



Overview

The DL UV-Visible series is a family of ultraviolet and visible diode lasers that can deliver up to 1800 mW output power. The laser series is available in a wide range for wavelengths from 375nm to 730nm, and features a compact design, long operating lifetime, easy operation, and FDA-compliant system with driver. The laser is widely used in biological, medical, laser pumping, scientific research, medical imaging, flow cytometry, DNA sequencing, measurement, communication, spectrum analysis, and many other applications.

Features

- UV-Visible wavelength range
- CW operating mode
- Optical output power 10mW to 1800mW
- Ultra-compact design
- FDA compliant

Applications

- Biological
- Medical
- Laser pumping
- Scientific research
- Medical imaging
- DNA sequencing
- Flow cytometry
- Communication
- Measurement
- Spectrum analysis

375-405 nm Specifications

Parameter	DL375		DL395		DL397	DL400	DL405	
Wavelength	375 nm		395 nm		397 nm	400 nm	405 nm	
Wavelength tolerance	±5 nm		±5 nm		±5 nm	±5 nm	±6 nm	
Output power	>30 mW, >50 mW	>100 mW, >150 mW	>20 mW, >50 mW, >80 mW, >100 mW		>20 mW, >50 mW, >80 mW, >100 mW	>50 mW, >100 mW, >150 mW, >200 mW, >250 mW, >300 mW	>50 mW, >100 mW, >200 mW, >300 mW, >400 mW	>500 mW, >1000 mW
Operating mode	CW		CW		CW	CW	CW	
Transverse mode	Near TEM ₀₀	Multimode	Near TEM ₀₀	Multimode	Multimode	Near TEM ₀₀	Near TEM ₀₀	Multimode
Power stability (rms, over 4 hours)	<1%, <0.5%		<2%, <1%, <0.5%		<2%, <1%, <0.5%	<2%, <1%, <0.5%	<3%, 2%, <1%, <0.5%	
M ² factor	<1.5	/	<1.5	/		<1.5	<1.5	
Beam diameter at aperture (1/e ²)	~3.0 mm	<1.5x3.5 mm	~3.5 mm	~3.5x1.0 mm	~3.5x1.0 mm	~2.5 mm	~2.5 mm	~3.0x2.5 mm
Beam divergence, full angle	<0.5 mrad	~2.3x0.2 mrad	<1.0 mrad	<2.0x0.5 mrad	<2.0x0.5 mrad	~0.5 mrad	~0.5 mrad	<2.5x1.0 mrad
Polarization ratio	>50:1, Horizontal ±5 degree		>50:1 Horizontal ±5 degree	/	/	>50:1 Horizontal ±5 degree	>50:1, Horizontal ±5 degree	
Warm-up time	<5 min		<5 min		<5 min	<5 min	<5 min	
Pointing stability after warm-up	<0.05	/	<0.05	/	/	/	/	
Operating temperature	10-35°C							
Modulation option	TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz, 30kHz-100kHz							
Expected lifetime	10,000 hours							
Warranty period	10 months							

