

Nufern Q-swファイバーレーザー (NuQ)の出力詳細データ資料

Oct, 2008



光技術をサポートする
株式会社オプトサイエンス
<http://www.optoscience.com>

東京本社 〒160-0014 東京都新宿区内藤町1番地 内藤町ビルディング
TEL: 03 (3356) 1064 FAX: 03 (3356) 3466 E-mail: info@optoscience.com
大阪支店 〒532-0011 大阪市淀川区西中島7-7-2 新大阪ビル西館
TEL: 06 (6305) 2064 FAX: 06 (6305) 1030 E-mail: osk@optoscience.com
名古屋営業所 〒450-0002 名古屋市中村区名駅2-37-21 東海ソフトビル
TEL: 052 (569) 6064 FAX: 052 (569) 8064 E-mail: ngo@optoscience.com

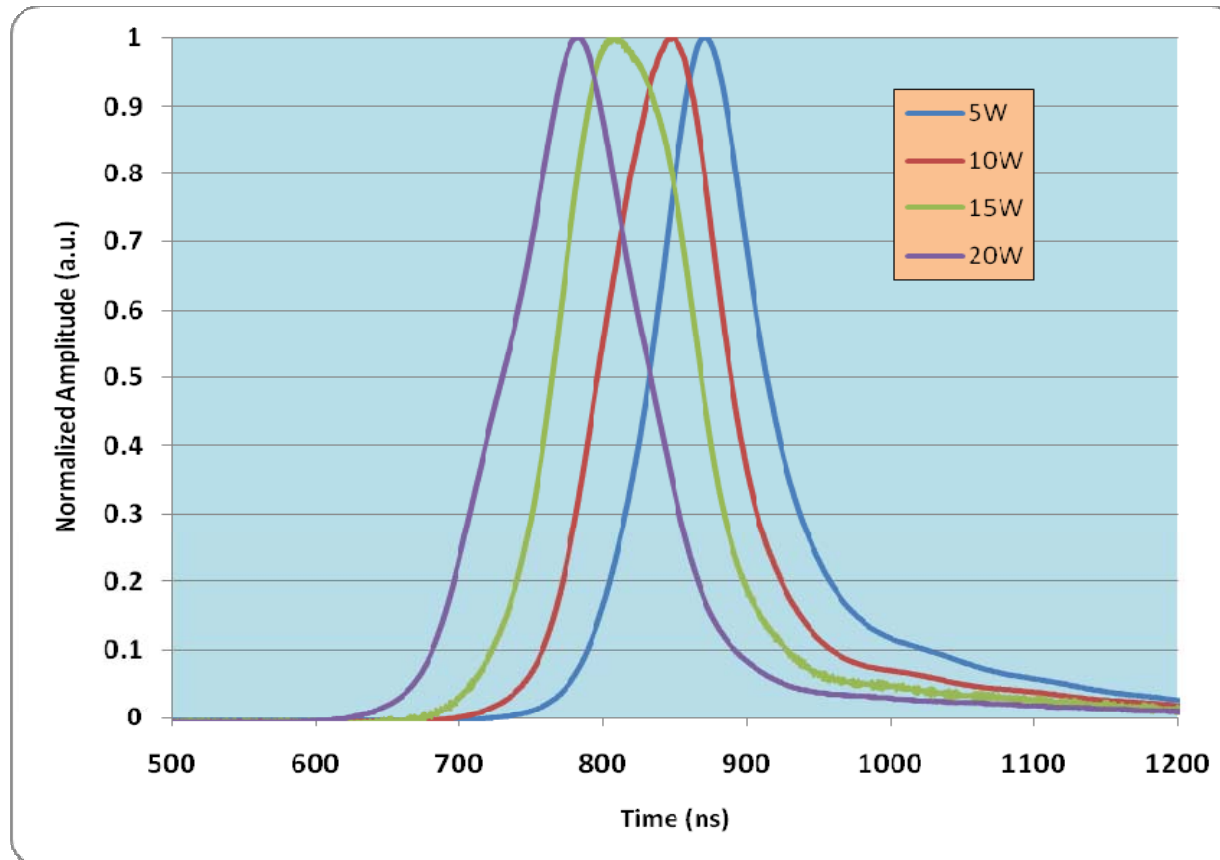
Nufern Q-switch lasers

- 20W version was released at IMTS, Chicago (September 2008)
- Test report for 20W Q-switch laser

