

Electro-Absorption Modulated Laser (EML)

35, 40GHz



DATASHEET

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Features

- High Optical Output Power
- Low Modulation Voltage
- Wide Bandwidth
- Excellent Stability

Applications

- Optical Communication
- Quantum Optics
- DWDM Systems



The EMLT Series Electro-Absorption Modulated Laser Transmitter is a semiconductor laser that integrates a distributed feedback (DFB) laser and an electro-absorption modulator (EAM) within a single package. This design eliminates the need for external modulators, reducing system complexity, power consumption, and size while improving thermal management. Capable of modulation speeds up to 40 GHz for both analog and digital responses, the EMLT delivers high-speed modulation with precise optical output control. The integrated EAM minimizes wavelength shifts during modulation, ensuring stable signal transmission over long distances, making the EMLT ideal for high-speed optical communication systems. Its compact and efficient design is well-suited for modern applications requiring reliable, high-performance data transmission. The laser wavelength can be made to match a specific ITU for a special order.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength (C-Band)	1520	1550	1590	nm
Laser Threshold Current		20		mA
Laser Current		50	100	mA
Forward Voltage			2	V
Modulation Extinction Ratio*	9.5	12	15	dB
Side Mode Suppression Ratio	35	40		dB
Output Power	2	3	8	mW
Bandwidth (3dB)	32	35	40	GHz
Return Loss	-27	-30		dB
Input 1 dB Compression	15			dBm
Relative Intensity Noise	-130			dB/Hz
EMA Reverse Voltage			2.5	V
EMA Forward Voltage			0.5	V
RF Connector		2.92 SMA F		
Thermistor Resistance (25°C)		10		K ohm
TEC Current			1.2	A
TEC Voltage			3	V
Monitor PD Current			3	mA
Monitor Dark Current			100	nA
Operation Temperature	-40	25	85	°C
Storage Temperature	-40		85	°C

* Max is at DC

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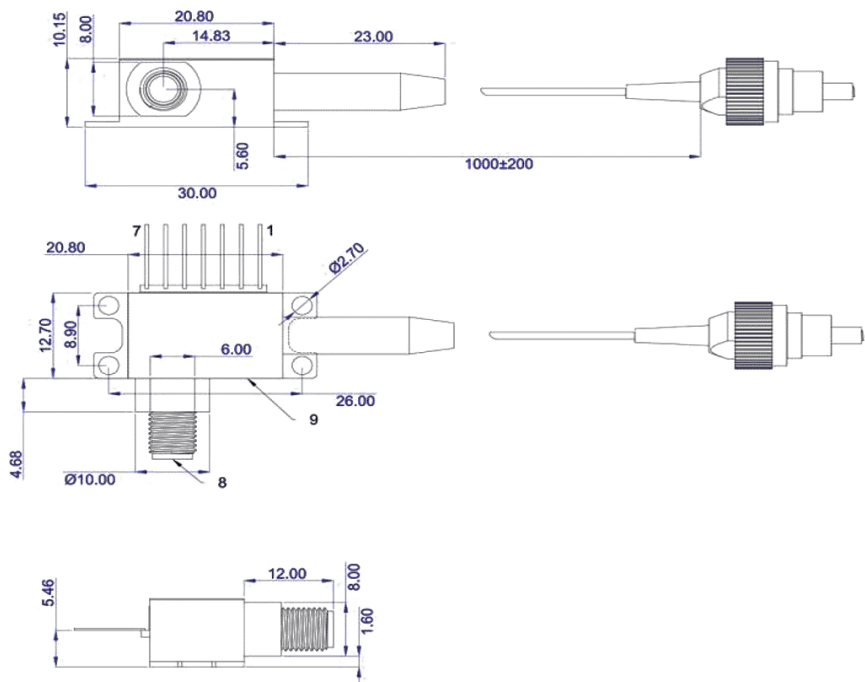
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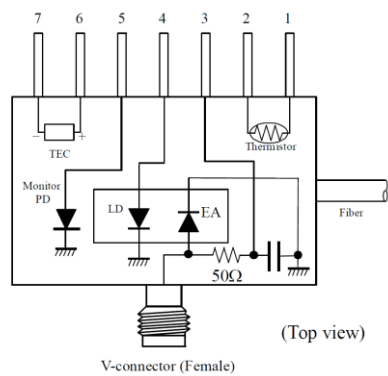
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Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Electrical Connection



Pin	Function
1	Thermistor
2	Thermistor
3	EA bias
4	LD Anode
5	Monitor PD Anode
6	TEC Anode
7	TEC Cathode

Ordering Information (Part Number)

Prefix	Speed	Wavelength	Output Fiber	Jacket Diameter	Fiber Length	Connector ^[1]
EMLT-	35GHz = 3 40GHz = 4	1549 nm = 1549 1550 nm = 1550	SM28 = 1 PM1550 = 2 PM1310 = 3	0.9mm tube = 1	1m = 1 Special = 0	SC/PC = 1 FC/PC = 2 LC/PC = 3 Special = 0