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

415-450 nm Specifications

Parameter	DL415	DL442	DL445			DL447			DL450		
Wavelength	415 nm	442 nm	445 nm			447 nm			450 nm		
Wavelength tolerance	±5 nm	±10 nm	±5 nm			±5 nm			±5 nm		
Output power	>20 mW, >50 mW, >80 mW, >100 mW	>10 mW, >30 mW, >50 mW, >80 mW	>30 mW, >50 mW, >80 mW	>200 mW, >500 mW	>1000 mW	>30 mW, >50 mW, >80 mW	>200 mW, >500 mW	>1000 mW	>30 mW, >50 mW, >80 mW	>200 mW, >500 mW	>1000 mW
Operating mode	CW	CW	CW			CW			CW		
Transverse mode	Near TEM ₀₀	Near TEM ₀₀	Near TEM ₀₀	Multimode		Near TEM ₀₀	Multimode		Near TEM ₀₀	Multimode	
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%	<2%, <1%, <0.5%	<2%, <1%, <0.5%			<2%, <1%, <0.5%			<2%, <1%, <0.5%		
M ² factor	<1.5	<1.5	<1.5	/		<1.5	/		<1.5	/	
Beam diameter at aperture (1/e ²)	~3.5 mm	~3.5 mm	~3.5 mm	<2.5x 5.2 mm	~3.5 mm	~3.5 mm	<2.5x 5.2 mm	<2x5 mm	~3.5 mm	<2.5x5.2 mm	<2x5 mm
Beam divergence, full angle	<1.0 mrad	<1 mrad	<1 mrad	<2.1x 1.6 mrad	<2.5x0.2 mrad	<1.0 mrad	<2.1x 1.6 mrad	<2.5x0.2 mrad	<1.0 mrad	<2.1x1.6 mrad	<2.5x0.2 mrad
Polarization ratio	>50:1 Horizontal ±5 degree		>50:1, Horizontal ±5 degree			>50:1, Horizontal ±5 degree			>50:1, Horizontal ±5 degree		
Warm-up time	<5 min	<5 min	<5 min			<5 min			<5 min		
Pointing stability after warm-up	<0.05 mrad	<0.05 mrad	<0.05 mrad	/		<0.05 mrad	/		<0.05 mrad	/	
Operating temperature	10-35°C										
Modulation option	TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz, 30kHz-100kHz										
Expected lifetime	10,000 hours										
Warranty period	10 months										

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

454-470 nm Specifications

Parameter	DL454			DL460			DL462		DL465		DL470
Wavelength	454 nm			460 nm			462 nm		465 nm		470 nm
Wavelength tolerance	±5 nm			±10 nm	±5 nm		±5 nm		±5 nm		±10 nm
Output power	>30 mW, >50 mW, >80 mW	>100 mW, >200 mW, >300 mW, >500 mW	>800 mW	>30 mW, >50 mW, >80 mW	>100 mW, >200 mW, >300 mW	>500 mW	>100 mW, >200 mW, >300 mW	>500 mW, >800 mW	>100 mW, >200 mW, >300 mW, >500 mW	>500 mW, >800 mW	>100 mW, >200 mW, >300 mW, >500 mW, >800 mW
Operating mode	CW			CW			CW		CW		CW
Transverse mode	Near TEM ₀₀	Multimode		Near TEM ₀₀	Multimode		Multimode		Multimode		Multimode
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%			<2%, <1%, <0.5%			<2%, <1%, <0.5%		<2%, <1%, <0.5%		<2%, <1%, <0.5%
M ² factor	<1.5	/		<1.5	/		/		/		/
Beam diameter at aperture (1/e ²)	~3.5 mm	<2.5x5.2 mm	<2x5 mm	~3.5 mm	<2.5x5.2 mm	<2x5 mm	<2.5x5.2 mm	<2x5 mm	<2.5x5.2 mm	<2x5 mm	~1.5x3.0 mm
Beam divergence, full angle	<1.0 mrad	<2.1x1.6 mrad	<2.5x0.2 mrad	<1.0 mrad	<2.1x1.6 mrad	<2.5x0.2 mrad	<2.1x1.6 mrad	<2.5x0.2 mrad	<2.1x1.6 mrad	<2.5x0.2 mrad	<2.5x0.5 mrad
Polarization ratio	>50:1, Horizontal ±5 degree	/		>50:1, Horizontal ±5 degree			>50:1, Horizontal ±5 degree		/		/
Warm-up time	<5 min	<5 min		<5 min	<5 min		<5 min		<5 min		<5 min
Pointing stability after warm-up	<0.05 mrad	/		<0.05 mrad	/		/		/		/
Operating temperature	10-35°C										
Modulation option	TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz, 30kHz-100kHz										
Expected lifetime	10,000 hours										
Warranty period	10 months										