<i>Parameter</i>		<i>Specification</i>			<i>Unit</i>	<i>Measured</i>
		<i>Min</i>	<i>Nom</i>	<i>Max</i>		
Full Rated Power at 20 kHz		19	20.5	22	W	21
Full Rated Power at 100 kHz		19	20.5	22	W	21
Pulse Width (FWHM) at Full Rated Power	At 20 kHz	80.0	100.0	120	ns	95
	At 100 kHz	--	--	--	ns	294
Power drift over 24hr after 1 hour start up $(Max-Min)/(Max+Min)*2$		--	--	5.0%	%	1.4
Output Beam Divergence Adjustment						Adjusted to Min Divergence
Pulse Shape			Gaussian Like			By Design
Central Emission Wavelength		1062	1064	1066	nm	By Design
Emission Bandwidth (FWHM)			5	10	nm	By Design
Average Power at Gate Off			0		mW	By Design
Laser Turn-Off Time (100% to 20% from Gate Off, 100 kHz, 20 W)				2	uS	By Design
Laser Turn-On Time (0 to 90% from Gate On, 100 kHz, 20 W)			125	175	uS	By Design
Pulse Energy (At 20 kHz & Rated Power)			1.0		mJ	By Design
Nominal Peak Power (At 20 kHz & Rated Power)			10		kW	By Design
Armored Cable Length		2.8	3	3.2	m	By Design
Beam Quality (M ²)			1.4	1.8		By Design
Output Beam Diameter (1/e ²)		6.0	7.5	9.0	Mm	By Design

