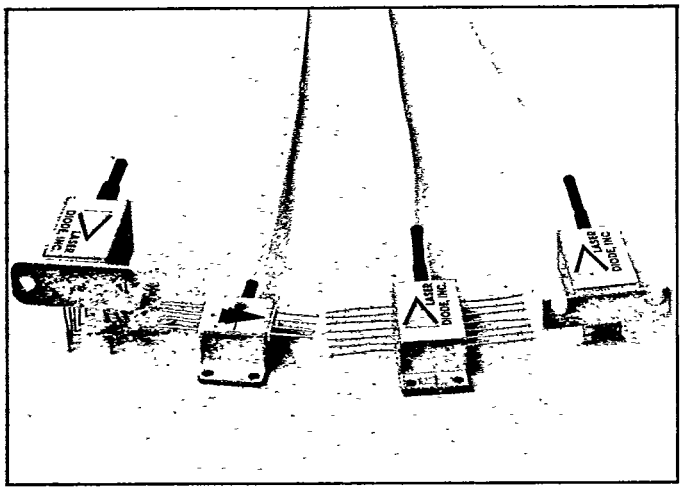
T-41-05

1300nm Single Mode Pigtailed Lasers



FEATURES

- InGaAsP Buried Crescent
- Low Threshold Current
- Hermetically Sealed Package
- Extended Operating Temperature Range
- Internal Thermo-Electric Cooler
- Internal InGaAs Photodetector
- Wide Modulation Bandwidth
- Polarization Preserving Fiber Option
- Excellent for Analog and Digital Application

DESCRIPTION

The SCW-1300 series consists of a high performance, InGaAsP buried crescent laser chip coupled to a single mode fiber pigtail. The low threshold laser offers high coupled powers and modulation bandwidths of up to 1.5 GHz. A high temperature chip purge and burn in guarantee long laser lifetime. The epoxy free, hermetic packages offer excellent coupling stability.
The lasers may be supplied as a chip on copper heat sink or in a variety of hermetically sealed 14 pin dual in line or butterfly packages. These packages contain an internal peltier cooler, a precision thermistor and a back facet InGaAs monitor diode.

The lasers may also be pigtailed to polarization preserving fiber. Custom packages are also available upon request.

ELECTRO-OPTICAL CHARACTERISTICS AT 25° C

Parameter	Symbol	Min.	Typ.	Max.	Units
Laser Emission Wavelength *(1)	λ	1270	1300	1330	nm
Spectral Width	$\Delta\lambda$		3	5	nm
Threshold Current	I_{th}	10	20	50	mA
Drive Current above I_{th} to reach Rated Output Power	I_m		20	40	mA
Forward Voltage	V_F		1.2	1.8	V
Rise Time	T_R		0.5	1.0	nsec
Fall Time	T_F		0.5	1.0	nsec
Output Power	P_o				
-From Chip		5.0			mW
-Option 001		0.25			mW
-Option 002		0.5			mW
-Option 003		1.0			mW
-Option 004		2.0			mW
Operating Temperature Range	T_o	-20		+70	°C
Storage Temperature	T_s	-40		+80	°C

*1 Other wavelengths available upon request.

BACK FACET MONITOR DIODE

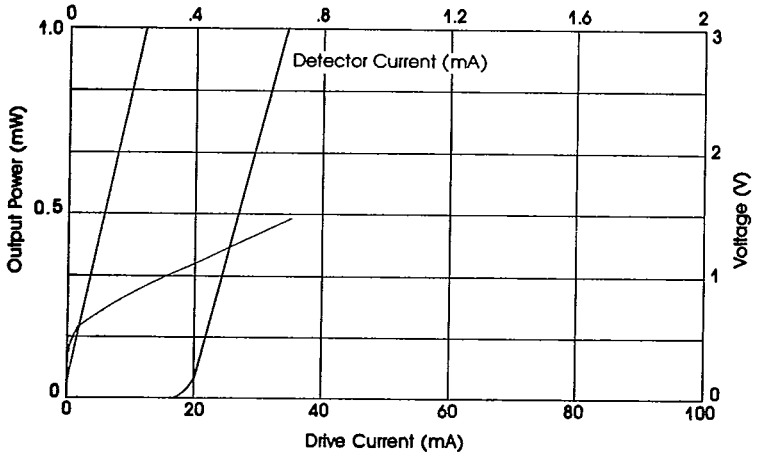
Parameter	Symbol	Min.	Typ.	Max.	Units
Monitor Photocurrent at Rated Output Power	I_D	50			μA
Dark Current at -5V			30		nA
Capacitance			20		pF
Rise/Fall Time			2.0		nsec
Photodiode Reverse Voltage				10	V