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

488-520 nm Specifications

Parameter	DL488		DL505	DL510	DL514	DL520	
Wavelength	488 nm		505 nm	510 nm	514.5 nm	520 nm	
Wavelength tolerance	±5 nm		±5 nm	±5 nm	±1 nm	±5 nm	±10 nm
Output power	>30 mW, >50 mW	>200 mW, >300 mW, >500 mW, >800 mW, >1000 mW, >1500 mW, >1800 mW	>10 mW, >20 mW, >30 mW, >50 mW, >80 mW	>10 mW, >20 mW, >30 mW	>30 mW, >50 mW	>20 mW, >50 mW	>300 mW, >500 mW, >800 mW
Operating mode	CW		CW	CW	CW	CW	
Transverse mode	Near TEM ₀₀	Multimode	Near TEM ₀₀	Near TEM ₀₀	Near TEM ₀₀	Near TEM ₀₀	Multimode
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%		<2%, <1%, <0.5%	<2%, <1%, <0.5%	<2%, <1%, <0.5%	<2%, <1%, <0.5%	
M ² factor	<2.0	/	<1.5	<1.5	/	<1.5	/
Beam diameter at aperture (1/e ²)	~3.5 mm	~3.0x3.0 mm	~2.5 mm	~3.0 mm	~3.0 mm	~3.0 mm	~1.0x3.0 mm
Beam divergence, full angle	~1.0 mrad	~2.5x1.0 mrad	0.5 mrad	<1.0 mrad	<1.0 mrad	<1.0 mrad	<4.0x0.5 mrad
Polarization ratio	>50:1, Horizontal ±5 degree		>50:1 Horizontal ±5 degree	/	/	>50:1, Horizontal ±5 degree	/
Warm-up time	<5 min		<5 min	<5 min	<5 min	<5 min	<5 min
Pointing stability after warm-up	<0.05 mrad	/	<0.05 mrad	<0.05 mrad	<0.05 mrad	<0.05 mrad	/
Operating temperature	10-35°C						
Modulation option	TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz, 30kHz-100kHz						
Expected lifetime	10,000 hours						
Warranty period	10 months						

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

633-642 nm Specifications

Parameter	DL633	DL635		DL637	DL640	DL642
Wavelength	633 nm	635 nm		637 nm	640 nm	642 nm
Wavelength tolerance	±3 nm	+7/-5 nm	±10 nm	±5 nm	±5 nm	±5 nm
Output power	>20 mW, >50 mW, >80 mW	>100 mW, >200 mW	>300 mW, >500 mW, >1000 mW	>100 mW, >200 mW	>100 mW, >200 mW	>100 mW, >200 mW
Operating mode	CW	CW	CW	CW	CW	CW
Transverse mode	Near TEM ₀₀	Near TEM ₀₀	Multimode	Near TEM ₀₀	Near TEM ₀₀	Near TEM ₀₀
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%	<2%, <1%, <0.5%	<2%, <1%, <0.5%	<2%, <1%, <0.5%	<2%, <1%, <0.5%	<2%, <1%, <0.5%
M ² factor	<1.5	<1.5	/	<1.5	<1.5	<1.5
Beam diameter at aperture (1/e ²)	~3.0 mm	~3.0 mm	~5x8 mm	~3.0 mm	~3.0 mm	~3.0 mm
Beam divergence, full angle	<1.0 mrad	<1.0 mrad	<3.0 mrad	<1.0 mrad	<1.0 mrad	<1.0 mrad
Polarization ratio	>50:1 Horizontal ±5 degree	/	/	>50:1 Horizontal ±5 degree	>50:1 Horizontal ±5 degree	>50:1 Horizontal ±5 degree
Warm-up time	<5 min	<5 min	<5 min	<5 min	<5 min	<5 min
Pointing stability after warm-up	<0.05 mrad	<0.05 mrad	/	<0.05 mrad	<0.05 mrad	<0.05 mrad
Operating temperature	10-35°C					
Modulation option	TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz, 30kHz-100kHz					
Expected lifetime	10,000 hours					
Warranty period	10 months					

