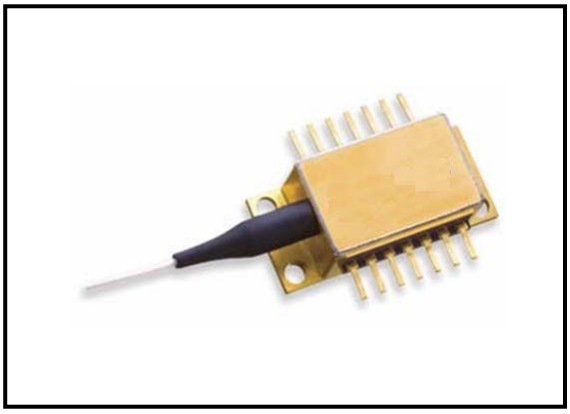
CA1782-XXX-XX-EM DWDM High Power CW Buttterfly Laser

Overview



The CA1782-XXX-XX-EM DWDM High Power CW Buttterfly Laser component is characterized for use as a CW optical source in CATV and DWDM networks. The CA1782-XXX-XX-EM is dc-coupled with a built-in TEC, thermistor, and monitor photodiode. The device is mounted in a 14-pin, OC-48 pinout compatible butterfly package with the optical isolator mounted on the TEC. The CA1782-XXX-XX-EM incorporates a high efficiency coupling scheme to deliver 40 mW, 50 mW, 63 mW and 100 mW of CW optical power.

Applications

- DWDM
- CATV
- Free Space Optics
- LiDar and Fiber Sensing

Features

- 40, 50, 63 & 100 mW Optical Output Power
- OC-48 Pinout Compatible
- Telcordia Technologies™ GR-468 Compliant
- PM Fiber
- -20°C to +65°C Operating Temperature Range
- Monitor Photodiode RoHS

Specification

Parameter	Min	Typ	Max	Units
Operating Case Temperature	-20	25	+65	°C
Wavelength		See Page 4		nm
Optical Output Power	40 50 63 100	- - - -	- - - -	mW
Threshold Current	-	-	40	mA
Operating Current	-	-	650	mA
RIN	-	-	-163	dB/Hz
RIN Through 65 km Fiber Standard Enhanced	 - -	 - -	 -155 -157	 dB/Hz dB/Hz
SMSR	30	-	-	dB
Polarization Extiction Ratio (PMF pigtail)	17	-	-	dB
Optical Isolation	32	-	-	dB
Optical Return Loss	40	-	-	dB

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min	Max	Units
Operating Case Temperature	T_{OP}	continuous	-20	+65	°C
Storage Temperature	T_{STG}	continuous	-40	+85	°C
Laser Forward dc Current	-	continuous	-	750	mA
Photodiode Reverse Voltage	$V_{R,MPD}$	continuous	-	10	V
Laser Reverse Voltage	-	continuous	-	2	V
TEC current	I_{TEC}	continuous	-	1.7	A
ESD	-	HBM: R = 1500 Ω, C = 100 pF	-500	500	V