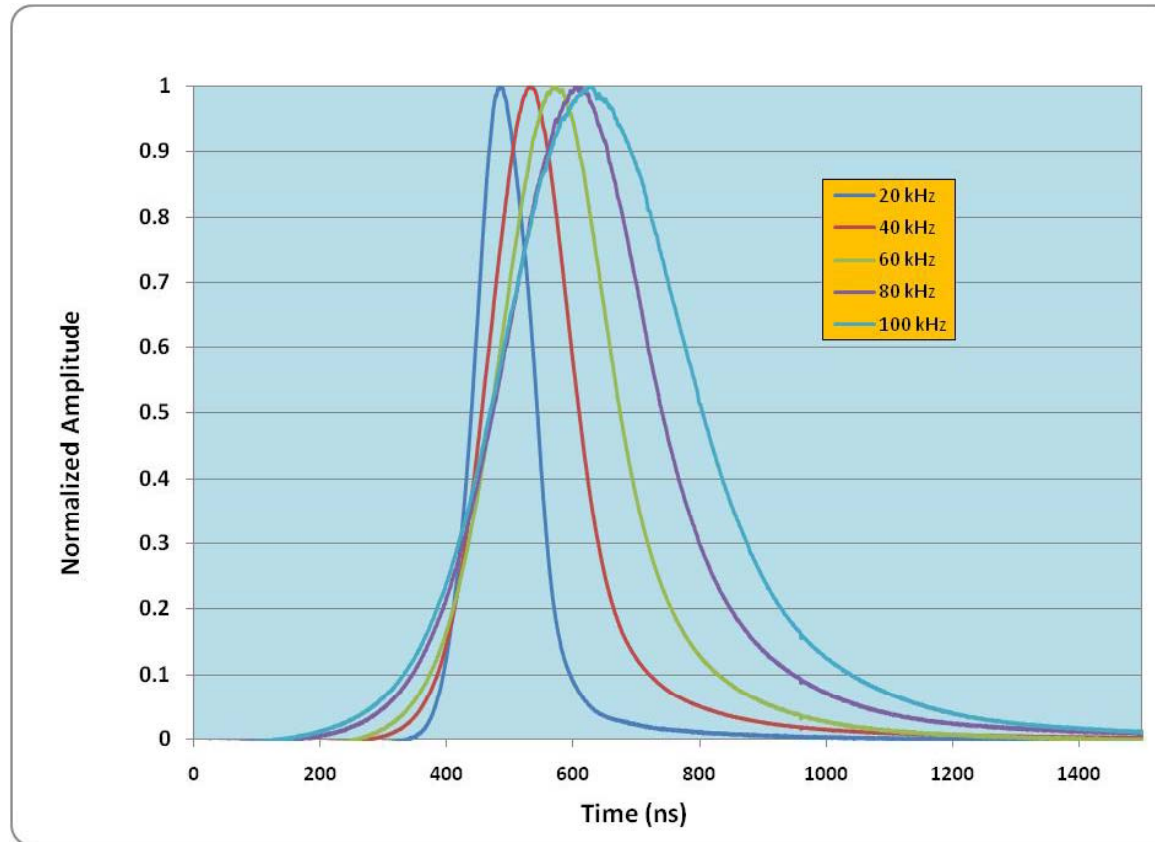


Typical Pulse Shapes at 20kHz Pulse Repetition Rate