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

650-660 nm Specifications

Parameter	DL650				DL655				DL660			
Wavelength	650 nm				655 nm				660 nm			
Wavelength tolerance	±10 nm		+13/-5 nm	±12 nm	±10 nm				±5 nm			
Output power	>50 mW, >100 mW	>150 mW, >200 mW	>100 mW, >180 mW	>300 mW, >500 mW, >800 mW, >1000 mW	>50 mW, >100 mW	>150 mW, >200 mW	>100 mW, >180 mW	>300 mW, >500 mW, >800 mW, >1000 mW	>50 mW, >100 mW	>150 mW, >200 mW	>100 mW, >180 mW	>300 mW, >500 mW, >800 mW, >1000 mW
Operating mode	CW				CW				CW			
Transverse mode	Round		Near TEM ₀₀	Multimode	Round		Near TEM ₀₀	Multimode	Round		Near TEM ₀₀	Multimode
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%				<2%, <1%, <0.5%				<2%, <1%, <0.5%			
M ² factor	/		<1.5	/	/		<1.5	/	/		<1.5	/
Beam diameter at aperture (1/e ²)	~2 mm		~3.0 mm	~10x5 mm	~2 mm		~3.0 mm	~10x5 mm	~2 mm		~3.0 mm	~5x8 mm
Beam divergence, full angle	~10 mrad	~20 mrad	<1.0 mrad	<3.0 mrad	~10 mrad	~20 mrad	<1.0 mrad	<3.0 mrad	~10 mrad	~20 mrad	<1.0 mrad	<3.0 mrad
Polarization ratio	/		>50:1 Horizontal ±5 degree	/	/		>50:1 Horizontal ±5 degree	/	/		>50:1 Horizontal ±5 degree	/
Warm-up time	<5 min		<5 min	<5 min	<5 min		<5 min	<5 min	<5 min		<5 min	<5 min
Pointing stability after warm-up	/		<0.05 mrad	/	/		<0.05 mrad	/	/		<0.05 mrad	/
Operating temperature	10-35°C											
Modulation option	TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz, 30kHz-100kHz											
Expected lifetime	10,000 hours											
Warranty period	10 months											

