

10.26um High Power Desktop DFB-QCL Mid-Infrared Quantum Cascade Laser 50mW (Bench top Light Source)



- **Product Description**

QCL10260-DFB-10.26um High Power Desktop DFB-QCL Mid-Infrared Quantum Cascade Laser is a mid-infrared test laser developed by Idealphotonics in the first half of 2019. Its low loss at the atmospheric window makes it advantageous for space optical communication testing and research. Our Benchtop light source has high power and does not



require ITAR review, making it an excellent choice for commercial mid-infrared testing light sources. With a tunable range of over 100nm and an output power greater than 100mW, it meets the industrial testing requirements of our customers. Our laser has an integrated ZnSe collimated output, with stable output power and superior temperature and wavelength stability compared to traditional high-power quantum cascade lasers, offering several orders of magnitude better stability

- **Product features**

High power、 Compact structure、 Software intelligent control、 Built-in FPGA

- **Part Number**

MP-QCL-10260-DFB-50-B

- **Application area**

Mid-infrared test light source、 Mid-infrared device analysis

- **Core parameters**

Wavelength	Output Power	Spectral Width
10.26um	50mW	3MHz

● General Parameters

Parameters

Technical Parameters	Unit	Technical Specification		
		Min.	Typ.	Max.
Output Power 1	mW	10	-	50
Peak Operating Wavelength 2	um	10.2	10.26	10.27
Spectral Width (FWHM)	MHZ	-	3	-
Output Side Mode Suppression Ratio (SMSR)	dB	30	-	-
M ² Factor			<1.2	
Output Beam Divergence Angle	Mrad		<2	
Beam Waist Diameter at Output 5	mm		<4	
Output Isolation 3	dB	-	30	-
Wavelength Temperature Coefficient	nm/K		1.00	
Wavelength Current Coefficient	nm/A		57.1	
Output Power Stability (15 Minutes) 4	%	-	±0.5	±1.0

Output Power Stability (8 Hours) 4	%	-	±1.0	±2.0
Output Power Adjustable Range	%	0	-	100
Output Power Adjustment Mode		Software Control		
TEC Stability	°C	-	±0.1	±0.2
TEC Operating Range	°C	0	30	50
Operating Voltage	VAC	100	220	240
Electrical Power Consumption 5	W	-	-	5
Operating Temperature	°C	0	-	55
Storage Temperature	°C	-20	-	65
Dimensions	mm	343(L)×193(W)×180(H) Benchtop		

Technical Specifications Notes:

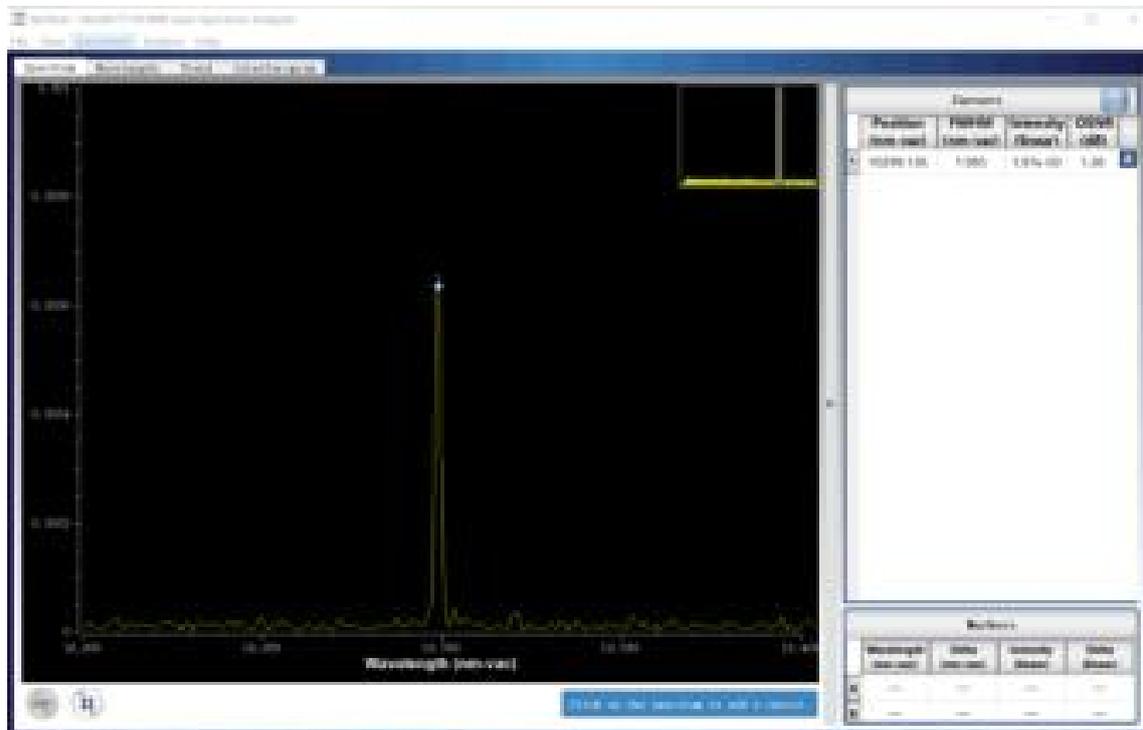
1. Output Power: Optional.
2. Peak Operating Wavelength: Optional.
3. Output Power Stability Test Condition: Conducted at 25°C after 30 minutes of warm-up.
4. Maximum Power Consumption: Refers to the overall power consumption under extreme operating conditions.



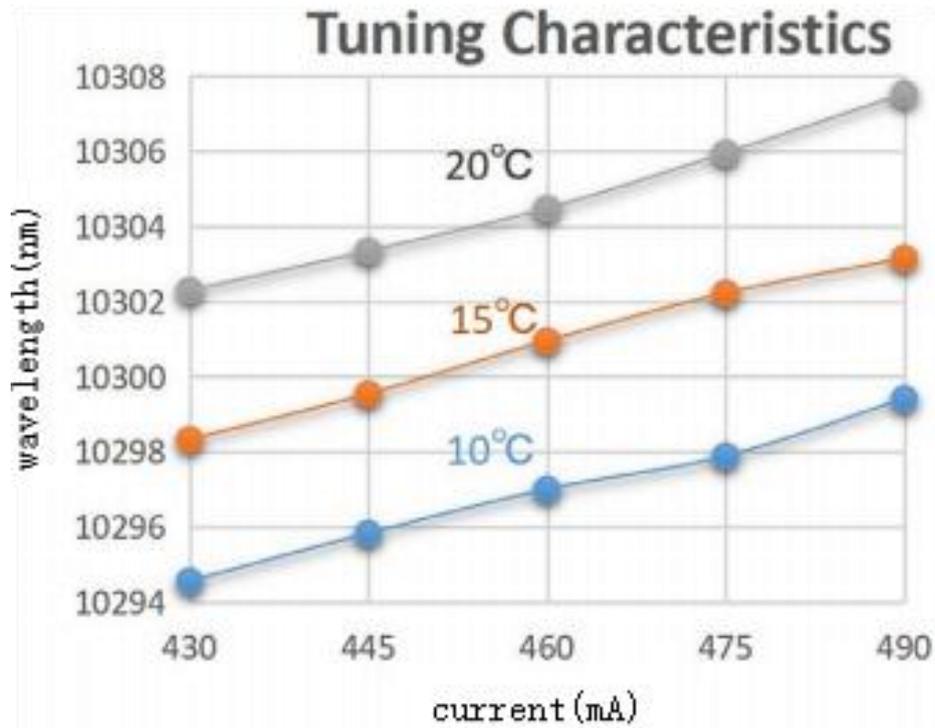
5. $I=0.80A, V=8.7V, T=15\text{ }^{\circ}C$, Measured at $1/e^2$



