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## GT40A

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### 4-kHz ArF Excimer Laser for 65-nm or below Technology Node



Model GT40A uses an injection-locking resonator (first in the world) as a lithography tool light source to allow simultaneous maintenance of narrower spectral bandwidth and higher output, a combination that is difficult to achieve with conventional technologies. In addition, it provides lower peak-pulse energy that reduces damage to the lithography tool optics to achieve the lowest running cost in the industry. Model GT40A is also equipped with the newly developed advanced self-diagnosis function as well as it has greatly improved its serviceability such as the ease of module replacement to achieve higher reliability and higher uptime.

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## Main Features

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### 1. An injection-locking laser

The GT40A is the industry's first mass-production model to use injection-locking technology\*. This ensures highly stable emission of a DUV beam with high output of 45 W and a spectral bandwidth of 0.2 picometer (pm) for FWHM and 0.5 picometer for E95 — the highest bandwidth level in the industry. It also provides lower peak-pulse energy that reduces damages to the lithography tool optics.

\* Injection-locking technology injects a low-output laser beam (master), which is emitted after being tuned to an extremely narrow spectral bandwidth, into a laser resonator (amplifier) that amplifies it with laser resonance. This technology allows simultaneous maintenance of a narrower spectral bandwidth and higher output, a combination that is difficult to achieve with conventional technologies.

### 2. The industry's lowest running cost

The injection-locking technology allows greater reduction of the load upon the laser optics. Furthermore, the system configuration has been refined to significantly reduce both the number of consumables (modules) and their replacement frequency. As a result, the GT40A can achieve the lowest running cost in the industry.

### 3. A highly reliable/operable design

The high reliability and high uptime essential to semiconductor factories are achieved by introduction of a newly developed self-diagnosis function and great improvement in the ease of module replacement and serviceability.

Main Specification*	
Wavelength	193 nm
Average Output	45 W
Pulse Energy	11.25 mj
Repetition Rate	4,000 Hz
Bandwidth (FWHM)	0.2 pm
Bandwidth (E95)	0.5 pm

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

## ArF Dry

GT60A (<https://www.gigaphoton.com/en/products/excimer-laser/arf-dry/gt60a>)

**GT40A (<https://www.gigaphoton.com/en/products/excimer-laser/arf-dry/gt40a>)**

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G41A (<https://www.gigaphoton.com/en/products/excimer-laser/arf-dry/g41a>)



400 Yokokurashinden,  
Oyama-shi, Tochigi-ken  
323-8558, Japan

☎ +81-285-28-8410 | 📠 +81-285-28-8439

✉ [web\\_info@gigaphoton.com](mailto:web_info@gigaphoton.com) ([mailto:web\\_info@gigaphoton.com](mailto:web_info@gigaphoton.com))

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