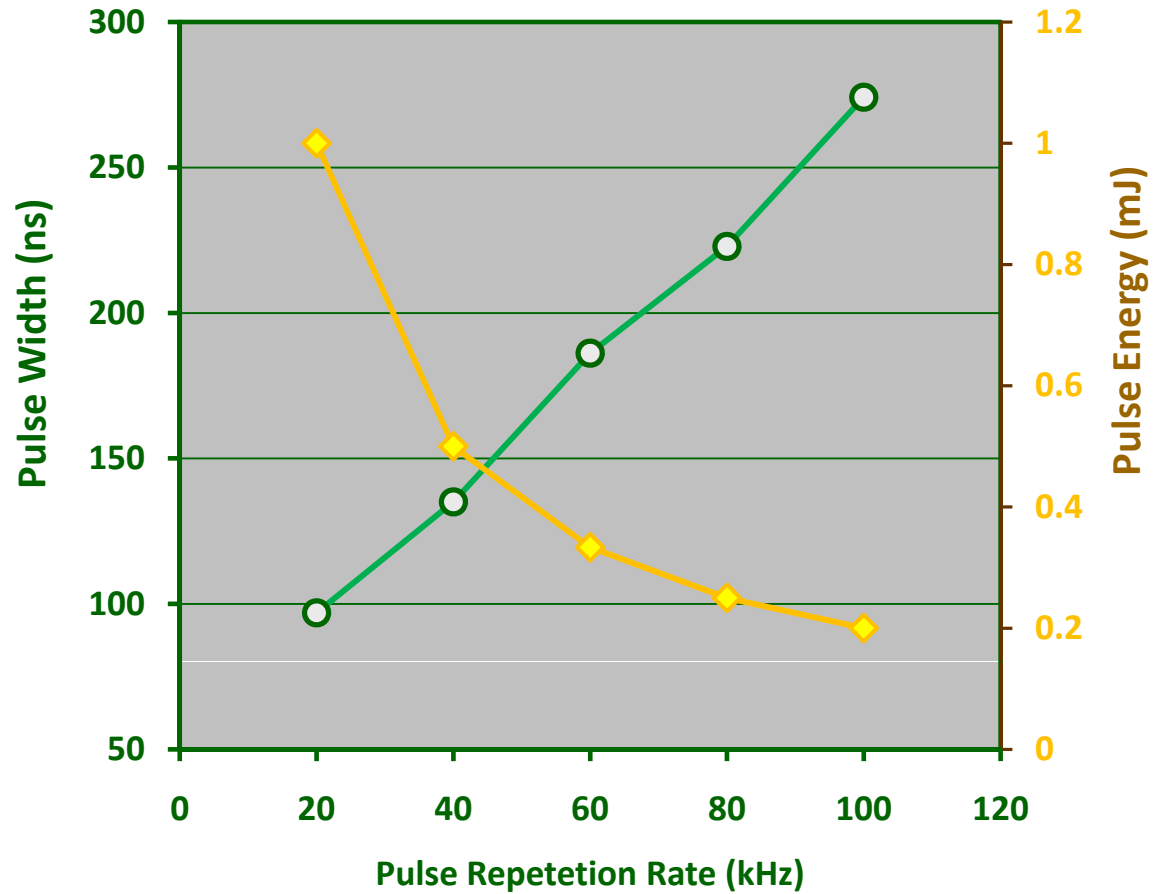
- The FWHM at 20W is 104ns. The spec is 100ns typical and 120ns Max.
- True Gaussian pulse shape

