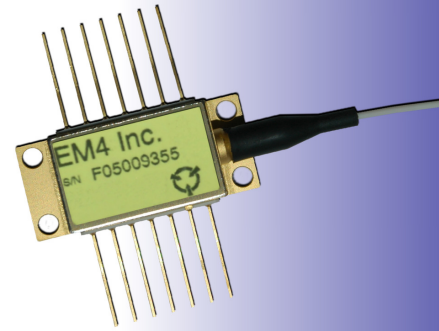


## Features

- 150mW output power
- Fast pulsing capability
- PM or SM Fiber
- Laser welded, epoxy free and hermetically sealed
- Built in TEC, thermistor and monitor detector
- Rugged to shock and vibration

## Applications

- Master oscillator for MOPA
- Seeder for fiber lasers
- Seeder for DPSS lasers



## General Description

The 1064nm distributed Bragg reflector (DBR) is an InGaAs quantum well (MQW) laser diode. The module is ideal in applications where mode stability, low RIN and stable PM properties are needed. The module contains a cooler, thermistor and monitor detector. The hermetically sealed 14 pin butterfly package is designed and built using EM4s high reliability platform for defense components.

## Absolute Maximum Ratings

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only and operation of the device at these or conditions beyond these are not implied. Exposure to absolute maximum ratings for extended periods of time may affect device reliability.

Parameter	Sym	Condition	Min	Max	Unit
Storage Temperature	$T_{STG}$		-40	85	°C
Operating Case Temperature	$T_{OP}$		-20	75	°C
Laser Forward Current	$I_F$			550	mA
Laser Reverse Voltage	$V_R$			2	V
Photo Diode Forward Current	$I_{PD}$			10	mA
Photo diode Reverse Voltage	$V_{PD}$			20	V
TEC Current	$I_{TEC}$			6.0	A
TEC Voltage	$V_{TEC}$			4.0	V
Thermistor Current				2	mA
Thermistor Voltage				5	V
Lead Soldering Time				10	s
Lead Soldering temperature				250	°C
Fiber Pull Force				5	N
Fiber bend Radius			25		mm
ESD		HBM		500	V

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## Optical And Electrical Characteristics

T<sub>OP</sub>=25°C, continuous wave and beginning of life unless otherwise specified.

Parameter	Sym.	Condition	Min	Typ.	Max	Unit
Operating Chip Temperature	T <sub>CHIP</sub>		15		35	°C
Threshold Current	I <sub>TH</sub>			40	50	mA
Laser Drive Current	I <sub>OP</sub>			500	550	mA
Laser Forward Voltage	V <sub>F</sub>	I = I <sub>MAX</sub>		2.0	2.5	V
Output Power	P <sub>OP</sub>	I = I <sub>OP</sub>		150		mW
Center Wavelength	$\lambda$	P = P <sub>OP</sub>	1062	1064	1066	nm
Linewidth	$\Delta \nu$			8	10	MHz
Side Mode Suppression	SMSR	P = P <sub>OP</sub>	-30			dB
Polarization Extinction Ratio	PER		14	19		dB
Monitor Photo Diode Current	I <sub>PD</sub>	P = P <sub>OP</sub>	50			μA
Monitor Photo Diode Dark Current	I <sub>D</sub>				100	nA
TEC Current		$\Delta T = 25^\circ\text{C}$ , P = P <sub>OP</sub>			3.5	A
TEC Voltage		$\Delta T = 25^\circ\text{C}$ , P = P <sub>OP</sub>			3.5	V
Thermistor Resistance	R <sub>TH</sub>	T = 25°C	9500	10000	10500	Ω
Thermistor β coefficient	β	0 / 50°C		3892		

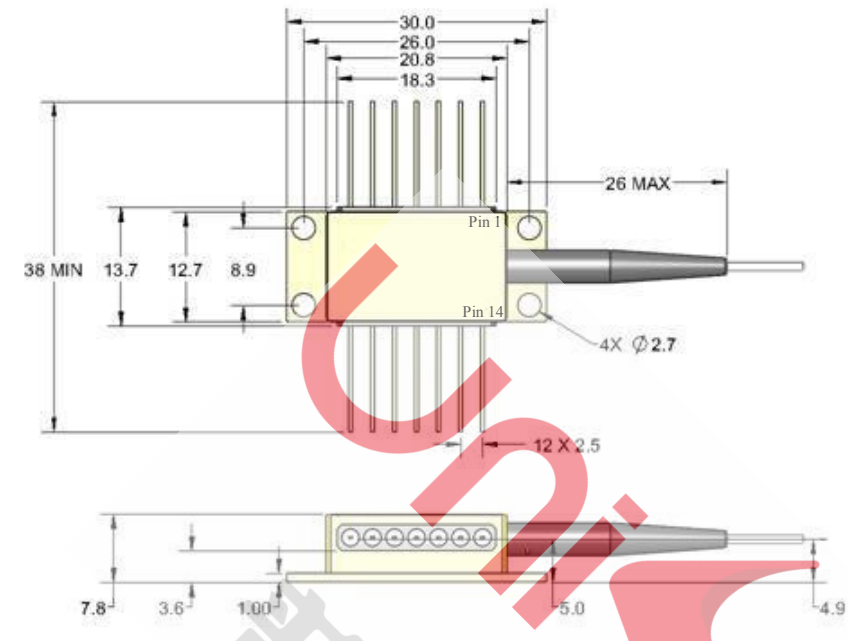
## Fiber Specification

Parameter	Sym	Condition	Min	Typ.	Max	Unit
Fiber Type				PM		
Jacket Material				Hytrel Acrylate		
Core Diameter			5.6	6.6	7.6	μm
Cladding Diameter			123	125	127	μm
Buffer Diameter			230	245	260	μm
Pigtail Length			1.6		1.8	m
Proof Strength			120			kpsi

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## Mechanical Drawing

All units in mm

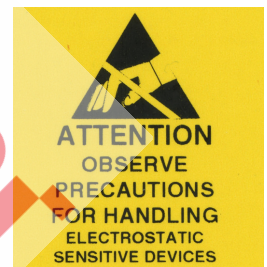


## Pinning

Pin	Description
1	TEC +
2	Thermistor
3	Monitor PD Anode
4	Monitor PD Cathode
5	Thermistor
6	NC
7	NC
8	NC
9	MC
10	Laser Anode
11	Laser Cathode
12	NC
13	Case GND
14	TEC -

## Ordering Information

EM509



The component complies with all applicable portions of 21 CFR 1040.10, 21 CFR 1010.2 and 21 CFR 1010.3. Since this is a component, it does not comply with all of the requirements contained in 21 CFR 1040.10 and 21 CFR 1040.11 for complete laser products.

For pricing and delivery information, please contact EM4 inc. direct at +1 781 275 75 01, sales@em4inc.com or any of the representatives listed at www.em4inc.com.

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