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HPD Series

高出力半導体レーザー

KEYSTONE

株式会社キーストンインターナショナル

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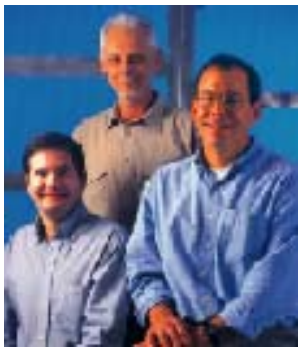
HPD

HIGH POWER DEVICES, INC

すぐに、そして効率的に問題を解決すること。近年、それがビジネスのすべてです。これが、HPD 社がレーザダイオード産業の中で、なぜ急速に最高のメーカーになったのかを説明する事柄です。



長年、HPD社は一貫して、難しい問題の革新的な解決について工夫しています。;それは、デザイン、生産、タイミング、および価格など、顧客のクリティカルな要求を満たすことです。

何年もの実地経験にもとずく専門的製造技術と、注意深い顧客サービスとのユニークな組み合わせを通して、HPD社は直面している問題と、顧客が日々開発する新しいアプリケーションの解決を助けるために、完璧な体制を整えています。
(事実、HPD社の効率的なプロトタイピングサービスと技術的な相談は、これらの新しいアプリケーションのいくつかを創造する際に援助しまた。)

そして、急速な成長の期間、高いレベルの品質と性能を維持するには問題が多いかもしれない事をHPD社は予期し、解決策を工夫しました。

HPD社の新しい 10,000sq.ft.の製造設備は、いかなる大量のーダーも迅速に、正確に、そして低価格にて対応いたします。

あなたが解決すべき特定の問題を持っているとか、またはレーザダイオードを探している場合、HPD社(㈱キーストンインターナショウナル)にお電話lを下さい。
我々は、あなたの問題を解決するお手伝いをさせて頂きます。

We Deliver Laser Diodes You Can Depend On!™

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INFRA-RED COMPONENTS

HPD Series 1000

Infra-Red CW Lasers for Industrial and Commercial Applications

The HPD Series 1000 diode lasers have high CW output, high brightness, and the excellent reliability needed for today's industrial applications. Selected wavelengths are available within the range of 750nm to 885nm. The lasers are broad area multimode with source apertures from 50µm to 470µm and spectral widths of typically 2nm. Series 1000 lasers exhibit high quantum efficiencies and low thermal impedance for extended lifetime and reliablity. Available in all industry standard packages, including optional fiber coupling. Applications include solid-state laser pumping, free space communication, medical therapy, imaging and diagnostics, robotics, and illumination.

Typical Specifications @ 25˚C

HPD Series 1000	1005	1010	1015	1020	1040	1050
Output Power (W)	0.5	1	1.5	2	4	5
Source Size (µm)	50	100	100	200	470	470
Operating Current (A)	0.8	1.3	1.8	2.4	5.5	6.5
Threshold Current (A)	0.2	0.3	0.3	0.6	1.5	1.5
Series Resistance (Ω)	0.3	0.25	0.25	0.2	0.15	0.15
Typical Wavelenth	808nm ±3nm					
Other Wavelengths	750-885 nm					
Spectral Width	2nm					
Slope Efficiency	1 W/A					
Operating Voltage	2V					
Beam Divergence	10 x 40 deg (FHWM)					
Typical Packages	9mm, C, TO3, HHL					

Safety

Intense-HPD Aluminum Gallium Arsenide lasers emit infrared radiation. This radiation is invisible to the human eye and safety precautions must be taken to prevent potential eye damage. Do not view or stare at operating lasers. If viewing is required, use a matte surface or suitable viewing screen.

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INFRA-RED COMPONENTS

HPD Series 1100

Infra-Red CW Lasers for Industrial and Commercial Applications

The HPD Series 1100 diode lasers have high CW output, high brightness, and the excellent reliability needed for today's industrial applications. Selected wavelengths are available within the range of 886nm to 1064nm. The lasers are broad area multimode with source apertures from 50µm to 470µm and spectral widths of typically 2nm. Series 1100 lasers exhibit high quantum efficiencies and low thermal impedance for extended lifetime and reliablity. Available in all industry standard packages, including optional fiber coupling. Applications include solid-state laser pumping, free space communication, medical therapy, imaging and diagnostics, robotics, and illumination.

