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GT63A

Next-Generation ArF Excimer Laser, Model GT63A: Designed for Multi-Patterning Immersion Lithography Scanners

The GT63A, the latest model of the GT series, is a fifth-generation model featuring the same injection-locking platform.
The GT63A is mounted with the four “s” series functions designed in response to customers’ needs to create additional value: sMPL (Spectrum Multi-Positioning LNM)*1, the first customer-approved spectrum control (“focus drilling”) technology to achieve a wider depth of focus; sGRYCOS (Sixty Gigaphoton Recycled Chamber Operation System), a unique chamber technology that lowers operating costs; sTGM (Supreme Total Gas Manager), a gas management system that achieves higher uptime while using less process gas; and sMONITORING (Smart Monitoring), real-time information management tracking of the highest laser stability in the market.

The GT series has been widely accepted by our major customers; it is renowned worldwide for its design concept and high reliability.

The GT63A is designed on the same platform as the previous GT series models so as to use as many common components as possible, thus ensuring high reliability immediately after introduction to customers' sites.

GT63A Main Features: Four "s" Series Functions

1. sMPL
The sMPL technology for focus drilling increases laser spectrum control width to a level 10 times that of conventional technology, thus creating a greater depth of focus. Focus drilling enables expansion of the lithography process window for contact holes, trenches and vias that is not possible with conventional technology, while avoiding negative effects on critical dimension uniformity (CDU), overlay and productivity. The sMPL technology was tested in a high-volume manufacturing environment in partnership with a leading scanner manufacturer and device manufacturer.

2. sGRYCOS
The enhanced sGRYCOS technology extends the effective life of a laser chamber — one of the main consumable components of an excimer laser — to 1.5 times longer than any conventional chamber today, offering world-class endurance that significantly reduces factory operating costs. This durability results from increasing the strength of the pre-ionization in a newly developed chamber and uses a robust pulse-power supply for today's and tomorrow's power requirements.

3. sTGM
The sTGM technology implements an innovative wavelength calibration method to eliminate the previous need to routinely replace the laser chamber's gas. This new industry standard completely eliminates wasted process gases based on calibration requirements, thereby measurably reducing facility costs and improving laser availability on an annual basis. This unique gas management technology allows for system calibration of laser wavelength "as-is" without replacement of the laser chamber's gas, a first-of-its-kind capability.

4. sMONITORING
The sMONITORING technology, an extension of existing real-time monitoring of laser performance, can be connected with the end-user's FDC (Fault Detection and Classification) system to monitor system operation. It is a final check on highly stable laser output to the scanner and on-wafer performance.

Main Specification*

Wavelength	193 nm
Average Output	60/90 W
Pulse Energy	10.0/15.0 mJ
Repetition Rate	6,000 Hz
Bandwidth (E95)	0.3 pm

(*) Each of the above specification values represents a typical value

ArF Immersion

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