

## DESCRIPTION

The ALM938 series of 1550nm DFB laser modules are specifically developed for use as a narrow linewidth source in combination with an external modulator, such as the LiNbO<sub>3</sub> based Mach-Zehnder. All critical components, including optical isolator, TEC, thermistor, laser, and monitor photodiode are hermetically sealed in a butterfly package.

## FEATURES

- Low Relative Intensity Noise
- Narrow Linewidth (< 1 MHz)
- Internal TEC, Thermistor & Monitor PD
- 14 pin Butterfly Package
- High Optical Power
- Polarization Maintaining Fiber

## APPLICATIONS

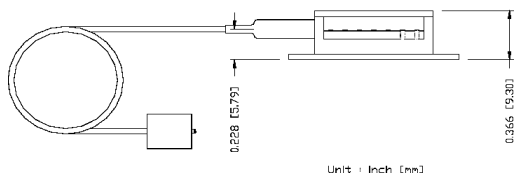
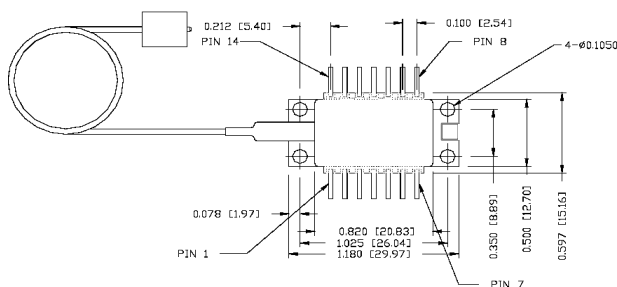
- RF over Fiber where high power, low RIN, and narrow linewidths are required
- Long haul for compensation of high-loss passive or active components

## MODEL OPTIONS

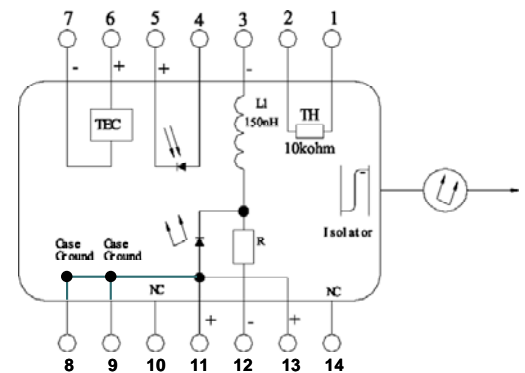
### ALM938 – XX

XX	20: 20 mW	30: 30 mW	40: 40 mW	50: 50 mW	60: 60 mW
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## MECHANICAL DRAWINGS



- Type: PMF fiber, 0.9 mm diameter
- Length: 1-meter minimum
- Nominal Pin Lead Length: 5mm (from external package wall)



### PIN ASSIGNMENTS

Pin	Function	Pin	Function
1	Thermistor	8	Case Ground
2	Thermistor	9	Case Ground
3	DC Laser Bias (-)	10	NC
4	MPD Anode	11	Laser Common (+)/Gnd
5	MPD Cathode	12	Laser Modulation (-)
6	TEC (+)	13	Laser Common (+)/Gnd
7	TEC (-)	14	NC

<b>ELECTRO-OPTICAL CHARACTERISTICS</b>						
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Case Temp Range	$T_C$		0		65	°C
Laser Threshold Current	$I_{TH}$		-	25	40	mA
Laser Operating Current	$I_{OP}$		-		500	mA
Laser Operating Voltage	$V_{OP}$		-		2.1	V
Operating Output Power	$P_o$	See Model #s			-	mW
Operating Wavelength	$\lambda_{OP}$	$I_F=I_{OP}, T=T_{OP}$	1530		1565	nm
Side Mode Suppression	SMSR	$I_F=I_{OP}$	30	45	-	dB
Optical Isolation	ISO		30	35	-	dB
Spectral Linewidth	$\Delta I$	FWHM	-	-	1	MHz
Relative Intensity Noise	RIN	20-1000 MHz	-	-	-157	dB/Hz
Wavelength Drift with Case Temp	--	$0 < T_C < 65^\circ C$	-	-	0.001	nm/°C
Monitor PD Responsivity	$r_{MPD}$	--	5		200	$\mu A/mW$
Monitor PD Dark Current	$I_D$	$I_{OP}=0mA$	-		0.2	$\mu A$
TEC Current	$I_{TEC}$	$0 < T_C < 65^\circ C, I_F=500 mA$	-1.2		1.2	Amp
Thermistor Resistance	$R_{TH}$		9.5	10	10.5	k $\Omega$
TE Cooler Voltage	$V_{TH}$	$T_{OP}=15-35^\circ C$ over $T_C$	-2.5		2.5	V
Polarization Extinction Ratio	PER	E-field along slow axis	18	20		dB
Temperature Tracking Error		$0 < T_C < 65^\circ C$	-0.5	-	0.5	dB

<b>MAXIMUM RATINGS</b>						
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Storage temperature		continuous	-40	-	85	oC
Monitor photodiode reverse voltage		60 seconds	-	-	15	V
		continuous	-	-	10	
Forward DC laser current		continuous			500	mA
Reverse DC laser voltage		continuous			1	V
TEC current		continuous	-1.9	-	1.9	A