dBm
Gain	G	—	28	35	—	dBm
Noise figure	NF	—	—	6	9	dB

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ELECTRICAL CHARACTERISTICS

Parameter		Characteristics	Unit
Pump bias alarm		TTL (High : Alarm)	—
Pump temperature alarm		TTL (High : Alarm)	—
Pump shutdown		TTL (High : Enable)	—
Pump bias monitor		$1 \pm 5\%$	mV/mA
Pump monitor-PD monitor		$1 \pm 5\%$	mV/ μ A
Pump LD temperature monitor		$10 \pm 5\%$	mV/ $^{\circ}$ C
Positive power supply	Voltage	+ 4.75 ~ + 5.25	V
	Current	1.0max	A
Negative power supply	Voltage	- 5.46 ~ - 4.94	V
	Current	- 1.8max	A

PIN ASSIGNMENT

INTERFACE CONNECTOR

Pin No.	Parameter	Pin No.	Parameter
①	GND	⑬	GND
②	GND	⑭	- 5.2V
③	NC	⑮	- 5.2V
④	NC	⑯	- 5.2V
⑤	Alarm	⑰	- 5.2V
⑥	Copump shutdown	⑱	NC
⑦	Counterpump shutdown	⑲	+ 5.0V
⑧	- 5.2V	⑳	+ 5.0V
⑨	- 5.2V	㉑	GND
⑩	- 5.2V	㉒	GND
⑪	- 5.2V	㉓	GND
⑫	GND	㉔	GND

PIN ASSIGNMENT

MONITOR CONNECTOR

Pin No.	Parameter	Pin No.	Parameter
①	Counterpump bias	⑧	NC
②	COM	⑨	NC
③	Copump bias	⑩	Counterpump temperature
④	NC	⑪	NC
⑤	NC	⑫	Counterpump monitor-PD
⑥	Copump temperature	⑬	Pump bias COM
⑦	Copump monitor-PD	⑭	NC

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TYPICAL CHARACTERISTICS