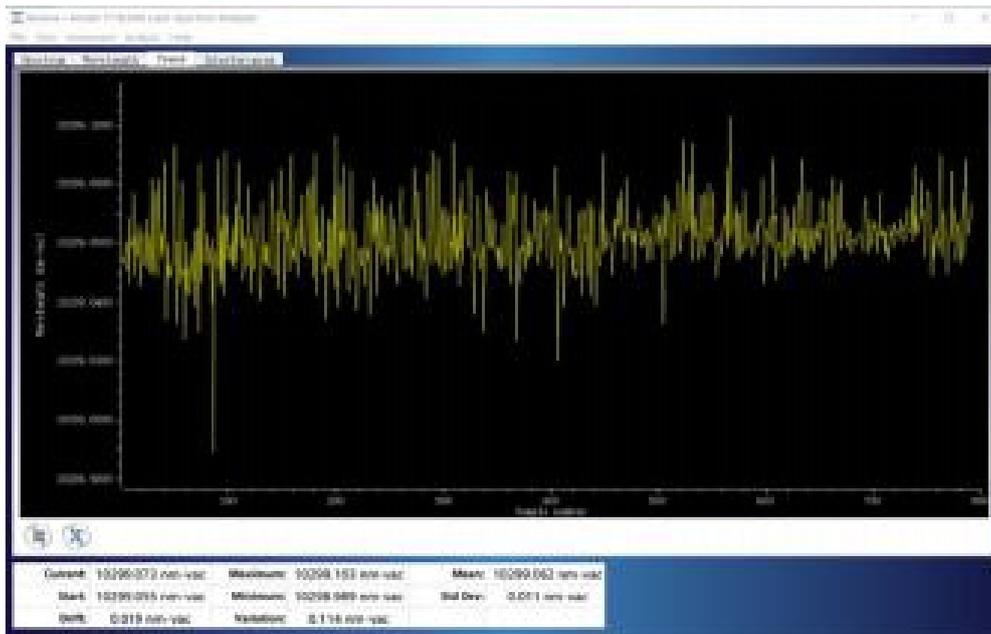
Laser Spectrum (Continuous)