Typical Pulse Shapes at 20W with Different PRR

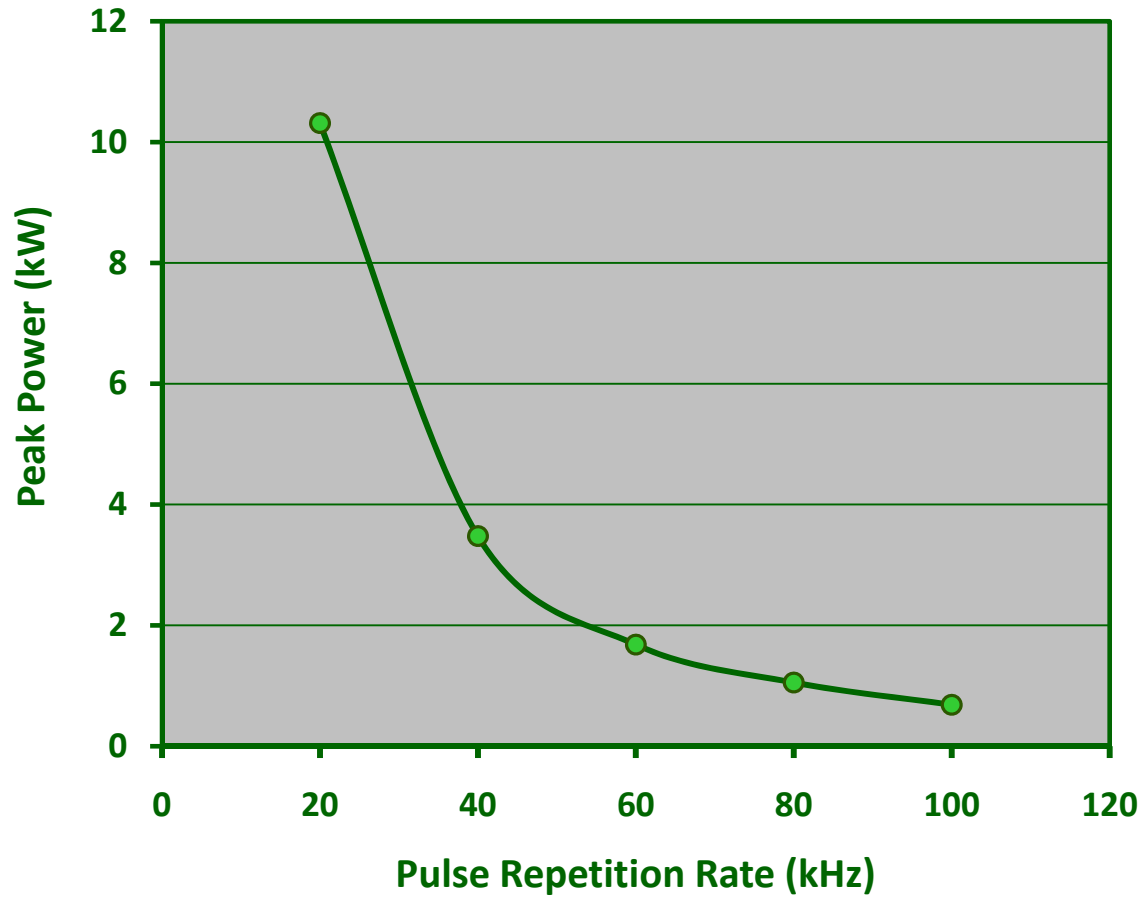


- Smooth pulse shapes at different PRR's.