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

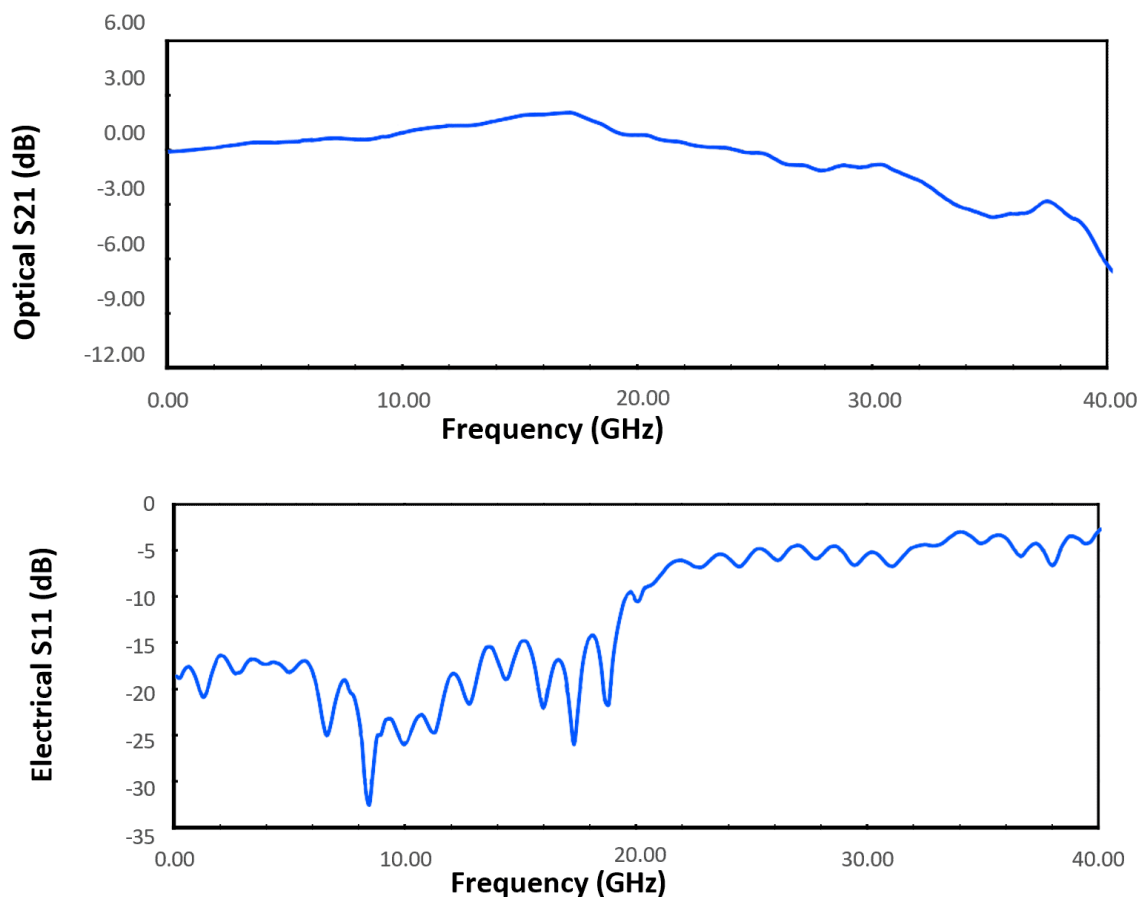
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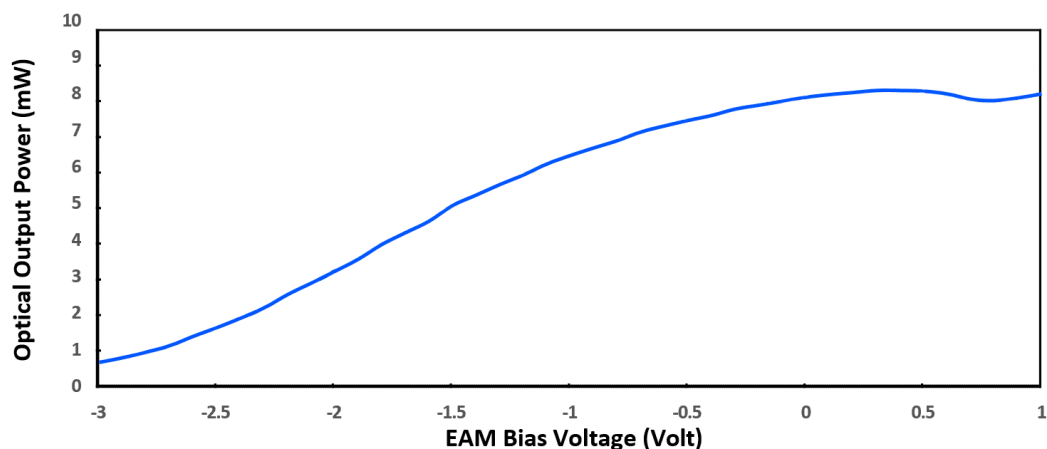


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Typical Frequency Response



Typical Transfer Function



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Caution Electrostatic Sensitivity



- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots

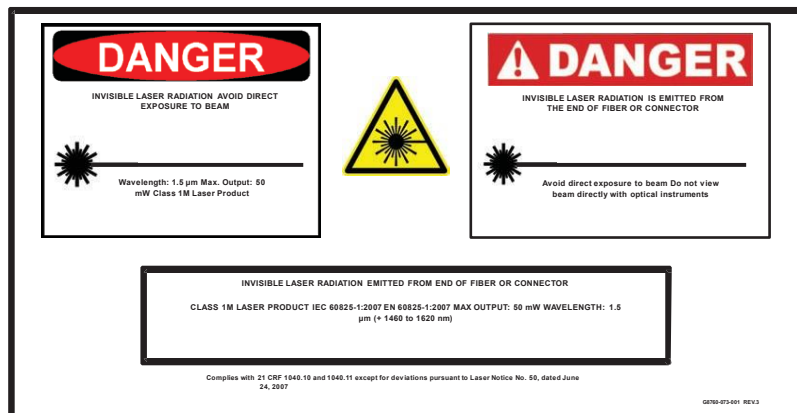


Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 μm .

Maximum power = 30 mW.



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
*IEC is a registered trademark of the International Electrotechnical Commission.