

1300 nm 28 Gbps NRZ LWDM12 DFB LASER DIODE CHIPS

IND02Nn00D104



FEATURES

- Designed for cooled 28 Gb/s NRZ
- Qualified according to GR-468 for use in nonhermetic packages
- Excellent reliability
- Top anode and backside cathode configuration
- RoHS compliant
- Available wavelengths
 - 1270 nm to 1330 nm

APPLICATIONS

- Fiber optic communication links
- Gigabit Ethernet and storage area networks
- 5G Wireless front-haul datalinks

SHIPMENT PACKAGING

- Chips on clear tape with grip ring Ø 150 mm

1300 nm 28 Gbps NRZ LWDM12 DFB LASER DIODE CHIPS

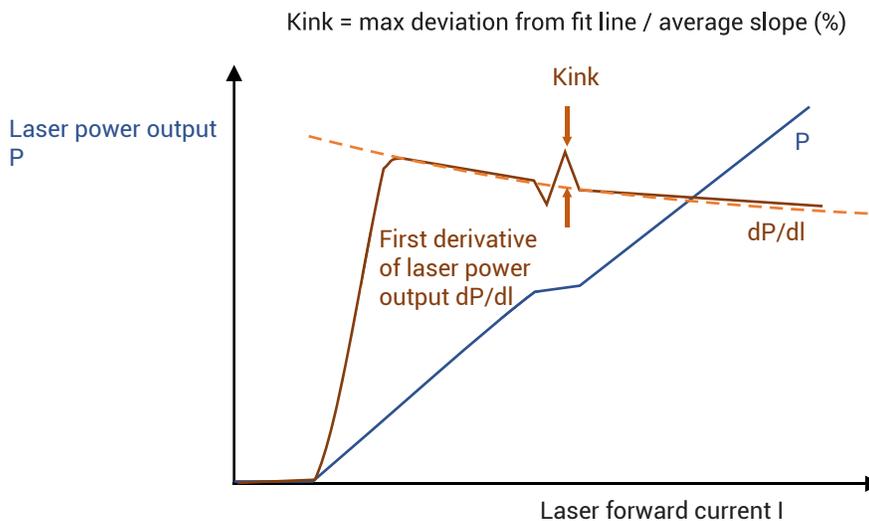
Electro-Optical Characteristics

Operating condition: $T_c = 55\text{ }^\circ\text{C}$ and all values are at BOL unless otherwise specified

Parameter	Symbol	Conditions	Min	Typical	Max	Unit
Threshold Current	I_{th}	$T_c = 55\text{ }^\circ\text{C}$			15	mA
Slope Efficiency	SE	$P_o = 4\text{ mW}, T_c = 55\text{ }^\circ\text{C}$	0.16			W/A
Average Bias Current	I_{op}	BOL			40	mA
		EOL			48	mA
Operating Voltage	V_f	$P_o = 4\text{ mW}$			1.6	V
Differential Resistance	R	$P_o = 4\text{ mW}$		7	10	Ohm
Output Optical Power	P_o	$I = 40\text{ mA}$	4			mW
Front/Back Output Power Ratio	P_f/P_b		5.3		35	
Side Mode Suppression Ratio	SMSR	DC bias current 40 mA at $55\text{ }^\circ\text{C}$ (Note 1)	35			dB
Center Wavelength	λ	DC bias current 40 mA (see table below)				
Wavelength Temperature Coefficient	$d\lambda/dT$				0.09	nm/ $^\circ\text{C}$
Beam Divergence (Horizontal)	θ_H	FWHM		30	40	degree
Beam Divergence (Vertical)	θ_V	FWHM		35	50	degree
Relative Intensity Noise (RIN)	RIN				-132	dB/Hz ^{1/2}
Kink		$I_{th} + 5\text{ mA} \sim 70\text{ mA}$ (Figure 1)			15	%
Bandwidth	f_{3dB}	$I = 40\text{ mA}$	18			GHz

Note 1: We perform SMSR measurements at chip level under certain pre-defined conditions and with production specs. In applications, the SMSR, like all of other parameters in this table, performance will depend on not only chip performance but also its assembling process. If the chip is assembled in a proper way, the performance described in this table can be expected.