Electrical/Optical Characteristics

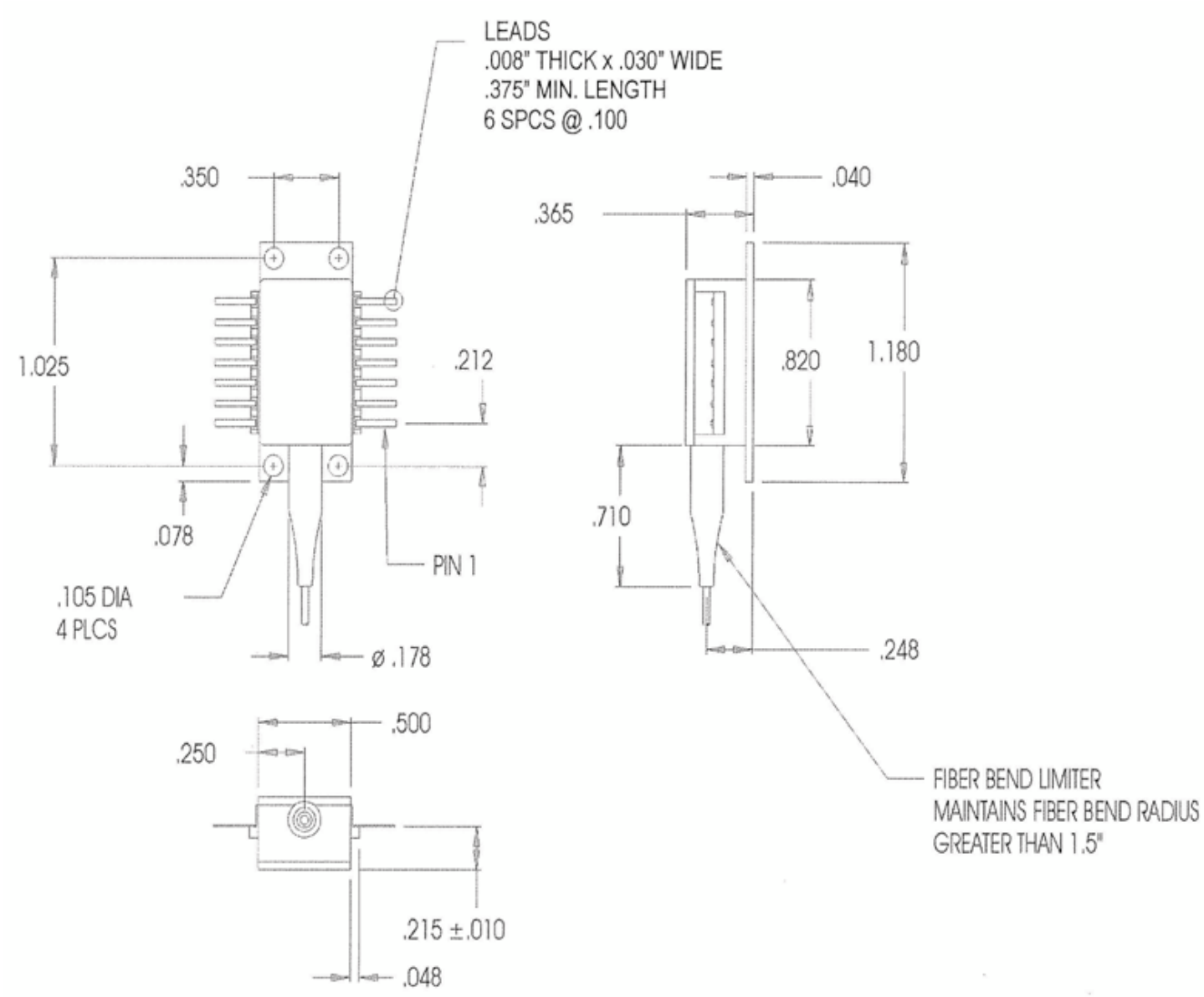
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating Case Temperature[1]	T_{op}	-	-20	25	65	°C
Optical Output Power	P_O	40 mW version, T = T_{set}, I_F = I_{OP} 50 mW version, T = T_{set}, I_F = I_{OP} 63 mW version, T = T_{set}, I_F = I_{OP} 100 mW version, T = T_{set}, I_F = I_{OP}	40 50 63 100	- - -	- - -	mW
Threshold Current	I_{TH}	BOL	-	-	40	mA
Operating Current	I_{OP}	BOL	-	-	500	mA
Operating Laser Temperature	-		23	-	33	°C
Laser Bias Forward Voltage	V_{OP}	BOL, I_F = I_{OP}	-	-	2.5	V
Wavelength	λ_{OP}	T = T_{set}, I_F = I_{OP}	See Page 4			nm
Spectral Linewidth [(1)]	$\Delta\lambda$	T = T_{set}, I_F = I_{OP}, FWHM	-	-	100	KHz
Optical Isolation	ISO	-	32	-	-	dB
Optical Return Loss	ORL	-	40	-	-	dB
Sidemode Suppression Ratio	SMSR	-	30	-	-	dB
Polarization Extinction Ratio	PER	I_F = I_{OP}	17	-	-	dB
Wavelength Drift Over T_C Range	$\Delta\lambda_{TOP}$	T = T_{OP}	-	-	40	pm
Relative Intensity Noise	RIN	-	-	-	-163	dB/Hz
Monitor PD Current	I_{MPD}	I_F = I_{OP} , V_{MPD} = -5V	100	-	2500	μA
Monitor PD Dark Current	I_D	I_{OP} = 0 mA , V_{MPD} = -5V	-	-	0.2	μA
Thermistor Resistance	R_{TH}	T_{OP} = 25 °C	9.5	10.0	10.5	KΩ
Thermistor Temp. Coefficients	TC_{TH}	T_{OP} = 25 °C	-	-4.4	-	%/°C
TEC Current	I_{TEC}	-20°C < T_C < +65°C	-1.0	-	+1.5	A
TEC Voltage	V_{TEC}	-20°C < T_C < +65°C	-2.0	-	+3.0	V

