



Why Choose a GAM Excimer Laser for your application in PLD?

- **Energy Density**
- **Pulse Rise Time**
- **Focus / Stability**
- **Short Pulse**
- **Repetition Rate**

GAM laser beams are smaller in size than competing excimer laser products. Considering the GAM laser’s beam size, divergence and energy output, one can understand that the GAM has better focusability and higher energy density and peak power density; this makes it more optimal for Pulsed Laser Deposition (PLD) applications.

Energy Density:

Most excimer applications like PLD demand a higher energy density than the higher absolute energy.

Laser	Beam Dimension (mm x mm)	Energy* , mJ	Energy Density** mJ/sq.mm
GAM EX100H	11 x 6	150	2.27
Competing Laser	24 x 10	400	1.66

Comparison of output Energy density with GAM laser and Other Lasers

* Energy for 248nm wavelength
 ** Energy density at the exit aperture

Repetition Rate:

The film growth speed using deposition techniques is limited by the repetition rate of the laser.

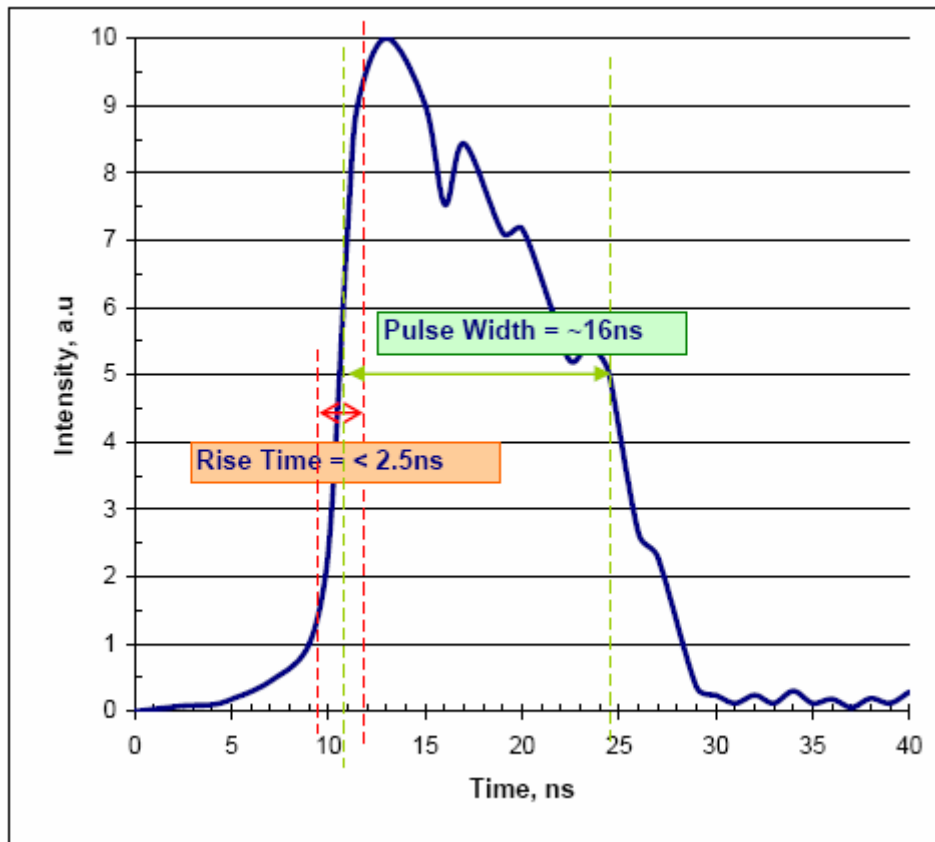
Laser	Max. Rep. Rate, Hz
GAM EX100H	60/125
Competing Laser	20/50



Pulse Rise Time and Pulse Width:

A shorter pulse with faster rise time is a key factor for increased efficiency of the laser ablation in PLD. Shorter pulse lengths and pulse rise times allow greater energy coupling to the target surface before plasma generation limits energy coupling to the target.