- True Gaussian pulse shape

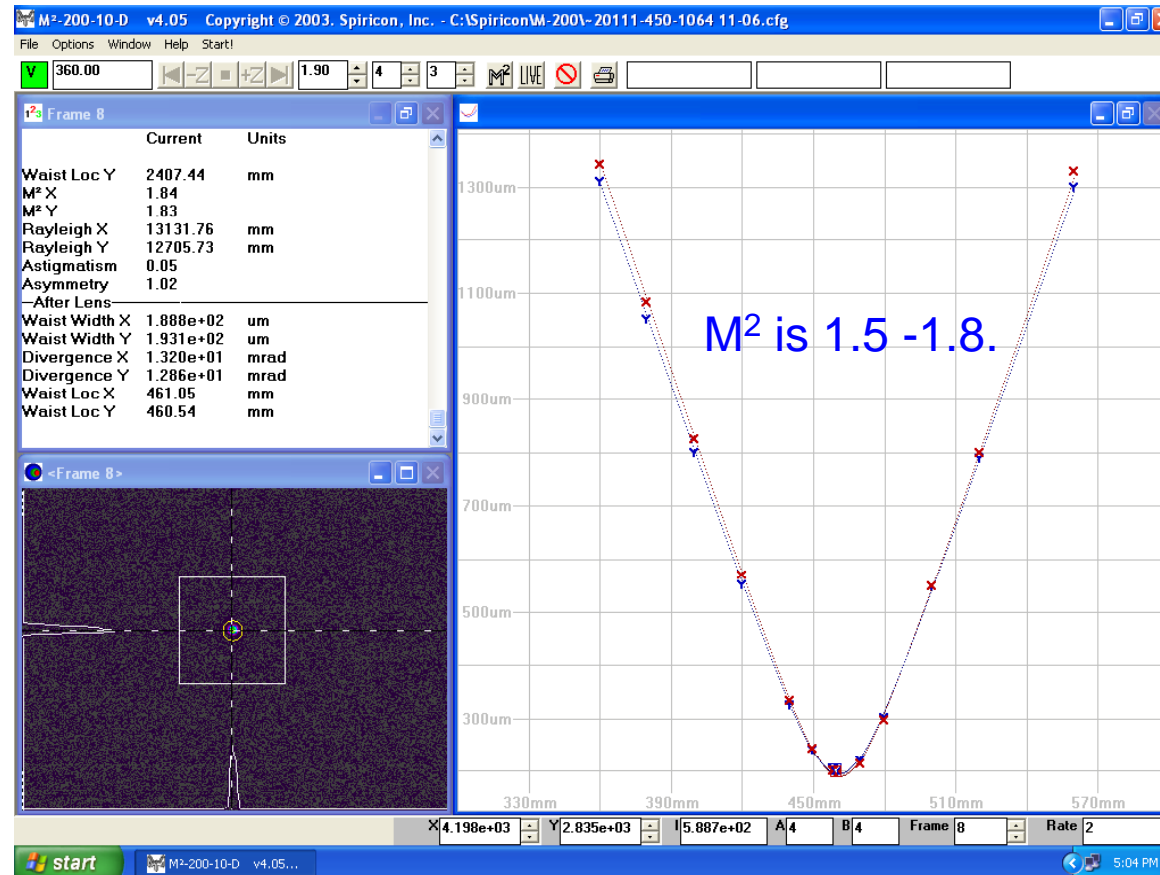
Summary of Pulse Width data Vs rep rate