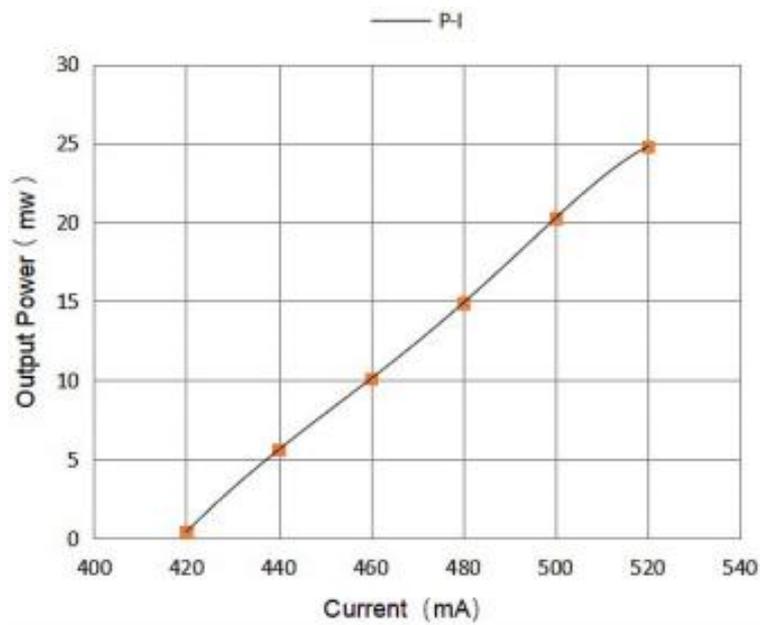
Wavelength Tuning Curve



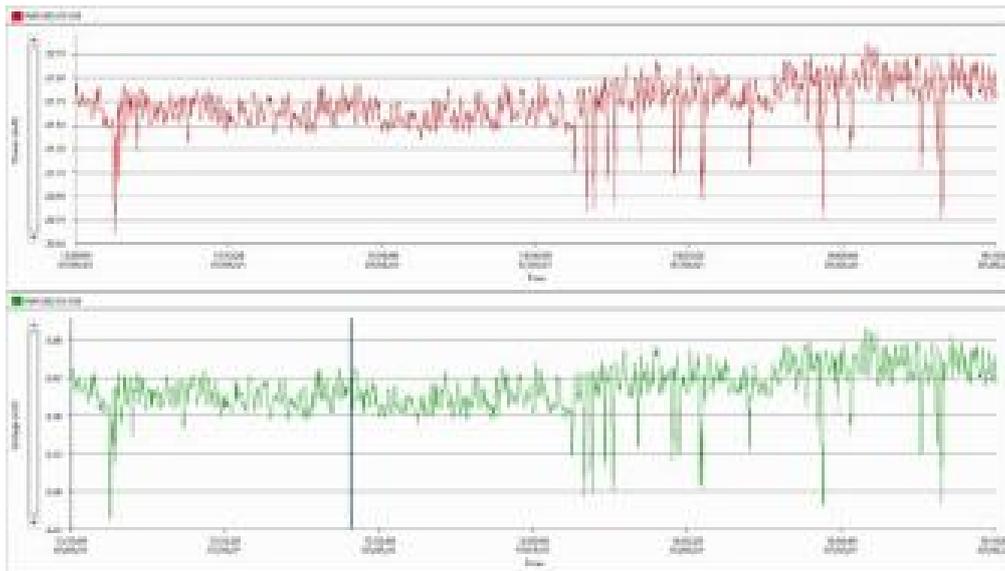
Wavelength Stability Curve



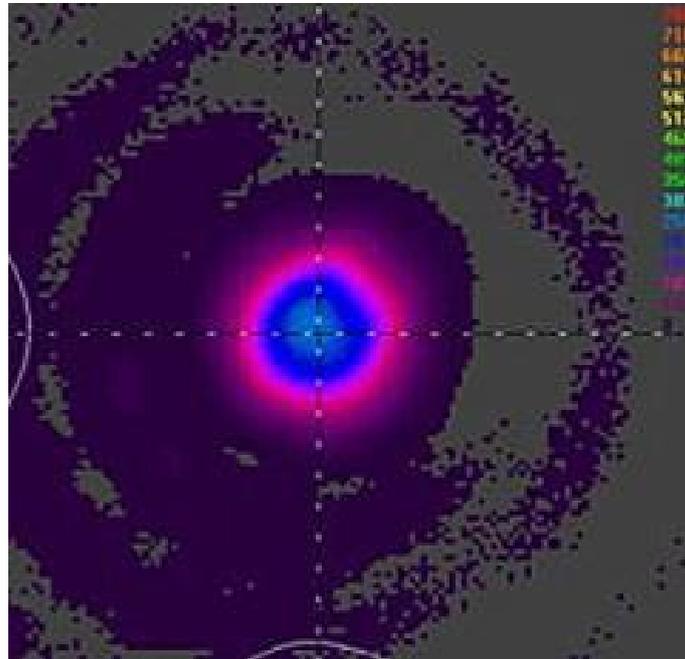
QCL Laser Characteristic Curve (Typical Wavelength 10.26um Example) Output Power Characteristic Curve