Typical Specifications @ 25˚C

HPD Series 1100		1105	1110	1120	1140
Output Power	(W)	0.5	1	2	4
Source Size	(µm)	50	100	200	470
Operating Current	(A)	0.8	1.3	2.3	5.5
Threshold Current	(A)	0.2	0.3	0.6	1.5
Series Resistance	(Ω)	0.3	0.25	0.2	0.15
Typical Wavelength	905nm ±10nm				
Other Wavelengths	886-1064nm				
Spectral Width	2.5nm				
Slope Efficiency	1 W/A				
Operating Voltage	2V				
Beam Divergence	40 x 10 deg (FHWM)				
Typical Packages	9mm, C, TO3, HHL				

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VISIBLE COMPONENTS

HPD Series 1200

Visible CW Lasers for Medical and Display Applications

The HPD Series 1200 are state-of-the-art, high power CW visible diode lasers. These broad area multimode lasers offer extremely high brightness, excellent reliability, good quantum efficiency, and low thermal impedance. Close tolerances to ±3nm are provided in certain wavelengths. Available in a variety of open, window, and fibered packages, including C mount, 9MM, TO3 with TE cooler, and HHL with TE cooler and fast axis collimator, these lasers are easily integrated into systems. Applications include photodynamic therapy, medical imaging and diagnostics, illumination, optical pumping, and process control.

Typical Specifications @ 15˚C

HPD Series 1200		1202	1202	1203	1203	1205	1207
Output Power	(W)	0.25	0.25	0.35	0.35	0.50	0.70
Source Size	(µm)	100	100	100	100	200	200
Typical Wavelength	(nm)	635	655	635	655	635	635
Operating Current	(A)	0.55	0.55	0.65	0.65	1.1	1.3
Operating Voltage	(A)	2.3	2.3	2.3	2.3	2.4	2.4
Wavelength Tolerance	(nm)	±3	±5	±3	±10	±3	±3
Threshold Current	(A)	0.3	0.3	0.3	0.3	0.6	0.6
Series Resistance	(Ω)	0.4	0.4	0.4	0.4	0.35	0.35
Spectral Width	1nm						
Slope Efficiency	1 W/A						
Beam Divergence	10 x 40 deg (FHWM)						
Max Laser Temperature	15˚C						
Typical Packages	9MM, C, TO3, HHL						

Drivers

Intense-HPD can recommend companies offering commercial drivers for visible CW laser diodes. Contact an applications engineer for additional information.

Safety

Intense-HPD Gallium Indium Arsenide Phosphodide lasers emit radiation which is visible to the human eye. Safety precautions must be taken to prevent potential eye damage. Do not view or stare at operating lasers. If viewing is required, use a matte surface or suitable viewing screen.

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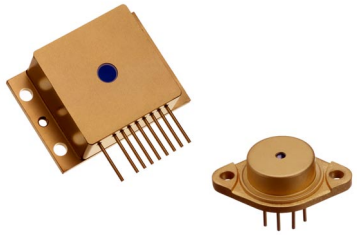
VISIBLE COMPONENTS

HPD Series 1300

Visible CW Lasers for Medical and Display Applications



The HPD Series 1300 are state-of-the-art, high power CW visible diode lasers. These broad area multimode lasers offer extremely high brightness, excellent reliability, good quantum efficiency, and low thermal impedance. Close tolerances to ±3nm are provided in certain wavelengths. Available in a variety of open, window, and fibered packages, including C mount, 9MM, TO3 with TE cooler, and HHL with TE cooler and fast axis collimator, these lasers are easily integrated into systems. Applications include photodynamic therapy, medical imaging and diagnostics, illumination, optical pumping, and process control.