THERMO-ELECTRIC COOLER AND THERMISTOR

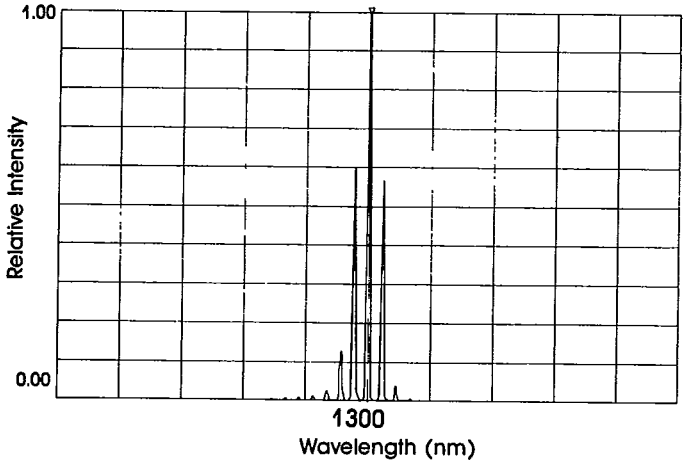
Parameter	Symbol	Min.	Typ.	Max.	Units
Cooler Capacity	ΔT	40			°C
Current Required for ΔT			0.7	1.0	A
Voltage Required for ΔT			1.8	2.3	V
Thermistor Resistance		9.5K	10K	10.5K	Ω
Temperature Coefficient of Resistance			-4.4		%/°C

TYPICAL CHARACTERISTICS

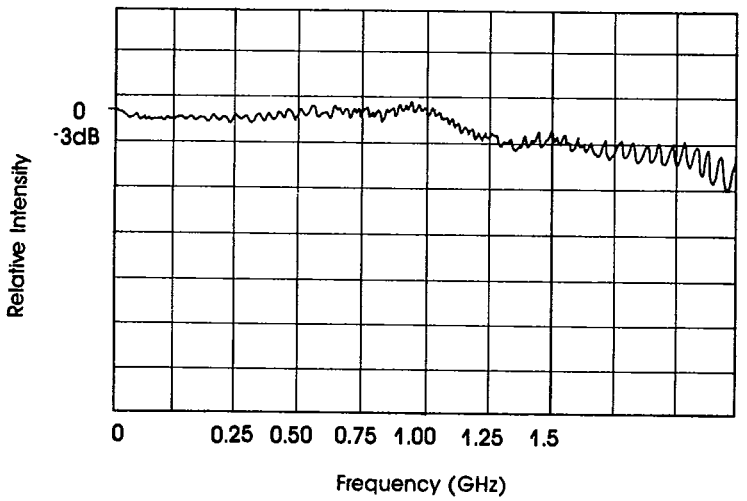
Power vs. Current Curve



Spectrum

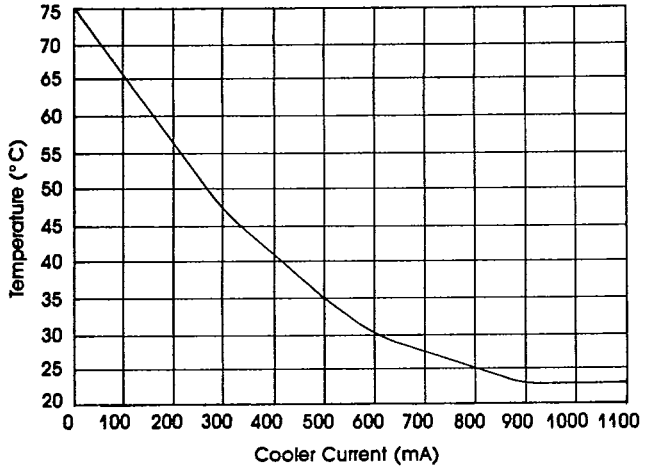


Modulation Bandwidth

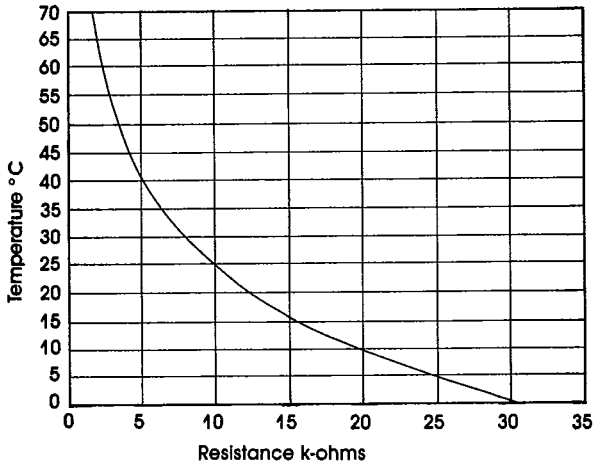


TYPICAL CHARACTERISTICS

Laser Temperature vs. Cooler Current
65 degrees C Case Temperature
100mA Through Laser at 1.9V