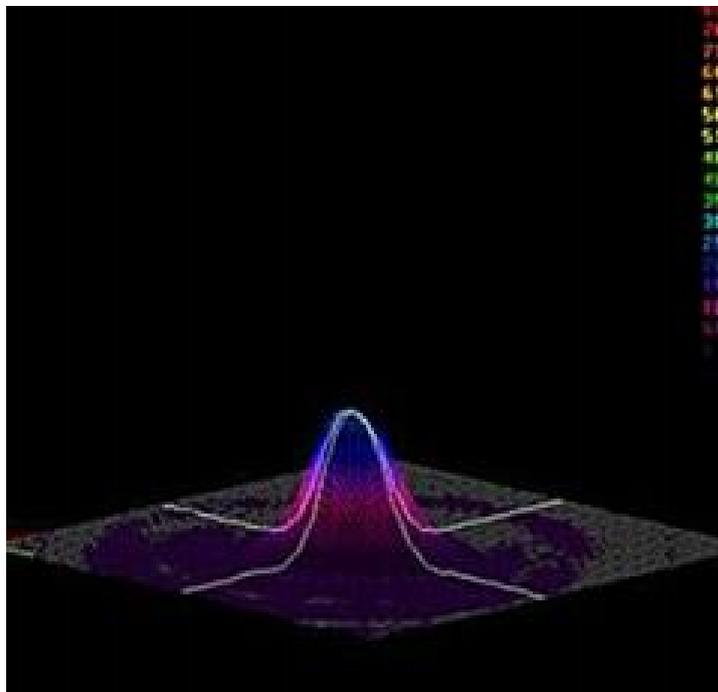
Power Stability Curve



Power Stability Curve



2-D Beam Profile at 762.0 mm (30.0 in)



3-D Beam Profile at 762.0 mm (30.0 in)



PN#/Ordering info

MP-QCL- W□□□□ -☆-△-XX

W□□□□ : Wavelength

4000: 4000nm

4600: 4600nm

9000: 9000nm

☆: Collimated output

1: With

0: Without

△: Laser type

FP: QCL-FP

DFB: QCL-DFB

XX: Output power

001=1mw

010=10mw

400=400mw

1000=1000mw

CW Distributed Feedback (DFB) Quantum Cascade Laser



* Center wavelength measured at T = 15°C under continuous wave

* Center wavelength tuning range: +/- 0.03 μm

* Other center wavelengths are listed in the table +/- 100 nm We can provide screening services

* Other center wavelengths can be customized, minimum order quantity: 5 pieces

The wavelengths we can currently provide are as follows*

Wavele ngth(μ m)	Wave number (cm^{-1})	Outpu t power (mW)	Wavele ngth(μ m)	Wave number (cm^{-1})	Outpu t power (mW)	Wavele ngth(μ m)	Wave number (cm^{-1})	Outpu t power (mW)
4.22	2370	> 50	6.25	1600	> 100	9.38	1066	> 100
4.28	2336	> 50	7.15	1399	> 100	9.47	1056	> 150
4.32	2315	> 50	7.26	1377	> 100	9.49	1054	> 150
4.34	2304	> 50	7.32	1366	> 100	9.52	1050	> 200
4.45	2247	> 80	7.37	1357	> 100	9.56	1046	> 200
4.48	2232	> 80	7.43	1346	> 150	9.63	1038	> 150
4.53	2208	> 150	7.57	1321	> 150	9.66	1035	> 100
4.56	2193	> 150	7.61	1314	> 150	9.68	1033	> 100
4.59	2179	> 150	7.75	1290	> 300	9.72	1029	> 100



4.61	2169	> 100	7.78	1285	> 300	9.95	1005	> 100
4.72	2119	> 100	7.80	1282	> 300	10.24	977	> 150
5.18	1931	> 150	7.82	1279	> 300	10.26	975	> 150
5.26	1901	> 150	7.85	1274	> 300	10.28	973	> 150
5.66	1767	> 300	8.01	1248	> 100	10.32	969	> 150
5.73	1745	> 150	8.28	1208	> 200	10.36	965	> 150
6.13	1631	> 150	9.02	1109	> 100	10.54	949	> 100
6.15	1626	> 150	9.05	1105	> 100	10.60	943	> 80
6.18	1618	> 100	9.26	1080	> 100	10.63	941	> 80