Figure 1 Kink definition



1300 nm 28 Gbps NRZ LWDM12 DFB LASER DIODE CHIPS

Available Wavelengths

Part Number	Channel	Symbol	Conditions	Min	Typ	Max	Unit
IND02N000D104	LWDM-L0	λ	55 °C I = 40 mA	1268.24	1269.23	1270.22	nm
IND02N100D104	LWDM-L1			1272.55	1273.54	1274.54	nm
IND02N200D104	LWDM-L2			1276.89	1277.89	1278.89	nm
IND02N300D104	LWDM-L3			1281.25	1282.26	1283.27	nm
IND02N400D104	LWDM-L4			1285.65	1286.66	1287.68	nm
IND02N500D104	LWDM-L5			1290.07	1291.1	1292.12	nm
IND02N600D104	LWDM-L6			1294.53	1295.56	1296.59	nm
IND02N700D104	LWDM-L7			1299.02	1300.05	1301.09	nm
IND02N800D104	LWDM-L8			1303.54	1304.58	1305.63	nm
IND02N900D104	LWDM-L9			1308.09	1309.14	1310.19	nm
IND02NA00D104	LWDM-L10			1312.67	1313.73	1314.79	nm
IND02NB00D104	LWDM-L11			1317.28	1318.35	1319.42	nm

Absolute Maximum Ratings

Parameter	Symbol	Condition	Max Rating	Unit
Laser Bias Current (DC)	I _{max}		80	mA
Peak Current	I _{peak}		120	mA
Operating Relative Humidity	RH%		85	
Reverse Voltage	VR		2	V

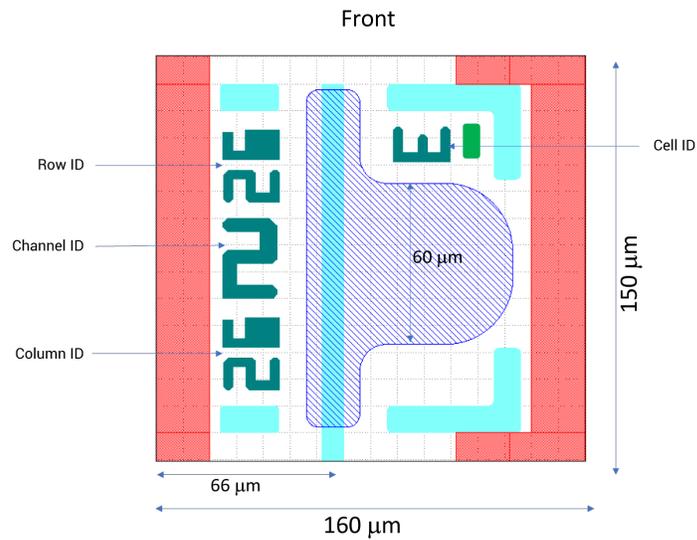
Environmental Exposure Ratings (Bare dies)

Parameter	Symbol	Condition	Max Rating	Unit
Storage Temperature	T _{stg}		-40 to +85	°C
Storage Relative Humidity	RH%		85	
Die Attach Temperature		Max 10 sec.	320	°C
ESD (HBM)	-		375	V

Chip Dimensions

Parameter	Min	Typical	Max	Unit
Chip width	140	160	180	μm
Chip length	130	150	170	μm
Chip thickness	80	85	90	μm
Bond pad width	64.5	65		μm
Bond pad length	59.5	60		μm

1300 nm 28 Gbps NRZ LWDM12 DFB LASER DIODE CHIPS



RoHS Compliance

Coherent is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

Ordering Information

Product Code	Wavelength	Description	Shipment Packaging
IND02N000D104	1269.2 nm	28 Gb/s NRZ Die	Chips on Grip ring ⁽¹⁾

⁽¹⁾ Clear tape on grip ring Ø 150mm (standard high volume)

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by Coherent before they become applicable to any particular order or contract. In accordance with the Coherent policy of continuous improvement specifications may change without notice. Further details are available from any Coherent sales representative.



Regulatory Compliance and Safety Warnings

- These laser components produce invisible radiation at wavelengths of 1250 nm - 1370 nm.
- Avoid direct eye exposure.
- This laser component is not serviceable.
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- This laser component is designated for use solely to be incorporated into a finished laser product. The finished laser product must be evaluated and certified to the relevant laser safety standards. This laser component does not comply with 21CFR1040.10 or IEC 60825-1:2014.