Thermistor Resistance vs. Temperature



ORDERING INFORMATION

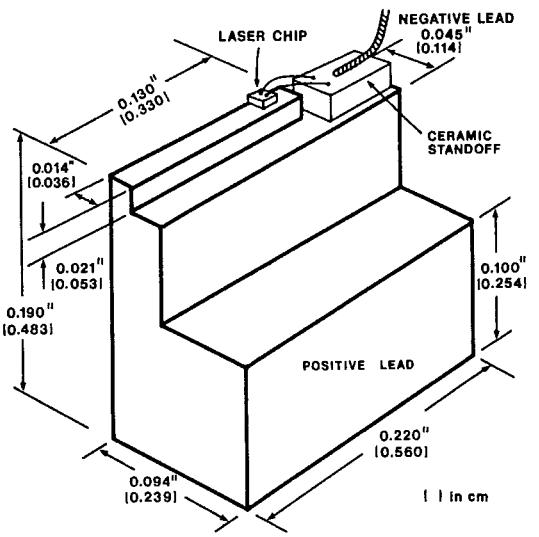
Part Number	Description
SCW-1300	Laser on Copper Submount
SCW-1301	"Longhorn Style" 14 pin Dual In Line with Internal Cooler, Thermistor, Back Facet Monitor Diode and Single Mode Fiber Pigtail
SCW-1302	High Profile 14 pin Dual In Line with Internal Cooler, Thermistor, Back Facet Monitor Diode and Single Mode Fiber Pigtail
SCW-1303	High Speed Butterfly Package with Internal Cooler, Thermistor, Back Facet Monitor Diode and Single Mode Fiber Pigtail
SCW-1304	Low Profile Butterfly Package with Internal Cooler, Thermistor, Back Facet Monitor Diode and Single Mode Fiber Pigtail

Output Power Options

-001	0.25mW
-002	0.50mW
-003	1.0mW
-004	2.0mW

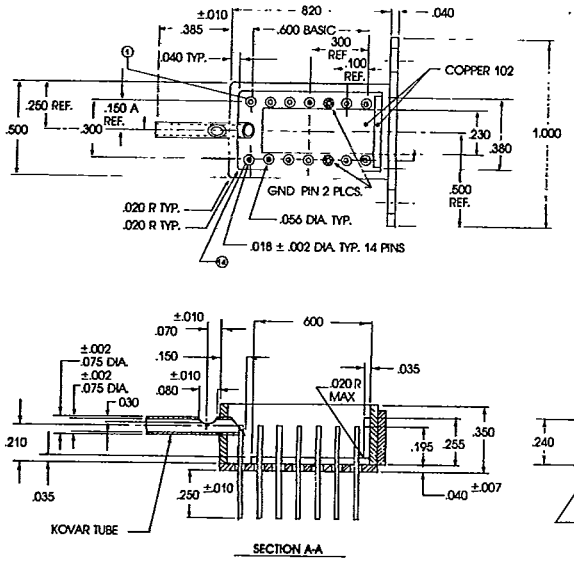
PACKAGE DRAWINGS

SCW-1300
(Back Facet View)