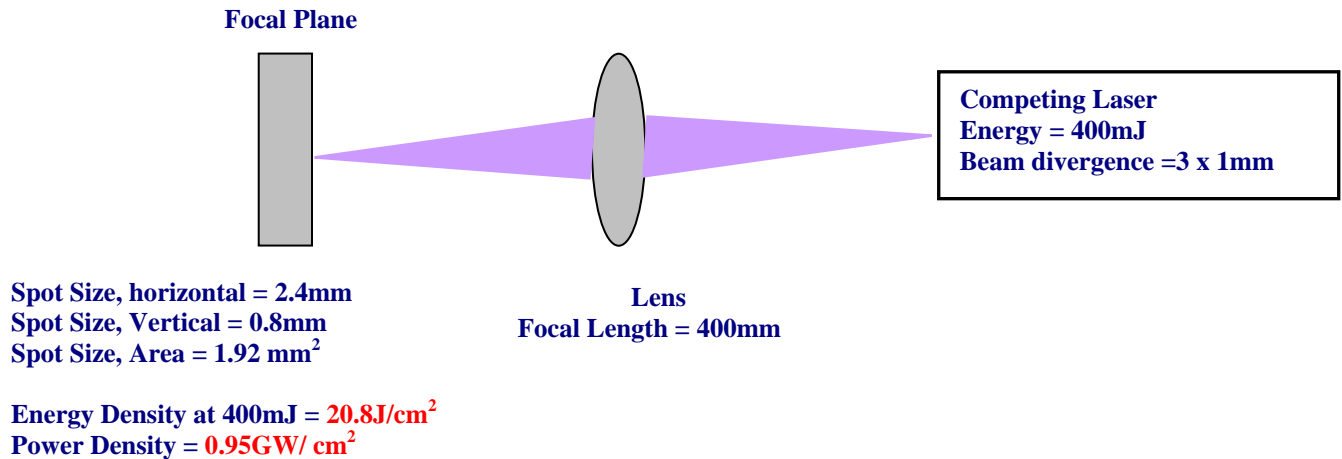
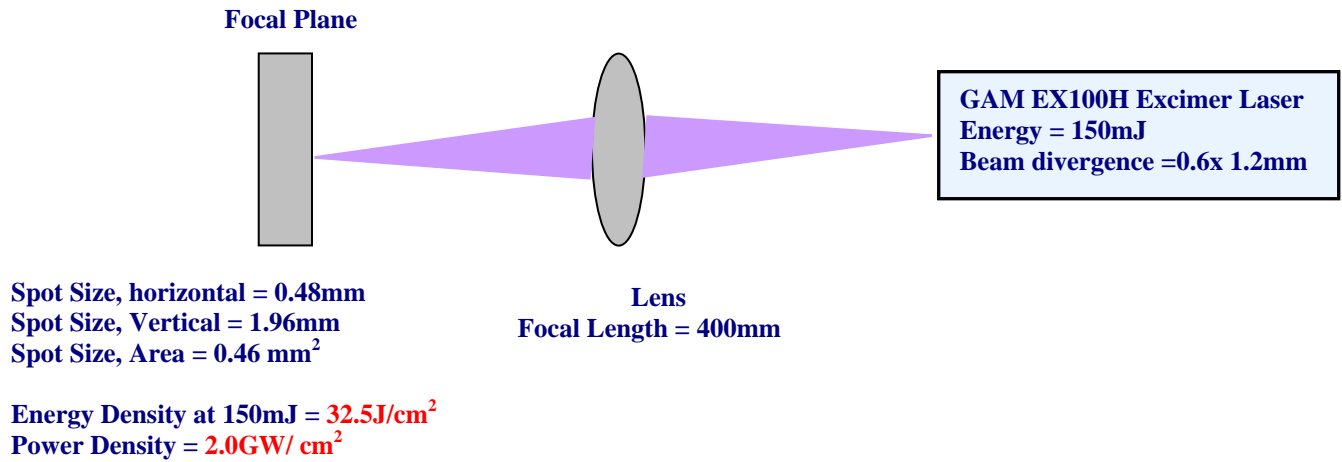
Laser	Pulse Rise time, ns	Pulse length, ns
GAM EX100H	2.0-2.5	~16
Competing Laser	3	>22





Energy Density using Optics, focal length = 400mm

By using Optics with different focal length, the excimer laser beam can be directed and focused to the target in a PLD system. The following diagram shows the energy density and beam size. Higher energy densities and power densities are obtainable with the GAM Laser EX100H than competing lasers because of the better focusability of the EX100H laser.





Laser Dimensions and Weight:

The smaller and the lighter the laser is, easier it is to install and integrate.

Laser	Laser Dimensions	Laser Weight kg
GAM EX100H	120 x 44 x 30 cm	65
Competing Laser	1.5metres +	270

Summary:

Energy Density, high pulse to pulse stability, fast rise time and shorter pulse lengths are critical parameters for Pulsed Laser deposition applications. The GAM Laser EX100H has better performance on all these laser parameters than competing products. This makes the GAM EX100H excimer laser a guaranteed source for successful performance in PLD applications.