Typical Specifications @ 20˚C

HPD Series 1300		1305	1305	1310	1310
Output Power	(W)	0.5	0.5	1.0	1.0
Source Size	(µm)	100	100	200	200
Typical Wavelength*	(nm)	670	690	670	690
Operating Current	(A)	0.9	0.9	1.5	1.5
Threshold Current	(A)	0.35	0.35	0.55	0.55
Series Resistance	(Ω)	0.4	0.4	0.35	0.35
Operating Voltage	2.3V				
Spectral Width	1nm				
Wavelength Tolerance*	±10nm				
Slope Efficiency	1 W/A				
Beam Divergence	40 x 10 deg (FHWM)				
Max Laser Temp	25˚C				
Typical Packages	9MM, C, TO3, HHL				

* Other wavelengths and tolerances available upon request.

Drivers

Intense-HPD can recommend companies offering commercial drivers for visible CW laser diodes. Contact an applications engineer for additional information.

Safety

Intense-HPD Gallium Indium Arsenide Phosphodide lasers emit radiation which is visible to the human eye. Safety precautions must be taken to prevent potential eye damage. Do not view or stare at operating lasers. If viewing is required, use a matte surface or suitable viewing screen.

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SHORT PULSED COMPONENTS

HPD Series 2100

IR (905nm) Short Pulse Lasers for Industrial and Military Applications

The HPD Series 2100 are high peak power, 905nm pulsed diode lasers designed for applications that require powers up to 66mW/µm of junction length at 200ns Pulse Width. These broad area emitters have excellent reliability and good quantum efficiency. Single emitters from 75µm to 380µm junction length are standard. Other wavelengths from 635nm to 980nm, along with both linear and stacked arrays, are available on special order.

The 905nm laser may be overdriven at narrower pulse widths using Pod = Po * (200/Pwd) 1/2. Standard packages include 5.6MM, 9MM, TO18 coaxial, and TO5 twin lead. Options include fiber pigtails. R0 detectors are available in some packages for range finding applications. Applications include hand held rangefinders, laser speed detectors, ceilometers, weapons simulation, and proximity fuses.

Specifications @ 25˚C, 200nsec, 2KHz

HPD Series 2100		2110	2120	2130	2150
Output Power	(W)	5	10	15	25
Source Size	(µm)	75	150	250	380
Operating Current	(A)	5.5	11	18	30
Threshold Current	(A)	0.3	0.6	1	1.5
Typical Wavelength	905nm ±10nm				
Other Wavelengths	886-1100nm				
Spectral Width	4nm				
Slope Efficiency	1 W/A				
Max Duty Cycle	0.1%				
Beam Divergence	40 x 10 deg (FHWM)				
Linear Arrays	Available on special order				
Typical Packages	TO56, 9MM, TO5, TO18				

Vertical Stacks Specifications @ 25˚C, 200nsec, 500Hz

HPD Series 2100-XX		2110-2S	2120-3S	2130-4S	2150-6S
Output Power	(W)	10	30	60	150
Source Size	(µm)	75 x 120	150 x 240	250 x 360	380 x 600
Operating Current	(A)	5.5	11	18	30
Threshold Current	(A)	0.3	0.6	1	1.5
Wavelengths	(nm)	886-1100nm	886-1100nm	886-1100nm	886-1100nm
Max Duty Cycle	(%)	0.1	0.07	0.05	0.01

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Drivers

Intense-HPD can recommend companies offering commercial drivers for short pulse laser diodes. Contact an applications engineer for additional information.

Shown below are typical circuit diagrams for drivers utilizing SCRs or FETs. Leads in the high current loop must be kept as short as possible to reduce series inductance.