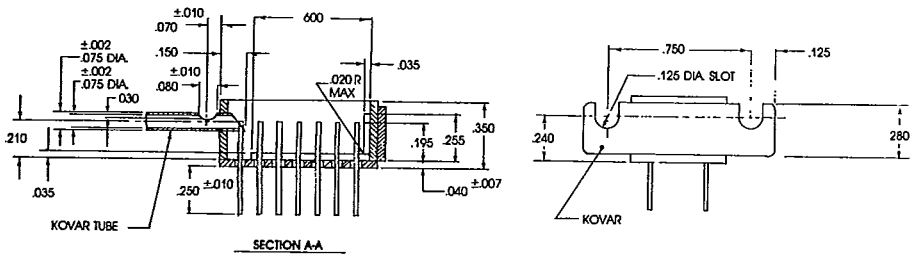
PACKAGE DRAWINGS

SCW-1301

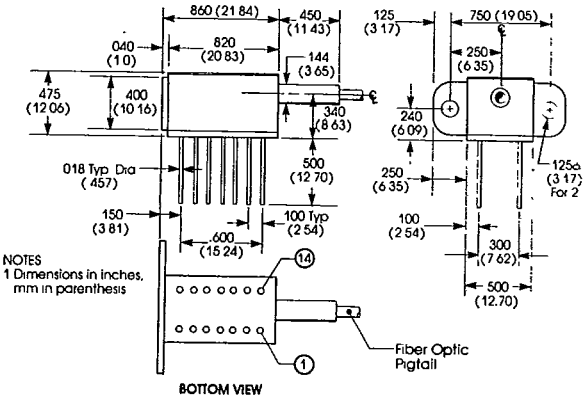


Pin	Function
1	Cooler anode (+)
2	No Connection
3	NC
4	NC
5	Laser Anode (+) Case ground (+)
6	NC
7	Photodetector cathode (-)
8	Photodetector anode (+)
9	Laser Cathode (-)
10	Thermistor*, case ground (+)
11	Thermistor
12	NC
13	NC
14	Cooler cathode (-)

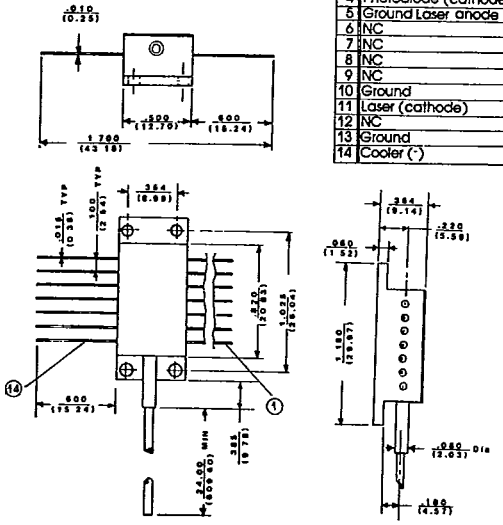
* Floating Thermistor Optional



SCW-1302

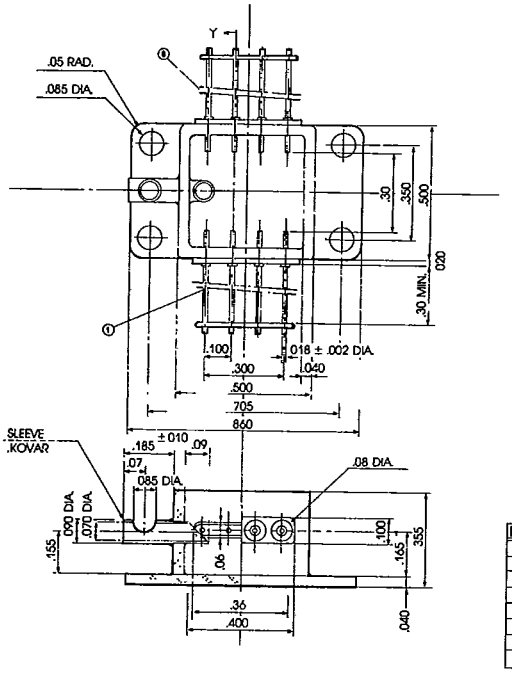


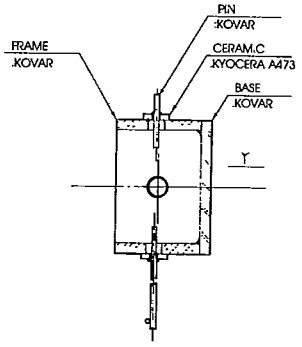
SCW-1303



Pin	Function
1	Cooler (+)
2	Thermistor
3	Photodiode (anode)
4	Photodiode (cathode)
5	Ground Laser anode
6	NC
7	NC
8	NC
9	NC
10	Ground
11	Laser (cathode)
12	NC
13	Ground
14	Cooler (-)

SCW-1304

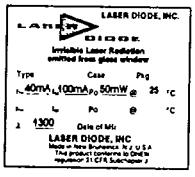




Pin	Function
1	Cooler Anode (+)
2	No Connection
3	Thermistor Case Ground (+)
4	Detector Anode (+)
5	Detector Cathode (-)
6	Laser Cathode (-)
7	Laser Anode (+), Case Ground (+)
8	Cooler Cathode (-)

LASER SAFETY

Indium Gallium Arsenide Phosphide lasers emit infrared radiation which is invisible to the human eye. When in use, safety precautions should be taken to avoid the possibility of eye damage. Do not stare directly at the device or view an operating laser at close range. If viewing is required, the beam should only be observed by reflection from a matte surface utilizing an image convertor or by use of a suitable fluorescent screen.



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Information provided is believed at this time to be accurate and reliable. No responsibility is assumed for its use, nor for any infringements on the rights of others.

* For further information on these products of LASER DIODE, Inc., please call:

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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