

# 2051nm DX1 - Sensing

REP2051-DM-DX1

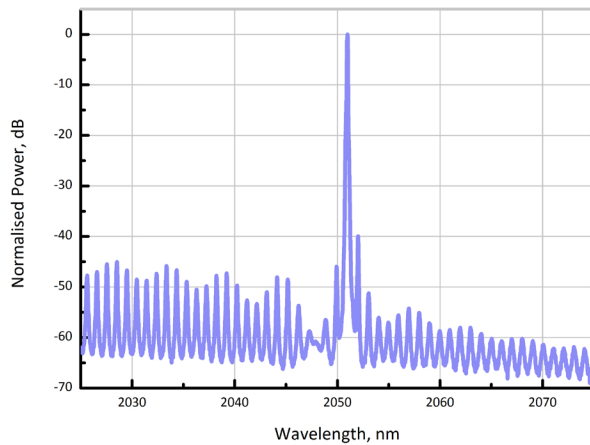


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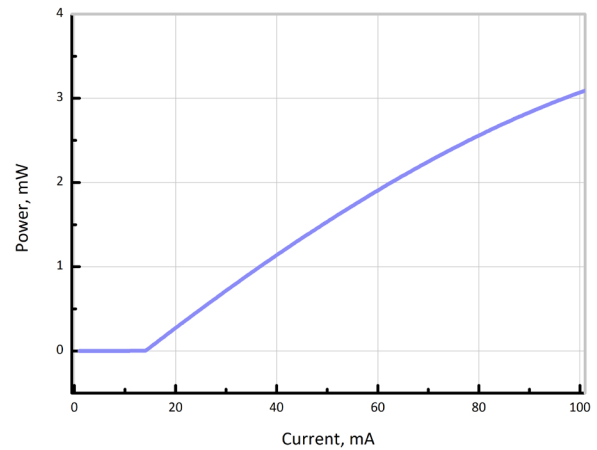


## SUPERIOR CO<sub>2</sub> SENSING

The REP2051-DM-DX1, available in the 1950 - 2150nm range, combines RPMC Lasers Discrete Mode (DM) technology with an integrated current driver and TEC controller to create a complete sensing solution for Carbon Dioxide. The module features excellent SMSR and mode-hop free tuning.



Optical Spectrum at 25°C



Output power (ex-fiber) as a function of bias current

## ELECTRO-OPTICAL CHARACTERISTICS\* ( $T_{SUB} = 25^{\circ}C$ )

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Centre Wavelength Range	$\lambda$	1950	2051	2150	nm
Wavelength specification	$\lambda_{spec}$	$\lambda - 1$	$\lambda$	$\lambda + 1$	nm
Side Mode Suppression Ratio	SMSR	30	40	-	dB
Threshold Current	$I_{th}$	-	20	40	mA
Output Power in fiber	$P_f$	1.5	2	3	mW
Optical linewidth	$\Delta f$	-	-	2	MHz
Temperature Tuning Coefficient	$T_{\lambda}$	-	0.1	-	nm/°C
Current Tuning Coefficient	$I_{\lambda}$	-	10	-	pm/mA
Slope Efficiency	SE	-	0.02	0.03	mW/mA
Modulation bandwidth	$f_{3dB}$	DC	-	100	kHz
Wavelength stability (CW)	-	-	<10	-	pm

\*CW bias unless otherwise stated

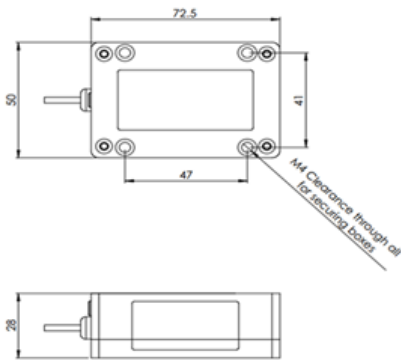
## ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply voltage	$V_s$	4.5	5	5.5	V
LD bias current	$I_f$	-	70	120	mA
Bias voltage	$V_f$	-	0.7	1.2	V
TEC voltage	$I_{TEC}$	0.1	1.5	3	V
Submount Temperature*	$T_{Case}$	15	-	35	°C
Storage Temperature	$T_{storage}$	-40	-	85	°C
Fibre bend radius	$r_{min}$	30	-	-	mm

\*For  $T_{sub} < 25^{\circ}C$ , Max Case Temperature should be derated to  $T_{Case,Max} = T_{sub} + 40^{\circ}C$

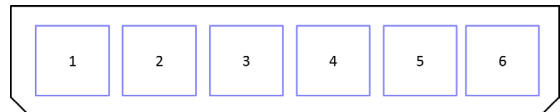
### PACKAGING

The REP2051-DM-DX1 product series is offered in proprietary DX-1 module with integrated current driver and TEC controller - Inquire for other packaging options.

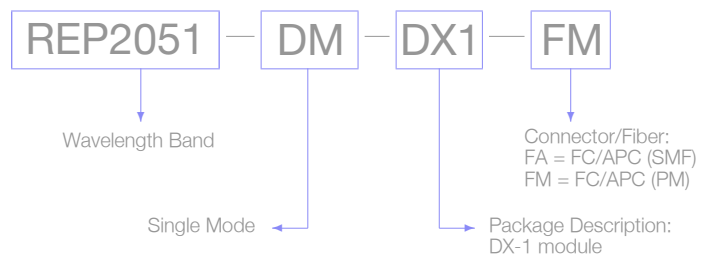


Schematic diagram of DX-1 module

PIN NO	NAME	DESCRIPTION
1	$V_{CC}$	5V rail voltage
2	$V_{TEC}$	Sets TEC temperature
3	Gnd	Ground
4	NC	-
5	NC	-
6	$V_{bias}$	Sets bias current



6-pin plug schematic (facing socket)



#### Laser Safety

This is a Class 3R Laser Product as defined by International Standard IEC 60825-1, Edition 2. Invisible Laser radiation is emitted from the end of the fiber or connector. Avoid direct eye exposure to the beam. Laser safety labels are not attached to the module due to space limitations but instead are affixed to the outside of the shipping carton.