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

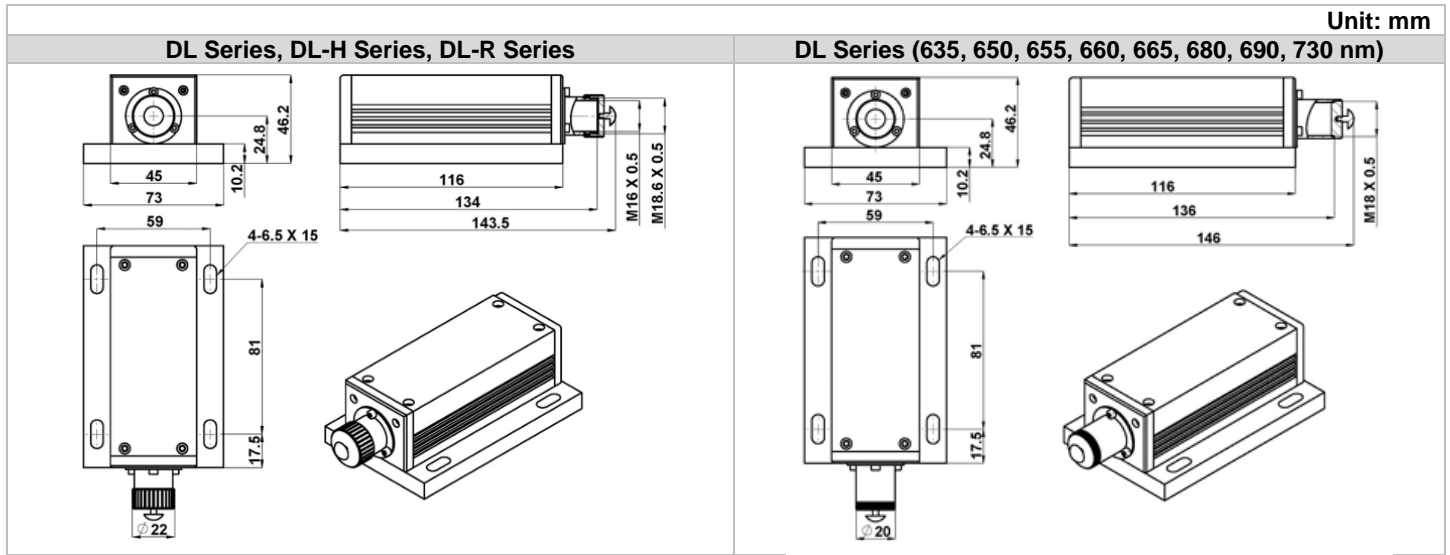
665-730 nm Specifications

Parameter	DL665	DL680			DL685	DL690			DL705	DL730		
Wavelength	665 nm	680 nm			685 nm	690 nm			705 nm	730 nm		
Wavelength tolerance	±5 nm	+10/-5 nm			±5 nm	±5 nm			±10 nm	±10 nm		
Output power	>100 mW, >300 mW, >500 mW, >800 mW	>50 mW, >100 mW	>200 mW	>300 mW, >500 mW, >800 mW, >1000 mW	>10 mW, >20 mW	>50 mW, >100 mW	>150 mW, >200 mW	>300 mW, >500 mW, >800 mW, >1000 mW	>10 mW, >20 mW, >25 mW	>10 mW, >20 mW, >30 mW	>100 mW, >300 mW, >1000 mW, >1500 mW	
Operating mode	CW	CW			CW	CW			CW	CW		
Transverse mode	Multimode	Round	Multimode		Near TEM ₀₀	Round	Multimode		Near TEM ₀₀	Near TEM ₀₀	Multimode	
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%	<2%, <1%, <0.5%			<2%, <1%, <0.5%	<2%, <1%, <0.5%			<2%, <1%, <0.5%	<2%, <1%, <0.5%		
M ² factor	/	/			<1.5	/			<1.5	/	/	
Beam diameter at aperture (1/e ²)	~5x8 mm	~2 mm		~5x8 mm	~3.5 mm	~2 mm		~5x8 mm	~3.0 mm	~3.0 mm	~5x8 mm	
Beam divergence, full angle	<3.0 mrad	~10 mrad	~20 mrad	<3.0 mrad	<1.0 mrad	~10 mrad	~20 mrad	<3.0 mrad	<1.0 mrad	<1.0 mrad	<3.0 mrad	
Polarization ratio	/	/	/	/	>50:1 Horizontal ±5 degree	/	/	/	>50:1 Horizontal ±5 degree	>50:1 Horizontal ±5 degree	/	
Warm-up time	<5 min	<5 min		<5 min	<5 min	<5 min		<5 min	<5 min	<5 min	<5 min	
Pointing stability after warm-up	/	/		/	<0.05 mrad	/		/	<0.05 mrad	<0.05 mrad	/	
Operating temperature	10-35°C											
Modulation option	TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz, 30kHz-100kHz											
Expected lifetime	10,000 hours											
Warranty period	10 months											

Remarks:

