

IX-6100-G

Selective Laser Annealing System



Applications

- ▶ Localized Heating/
Annealing of
Semiconductor Materials
- Ohmic Contact Formation
- Dopant Activation
- Surface Recrystallization
- Surface Metal Reflow



Features

- ▶ Stages Compatible with
Wafers up to 200 mm
- ▶ Adjustable Beam Size for
Controllable Surface
Exposure
- ▶ High Precision Vision
System and Alignment for
Accurate Beam Placement
- ▶ Laser Parameter Control for
Precise Energy Dosage
- ▶ LWD scanner and Precision
X-Y Stages for High Speed
Step-and-scan Processing
- ▶ Optional Fully Automated
Wafer Handling



IPG Microsystems' IX-6100-G annealing system delivers precisely controlled heating energy for semiconductor process applications. The laser's wavelength is selected based on material's optical properties and pulse duration is adjusted to desired heat penetration depth. Integrated control of laser parameters with a highly accurate beam positioning architecture allows energy to be delivered exactly where required to optimize device performance. Compatible with long working distance galvanometers for large-field scanning, the system uses high accuracy, air-bearing stages for a hybrid step-and-scan exposure strategy for high wafer throughput. When equipped with the optional Integrated Automation Platform (IAP), the IX-6100-G provides fully automatic loading and processing of wafers up to 300 mm diameter.

IX-6100-G

Selective Laser Annealing System

System Characteristics

Frame and Enclosure	Fully enclosed Class I laser system, heavy duty weldment frame integrates laser, beam delivery system and control electronics into a single 1 M x 1.9 M footprint; includes casters and leveling feet with vibration isolation pads
Available Wavelengths, nm	Selectable based on Application Requirements
Beam Delivery System	All Granite Beam Delivery Support Structure Patented optical beam delivery configuration for ultra narrow scribing kerf; Vibration isolating mounting platform for wafer stages and beam delivery optics; Stiffness and large thermal mass of granite structure prevent changes in beam delivery system alignment over time; Pneumatic, 2 position Laser Beam Stop; Precision optic mounts for stability and ease of adjustment; select grade UV optics

System Specifications

Motion Control Electronics	Up to 12-axes of Servo or Step Motor Control, integrated into single interface for all motorized components as well as the laser fire mechanism
Air-bearing X-Y Part Positioning Stage	Linear Glass Scale Encoders; Linear Motor Servo Drive System
X-Y Stage Specifications	Travel: Up to 200 mm diameter processing area Optional Stages: Compatible up to 300 mm wafer processing Resolution: 0.1 μm Accuracy: $\pm 3 \mu\text{m}$ over 150 mm travel Repeatability: $< 1 \mu\text{m}$ (bidirectional)
Z-theta Wafer Alignment Stage	Motorized Z-theta System
Galvanometer Working Distance	Adjustable up to 300
Z-axis Specifications	Travel: 10.0 mm; Resolution: 0.25 μm Accuracy: 5.0 μm ; Repeatability: 1.5 μm (bidirectional)
Theta-axis Specifications	Travel: $\pm 175^\circ$; Resolution: 3.6 μrad Accuracy: 300 μrad overall. 25 $\mu\text{rad}/^\circ$; Repeatability: $\pm 5.0 \mu\text{rad}$
Video Microscope System	MicroTech Camera Assembly OXC Camera for On-target Process Viewing; High Magnification Inspection Camera
Optional Equipment**	Automated Cassette Load/ Unload System Wafer Pre-aligner Features Vision System with Automatic Part Alignment Database Connectivity Software On-target Power Meter; Laser Calibration Power Meter/ Beam Stop Debris Management System ** Please discuss with your sales representative for more details

+1 (603) 518-3200

sales.ipgm@ipgphotonics.com

www.ipgphotonics.com/microsystems

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind IPG Microsystems LLC only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with use of a product or its application. IPG, IPG Photonics, The Power to Transform and IPG Photonics' logo are trademarks of IPG Photonics Corporation. © 2015 IPG Photonics Corporation. **All rights reserved.**

The Power to Transform®