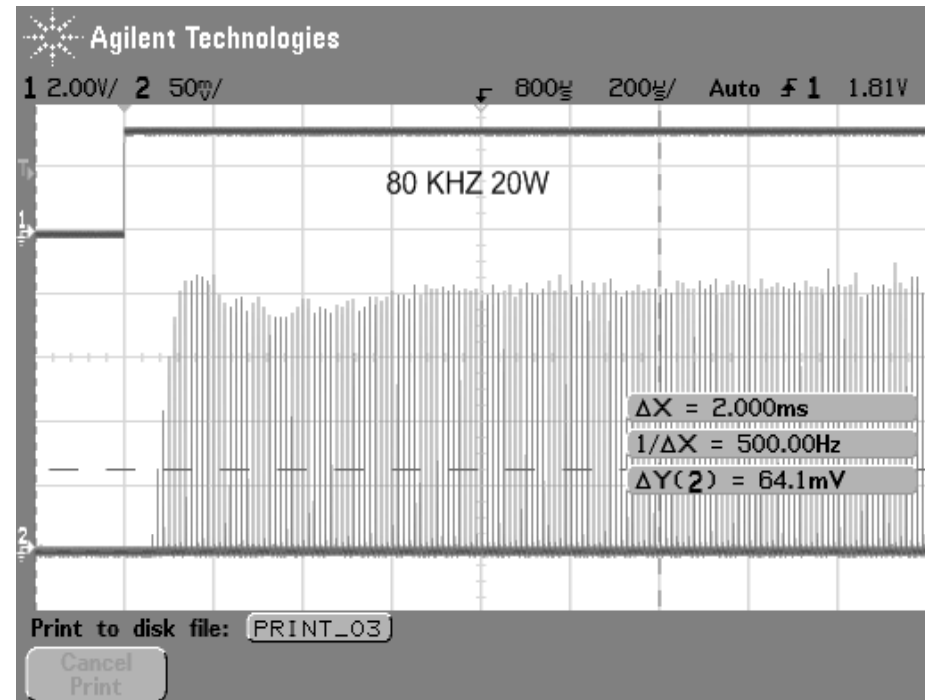
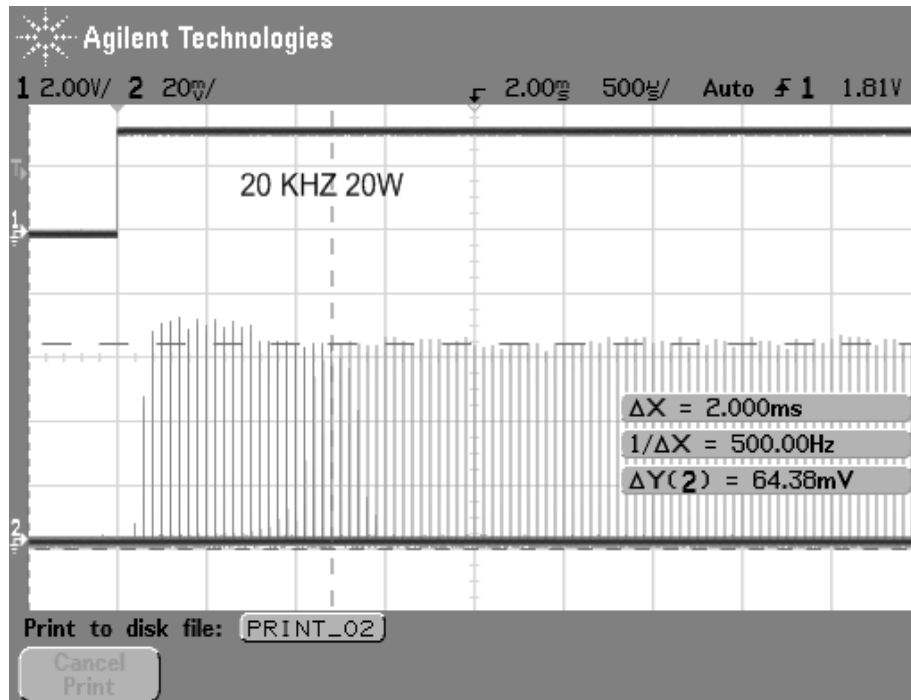
Summary of Peak Power Vs Rep rate Data