1. Linewidth ($\Delta\nu$) is calculated using this formula: $\Delta\nu = \Delta RIN(f)\{16\pi(D\lambda^2 L/c)2f^2\}-1$

Where: D = fiber dispersion; L = fiber length (65km); C = velocity of light in free space (3.00E+8); λ = opt center wavelength

$\Delta RIN(f)$ = RIN through fiber ($RIN_{65km} - RIN_{0km}$); f = the measurement frequency (860MHz)

Outline Drawing



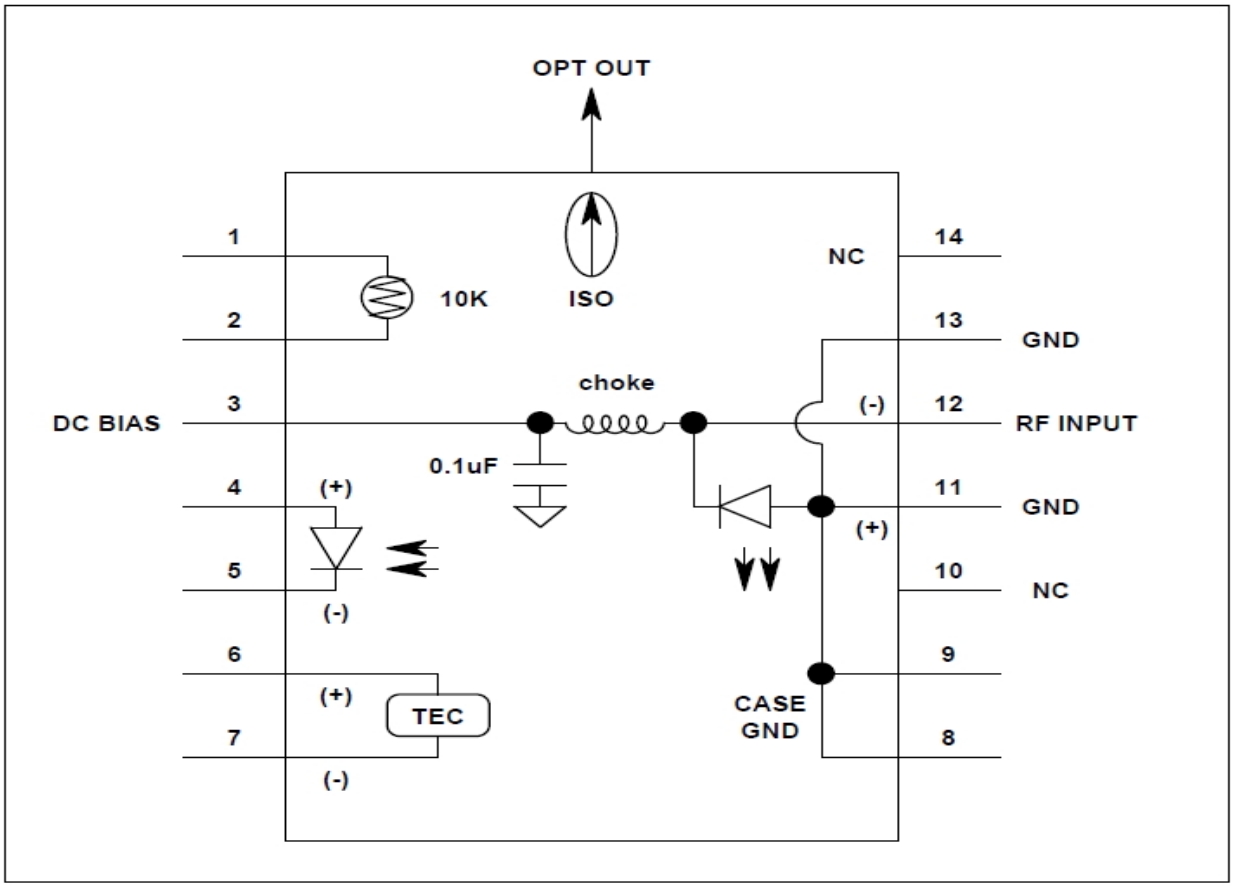
Pin Assignments

Pin	Description
1	Thermistor
2	Thermistor
3	Dc Laser Bias (-)
4	MPD Anode (-)
5	MPD Cathode (+)
6	Thermal Electric Cooler (+)
7	Thermal Electric Cooler (-)
8	Case Ground
9	Case Ground
10	NC
11	Laser Common (+), Case Ground
12	Laser Modulation (-)
13	Laser Common (+)
14	NC

ITU Grid Channel Numbering

Please contact CA OPTRONICS GROUP, INC. Sales for ITU Wavelength Channel availability.

Package Schematic



Ordering Code Definitions

CA1782 - xxx – yy – EM

Family Name
1782: High Power CW Laser, 1250um cavity

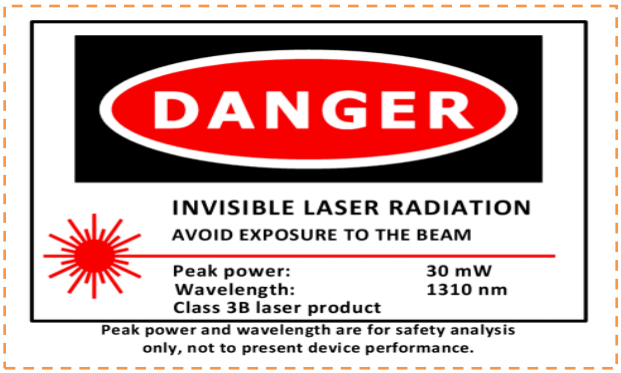
Optical Power Options
xxx = 100: 100 mW
xxx = 080: 80 mW
xxx = 063: 63 mW
xxx = 050: 50 mW
xxx = 040: 40 mW

ITU Channel
yy = 01: Any desired custom wavelength (Please consults Sales when order custom wavelength)
yy = 02: Non-ITU, 1547 nm – 1560 nm
yy = 03: Non-ITU, 1557 nm – 1560 nm
yy = 04: Non-ITU, 1530 nm – 1560 nm
yy = 15: ITU Channel 15, 1565.50 nm
yy = 16: ITU Channel 16, 1564.68 nm
…
yy = 61: ITU Channel 61, 1528.77 nm
yy = 62: ITU Channel 62, 1527.99 nm

Safety Information

- The laser light emitted from this laser diode is invisible and potentially harmful to the human eye. Avoid eye and skin exposure to the beam, both direct and reflected.
- Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Please ensure ESD protection prior to handling the products.
- These CA OPTRONICS products are not intended for use in systems where product malfunction can reasonably be expected to result in personal injury.

Package Dimensions（Unit：mm）



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