Pulsed Distributed Feedback (DFB) Quantum cascade lasers

Wav elen gth(μm)	Wav e num ber(cm^{-1})	Out put po wer (m W)									
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3.39 9	2942	4.45 3	2245	5.19 3	192 5	6.13 5	1629	7.78 8	1284	9.48 9	105 3
3.40 2	2939	4.45 7	2243	5.21 4	191 7	6.14 3	1627	7.79 5	1282	9.50 9	105 1
3.45	2898	4.46 1	2241	5.22 4	191 4	6.15 3	1625	7.80 9	1280	9.52 9	104 9
3.45 1	2897	4.46 5	2239	5.23 3	191 0	6.15 6	1624	7.81 9	1278	9.54 4	104 7
3.47 7	2876	4.47 1	2236	5.24	190 8	6.17	1620	7.83 1	1276	9.58 6	104 3
3.48	2873	4.47 5	2234	5.24 4	190 6	6.17 7	1618	7.85 7	1272	9.59 8	104 1
3.49 7	2859	4.47 9	2232	5.25	190 4	6.21 4	1609	7.86 9	1270	9.62 3	103 9
3.51 9	2841	4.48 3	2230	5.25 5	190 2	6.22 5	1606	7.88 7	1267	9.63 4	103 7
3.53 6	2828	4.48 5	2229	5.26 1	190 0	6.22 8	1605	7.90 6	1264	9.65 5	103 5
3.53 8	2826	4.48 9	2227	5.26 4	189 9	6.24 2	1602	7.93 3	1260	9.67 2	103 3



3.54 6	2820	4.49 2	2226	5.26 6	189 8	6.24 3	1601	7.98 6	1252	9.69 2	103 1
3.54 9	2817	4.49 8	2223	5.27 2	189 6	6.25 8	1597	7.99 8	1250	9.72	102 8
3.56 6	2804	4.50 1	2221	5.27 9	189 4	6.26 2	1596	8.01 6	1247	9.74 4	102 6
3.56 8	2802	4.50 6	2219	5.28 9	189 0	7.14 8	1398	8.02 6	1245	9.90 3	100 9
3.60 5	2773	4.50 9	2217	5.29 4	188 8	7.16 4	1395	8.05 4	1241	9.92 1	100 7
3.60 7	2772	4.51 3	2215	5.30 4	188 5	7.17 6	1393	8.10 1	1234	9.94 3	100 5
3.65 5	2735	4.51 7	2213	5.30 6	188 4	7.18 5	1391	8.16 3	1225	9.96 4	100 3
3.72 4	2685	4.52 1	2211	5.45 2	183 4	7.19 5	1389	8.22	1216	9.98 3	100 1
4.18 4	2390	4.52 5	2209	5.48 6	182 2	7.20 5	1387	8.24 2	1213	10.0 01	999
4.18 5	2389	4.52 9	2207	5.52 3	181 0	7.21 7	1385	8.25 2	1211	10.0 29	997



4.18 8	2387	4.53 4	2205	5.55 7	179 9	7.22 9	1383	8.26 5	1209	10.0 42	995
4.19 4	2384	4.53 8	2203	5.59 2	178 8	7.25 8	1377	8.28 2	1207	10.0 63	993
4.19 7	2382	4.54 3	2201	5.61 2	178 1	7.26 8	1375	8.29 2	1205	10.1 9	981
4.2	2380	4.54 5	2200	5.62 6	177 7	7.28 5	1372	8.30 1	1204	10.2 06	979
4.20 4	2378	4.55	2197	5.63 2	177 5	7.28 9	1371	8.32 6	1201	10.2 38	976
4.20 7	2376	4.55 4	2195	5.63 9	177 3	7.32 7	1364	8.33 5	1199	10.2 59	974
4.21 5	2372	4.56	2192	5.64 6	177 1	7.33 7	1362	8.35 2	1197	10.2 89	971
4.21 9	2370	4.56 5	2190	5.65 1	176 9	7.34 8	1360	8.38 6	1192	10.3 27	968
4.22 1	2369	4.56 9	2188	5.65 7	176 7	7.35 4	1359	8.90 2	1123	10.3 42	966
4.22 6	2366	4.57 4	2186	5.66 5	176 5	7.36 7	1357	8.94 8	1117	10.3 77	963



4.23		4.57		5.66	176	7.37		9.00		10.3	
1	2363	7	2184	9	3	3	1356	4	1110	96	961