



RADON

series

Nanosecond Laser Simulation System RADON-8

Features

- Compact, stable and reliable nanosecond laser source
- Wavelengths available: 1064/532 nm, 700...1000 nm (optional)
- High beam quality and stability
- 10 Hz laser pulse repetition rate and single-shot mode
- Accurate synchronization of irradiation and registration
- Controlled by PC software with user-friendly interface
- Compact design on 1500×700 mm breadboard
- Low maintenance cost

Applications

- DRU, DRL and DRT simulation
- DRU and DRL thresholds measurements
- DRU recovery time measurements
- Determination of the most radiation sensitive IC parameters and operation mode
- Validating of radiation-hardening techniques
- Testing of radiation hardened designs
- On-wafer ICs testing
- Debugging technique for IC testing under X-ray pulse irradiation
- Investigation of destructive failures in ICs under laser beam

RADON-8 Laser Simulation System (LSS) is intended for high equivalent dose rate (up to 10^{13} rad(Si)/s) effects simulation in integrated circuits (ICs) and semiconductor devices (SDs). It utilizes nanosecond laser pulses to initiate nearly uniform bulk ionization in semiconductor materials of ICs and SDs resulting in dose rate upsets (DRUs), dose rate latches (DRLs) or dose rate transients (DRTs).

The main laser source operates at 1064 and 532 nm wavelengths, which are generally used to simulate the dose rate effects in Si (bulk or SOI technology).

Laser source produces the output beam with diameter which can be expanded to active area dimensions of device under test (DUT).

High-speed digital oscilloscopes, transient digitizers and logic analyzers (not included in the system) capture ionizing response of DUT induced by the incident laser pulse.

RADON-8 LSS optionally includes tunable wavelength (700...1000 nm) laser source which can be used to reach the higher equivalent dose rates in devices utilizing various semiconductor materials (Si, GaAs etc.). It is based on nanosecond tunable wavelength $Ti^{3+}:Al_2O_3$ laser pumped by 532 nm output of main laser.



Specifications

Parameter	Unit	Value
Laser type	–	Nd ³⁺ :YAG (Ti ³⁺ :Al ₂ O ₃ - optional)
Wavelengths	nm	1064 / 532 700...1000 nm (optional)
Max. laser pulse energy on DUT	mJ	150 / 70 up to 30 (@800 nm)
Laser pulse duration (FWHM)	ns	11 ... 13
Laser pulse energy stability	%	± 2.5
Beam diameter (0.5 level)	mm	5 ... 40
Attenuation coefficient	–	1 ... 10 ⁷ , PC controlled
Pulse repetition rate	Hz	0 ... 10
Special mounting / alignment constraints: Max. device/PCB size	mm	400
Cooling	–	Self contained water/air cooling system
Total dimensions (excl. power supply)	mm	1500×700×1400
Power supply:		
Mains type	–	~ 220 V, 50 Hz
Max. power consumption (not incl. PC)	kW	0.7
Dimensions	mm	650×290×650

NOTE: All specifications are subject to change without notice

Related product

New **RADON-8M** model is equipped with special flexible laser beam transport system to provide convenient way to deliver collimated laser irradiation to complex test equipment like microprobe station.