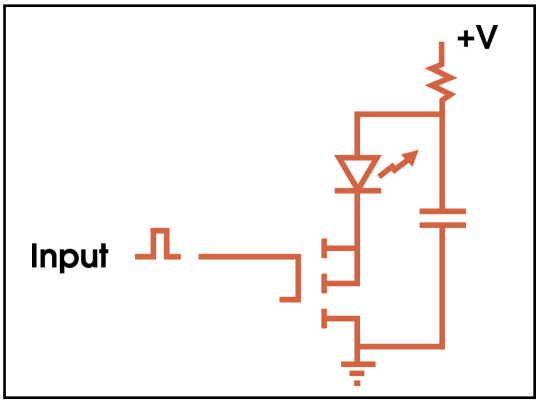

Figure 1. Typical FET Driver Circuit

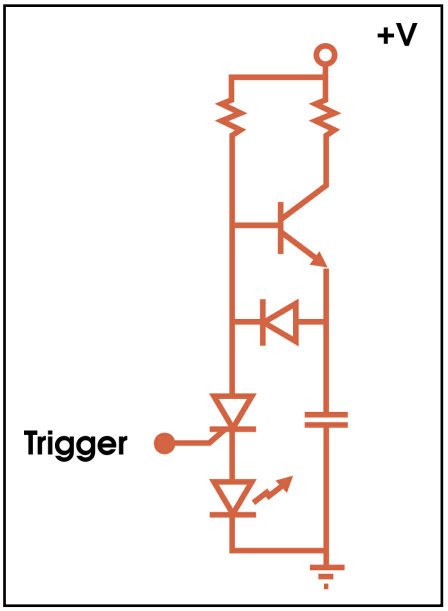

Figure 2. Typical SCR Driver Circuit

Safety

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SHORT PULSED COMPONENTS

HPD Series 2400

IR (1550nm) Short Pulse Eye Safe Lasers for Industrial and Military Applications

The HPD Series 2400 are high peak power, eye safe, 1550nm pulsed diode lasers designed for applications that require powers up to 33mW/µm of junction length at 200ns Pulse Width. These broad area emitters have excellent reliability and good quantum efficiency. Single emitters from 150µm to 350µm junction length are standard. Other wavelengths from 635nm to 1100nm, along with stacked arrays, are available on special order.

The 1550nm laser may be overdriven at narrower pulse widths using Pod = Po * (200/Pwd) 1/2. Standard packages include 5.6MM, 9MM, TO18 coaxial, and TO5 twin lead. Options include fiber pigtails. R0 detectors are available in some packages for range finding applications. Applications include hand held rangefinders, laser speed detectors, ceilometers, weapons simulation, and proximity fuses.

Specifications @ 25˚C, 200nsec, 2KHz

HPD Series 2400		2410	2424
Output Power	(W)	5	12
Source Size	(µm)	150	350
Operating Current	(A)	20	40
Threshold Current	(A)	1.0	2.0
Typical Wavelength	1550nm ±20nm		
Other Wavelengths	886-1000nm		
Spectral Width	12nm		
Slope Efficiency	0.3 W/A		
Max Duty Cycle	0.1%		
Beam Divergence	48 x 15 deg (FHWM)		
Typical Packages	TO56, 9MM, TO5, TO18		

Vertical Stacks Specifications @ 25˚C, 200nsec, 2KHz

HPD Series 2400-XX		2410-2S	2424-2S	2424-4S
Output Power	(W)	10	30	60
Source Size	(µm)	150 x 150	150 x 350	350 x 360
Operating Current	(A)	20	40	40
Threshold Current	(A)	1.0	2.0	2.0
Max Duty Cycle	(%)	0.05	0.05	0.01

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Shown below are typical circuit diagrams for drivers utilizing SCRs or FETs. Leads in the high current loop must be kept as short as possible to reduce series inductance.