Typical M^2 of the Units: (including 3m delivery cable and fiber coupled isolator)



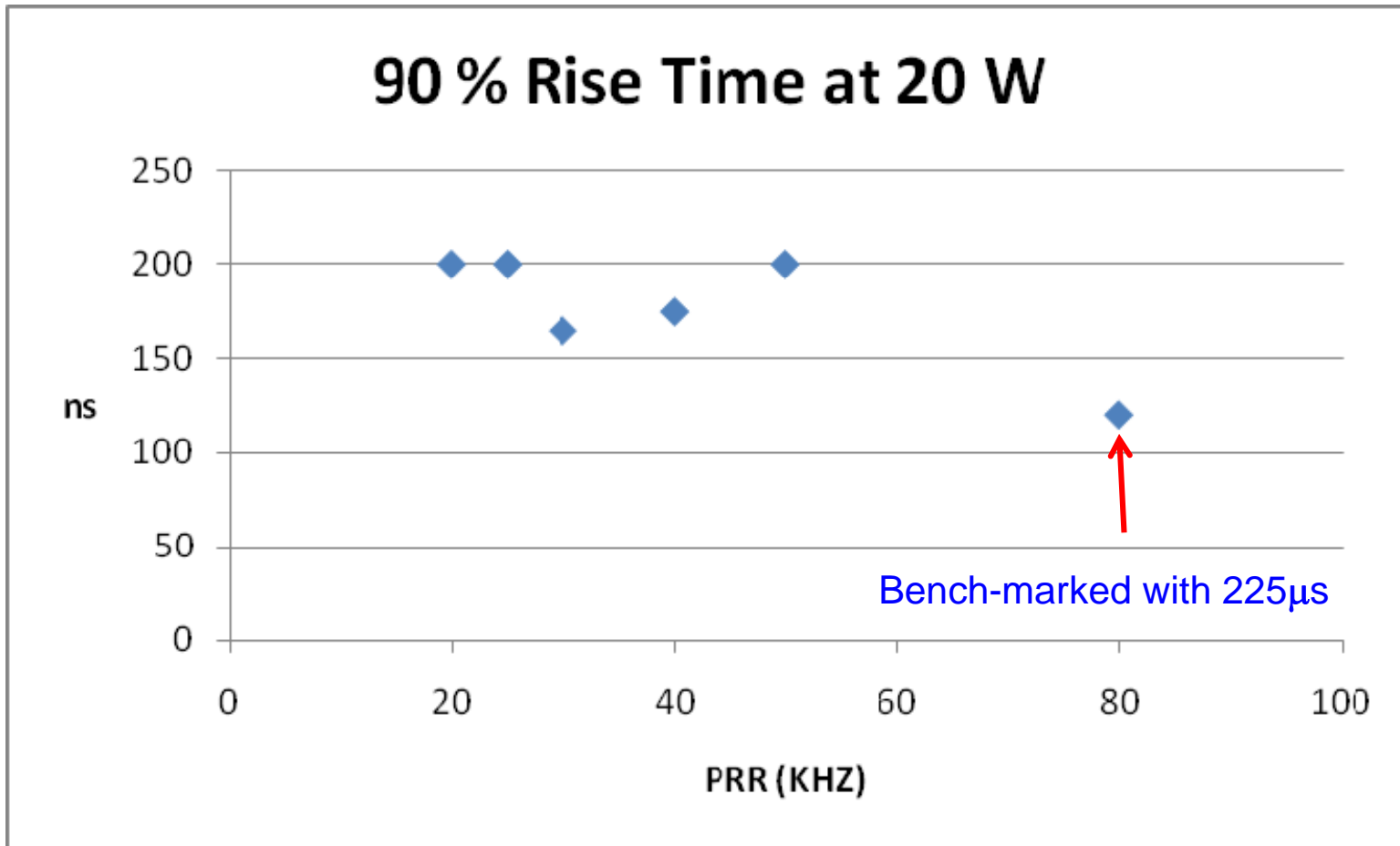
Typical Turn-on Behavior of Units



- The bench-mark spec is <250 us (**0 to 90%**) at 80 kHz PRR and fully rated power.
- Faster turn-on time than many competitors fiber lasers



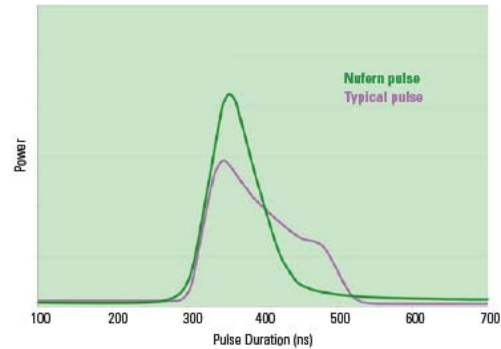
Summary of Turn-on Time Units



Optical Benefits

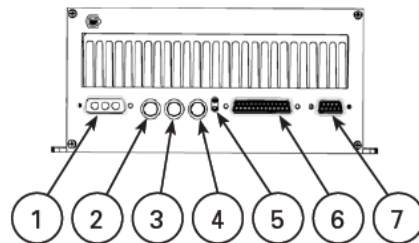
- Fast turn-on time for highest production throughput
- Zero bleed-through when gated off, prevents ghost lines between marks
- Single-mode beam quality for ultra-fine, crisp marks
- Precision output optical isolator allows marking of reflective materials
- Highest peak power for maximum marking capability

Pulse shape at rated power



Electrical Benefits

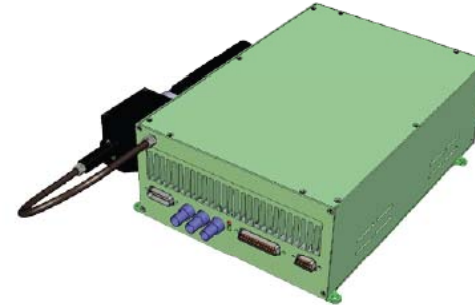
- Industry standard plug compatible control interface
- Selectable pulse frequency and magnitude
- Runs on 24V industry standard power supply
- Individual emitter pump diodes for extreme life expectancy



- | | |
|------------|-------------------------------|
| 1. 24 V In | 5. Status LED |
| 2. PRR Out | 6. 25 Pin Interface Connector |
| 3. PPR In | 7. RS-232 |
| 4. Gate | |

Mechanical Benefits

- Compact industry standard footprint
- Rugged air cooled design for survivability
- Metal armored flex output cable for long life and zero maintenance
- Convenient termination housing with optional telescope



Typical Applications

- Marking
- Engraving
- Etching
- Trimming



Powered by Nufern

- Industry benchmark NuPOWER™ fibers used throughout
- Toll-free 1-800 help line available to all users
- Commitment to R&D, our customers and our community.
- Comprehensive IP and patent portfolio