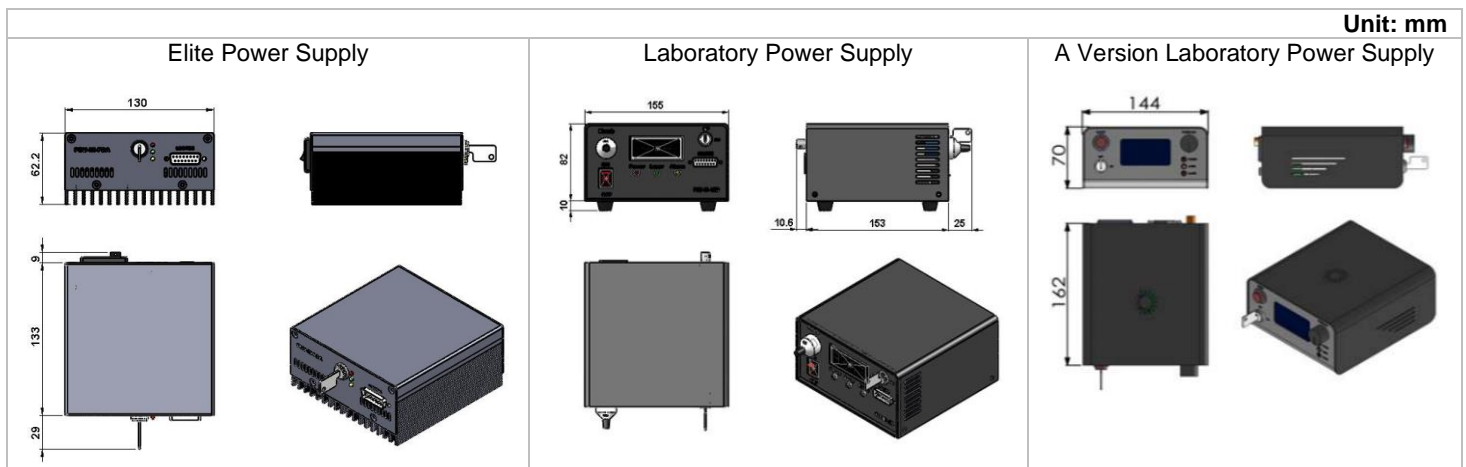
- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

DL Series (UV-Visible) Laser Head Dimensions



Parameter	DL Series, DL-H Series, DL-R Series	DL Series (635, 650, 655, 660, 665, 680, 690, 730 nm)
Dimensions	143.5(L)×73(W) ×46.2(H) mm ³	146(L)×73(W) ×46.2(H) mm ³
Weight	0.7 kg	0.7 kg
Beam height from base plate	24.8 mm	24.8 mm

DL Series (UV-Visible) Power Supply Dimensions



Parameter	Elite Power Supply	Laboratory Power Supply	A Version Laboratory Power Supply
Dimensions	171(L) ×130(W) ×62.2(H) mm ³	188.6(L) ×155(W) ×92(H) mm ³	162(L) ×144(W) ×70(H) mm ³
Weight	1.2 kg	1.5 kg	1.0 kg
Input voltage	85-264VAC	85-264VAC	100-240VAC
Feature	Standard, Frequency 1Hz-30kHz	Adjustable power, Frequency 1Hz-30kHz	Adjustable power, LCD Display, Frequency 30kHz-100kHz

Ordering Information

For more information, please contact Lasermate directly at sales@lasermate.com.

Part Number Configuration DL[1][2][3][4][5][6]						
DL = Laser Model Series	[1] = Wavelength	[2] = Transverse Mode	[3] = Output Power	[4] = Power Supply	[5] = Power Stability	[6] = Modulation
		H=Near TEM ₀₀ R=Round Blank=Multimode	10= >10mW 20= >20mW 30= >30mW 50= >50mW 80= >80mW 100= >100mW 800= >800mW 1W= >1000mW 1H= >1500mW 1E= >1800mW	E=Elite Power Supply L=Laboratory Power Supply T=A Version laboratory Power Supply	E=<3% 2=<2% D=<1% S=<0.5%	0=None T1=TTL 1Hz-1kHz T2=TTL 1kHz-10kHz T3=TTL 10kHz-30kHz A1=Analog 1Hz-1kHz A2=Analog 1kHz-10kHz A3=Analog 10kHz-30kHz

Note: The above specifications are subject to change without notice.