



EP1512-DM-TP39 Series

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The EP1512-DM-TP39 custom laser diode module is a cost effective, highly coherent laser source. A strained multi-quantum well Discrete Mode (DM) laser diode chip is packaged in an industry standard hermetically sealed TO39 can with integrated thermo-electric cooler (TEC) and thermistor.

Key Features

- Excellent reliability
- Mode-Hop free tuning >2nm
- SMSR 40dB typical
- Industry standard TO39 package
- Narrow linewidth <2MHz

Applications

- High performance gas sensing
- Ammonia (NH₃)**

Optical and electrical characteristics: (T = 25°C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
LASER DIODE					
Output Power (at 70mA)	P _{op}	7	10	-	mW
Centre Wavelength	λ _{cen}	1490	1512	1530	nm
Threshold Current	I _{th}	-	18	25	mA
Operating Current	I _{op}	-	70	120	mA
Forward Voltage	V _f	-	1.3	1.6	V
Side Mode Suppression Ratio	SMSR	30	40	-	dB
Temperature Tuning Coefficient		0.07	0.1	0.14	nm/K
Current Tuning Coefficient		0.008	0.01	0.03	nm/mA
Quantum Efficiency	η	0.10	0.16	-	mW/mA

THERMISTOR					
Thermistor Resistance	R_T	9.7	10	10.3	kW
Thermistor Temp. Coefficient		-	-4.4	-	%/°C
Thermoelectric Cooler					
TEC Forward Current	I_C	-	-	0.7	A
TEC Forward Voltage	V_C	-	-	2.5	V

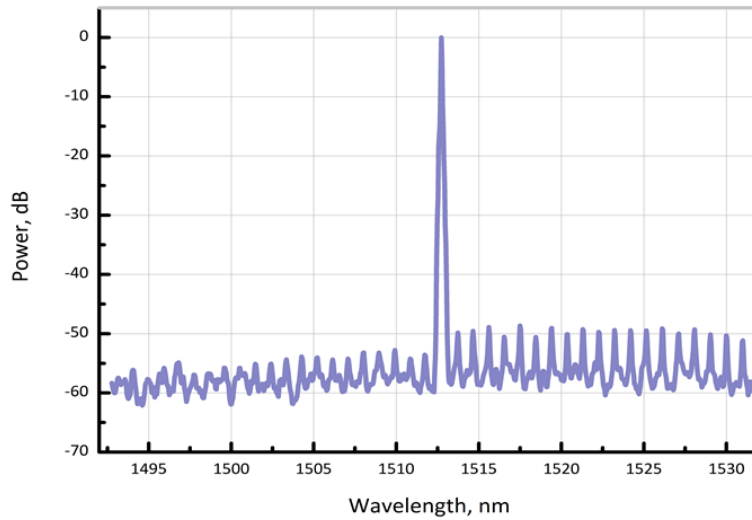
Absolute Maximum Ratings ($T_{sub}= 25^{\circ}\text{C}$)

Parameter	Symbol	Ratings	Units
Laser diode reverse voltage	V_R	2	V
Laser diode forward current	I_F	120	mA
Peltier current	I_P	0.7	A
Operating case temperature	T_{case}	-20 to 65	°C
Storage temperature	T_{stg}	-40 to 85	°C
Chip submount temperature	(T_{sub})	0 to 50	°C

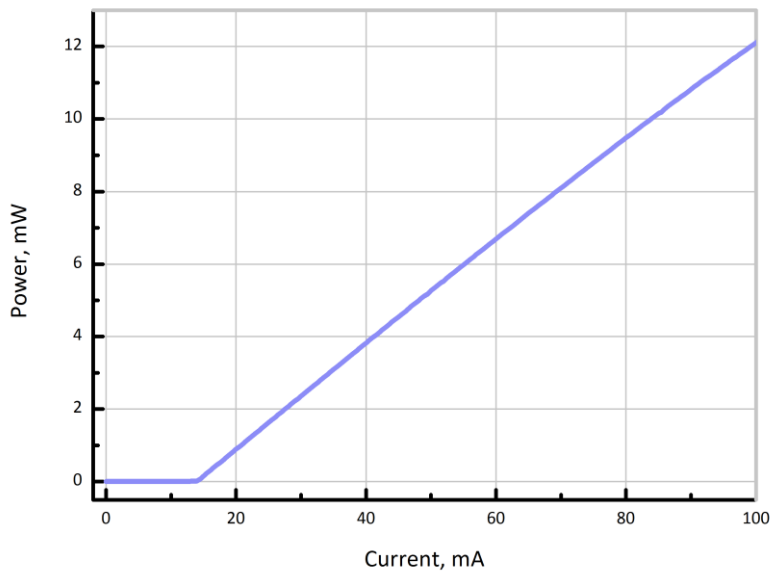


TYPICAL PERFORMANCE

Typical CW Spectrum

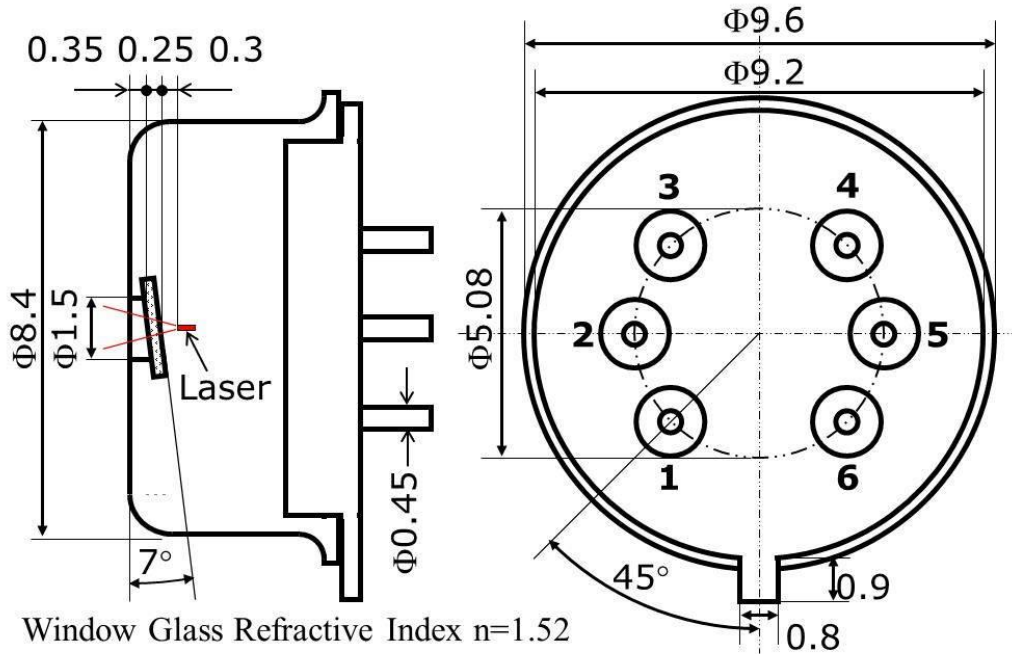


Power vs. Operating Current



Package Specification

Housing drawing



Window Glass Refractive Index n=1.52

Fig. 1. Package outline

Pin No.	Description
1	LD+
2	Thermistor
3	Thermistor
4	LD-
5	TEC+
6	TEC-

Fig. 2. Pinout "01"