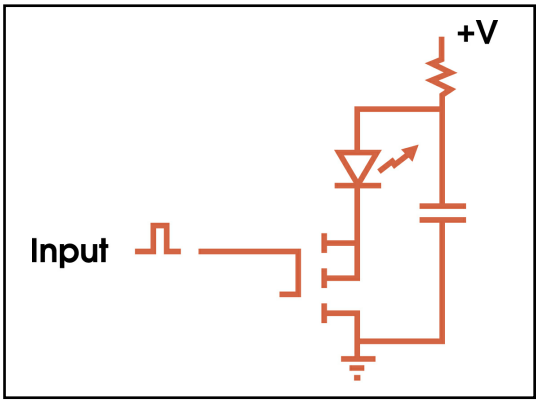

Figure 1. Typical FET Driver Circuit

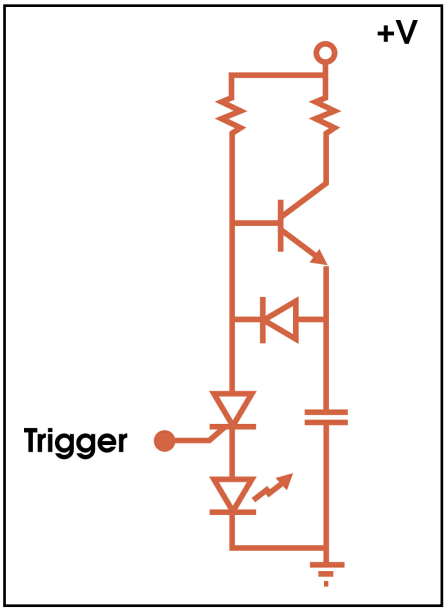

Figure 2. Typical SCR Driver Circuit

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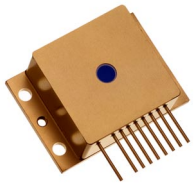
INFRA-RED COMPONENTS

HPD Series 3000

Infra-Red CW Lasers for Industrial and Commercial Applications



The HPD Series 3000 are very high brightness AlGaAs lasers. The lasers have small emitting apertures and power from 15mW/µm to 20mW/µm of junction length. Aperture lengths include 50µm, 100µm, and 200µm. All lasers are multimode with a spectral width of approximately 2nm. The low thermal resistance of P-down mounting combined with high efficiency quantum well structure provides low junction temperature at high optical power. Easy to use package options include C mount, 9mm, TO3 with TE cooler, and HHL with TE cooler. Fiber pigtails are optional in HHL package. Applications include opthalmic photo coagulators, optical pumping, and materials processing.

Typical Specifications @ 25˚C

HPD Series 3000		3010	3020	3030	3040
Output Power	(W)	1	2	3	4
Source Size	(µm)	50	100	200	200
Typical Wavelength	(nm)	808	808	808	808
Wavelength Tolerance	(nm)	±3	±3	±3	±5
Operating Current	(A)	1.3	2.5	3.6	4.7
Threshold Current	(A)	0.2	0.3	0.6	0.6
Spectral Width	2nm				
Slope Efficiency	1 W/A				
Series Resistance	0.35 Ω				
Operating Voltage	2V				
Beam Divergence	40 x 10 deg (FHWM)				
Typical Packages	9mm, C, TO3, HHL				

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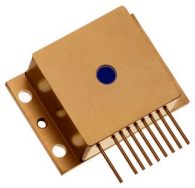
INFRA-RED COMPONENTS

HPD Series 3100

Infra-Red CW Lasers for Industrial and Commercial Applications



The HPD Series 3100 are high brightness InGaAs lasers. The lasers have small emitting apertures and power of 20mW/µm of junction length. Aperture lengths include 50µm and 100µm. All lasers are multimode with a spectral width of approximately 3nm. The low thermal resistance of P-down mounting combined with high efficiency quantum well structure provides low junction temperature at high optical power. Easy to use package options include C mount, 9mm, TO3 with TE cooler, and HHL with TE cooler. Fiber pigtails are optional in HHL package. Applications include opthalmic photo coagulators, optical pumping, and materials processing.

Typical Specifications @ 25˚C

HPD Series 3100		3110	3120
Output Power	(W)	1	2
Source Size	(µm)	50	100
Operating Current	(A)	1.3	2.5
Threshold Current	(A)	0.2	0.3
Typical Wavelength	980nm ±5nm		
Spectral Width	3nm		
Slope Efficiency	1 W/A		
Series Resistance	0.35 Ω		
Operating Voltage	2V		
Beam Divergence	48 x 10 deg (FHWM)		
Typical Packages	9mm, C, TO3, HHL		

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