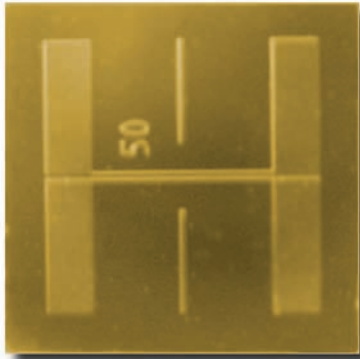
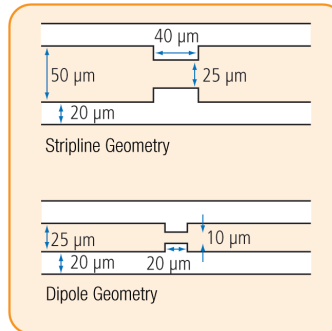


## TERA15: THz Antenna for 1550 nm



TERA15

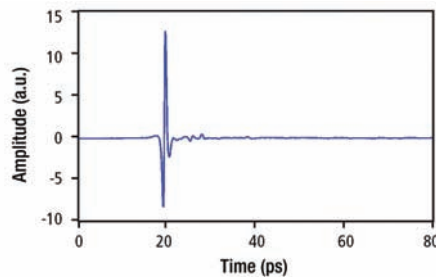
The TERA15 THz-antennas can be incorporated into OEM systems and are used in Menlo Systems' TERA15-FC fiber-coupled antenna modules seen on page 1537. The emitter and detector antennas have optimized structures for <150 fs optical pulses at 1560 nm to increase signal-to-noise ratio. Menlo Systems brings the newest generation of the TERA15 to the market with its collaborator, the Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut.



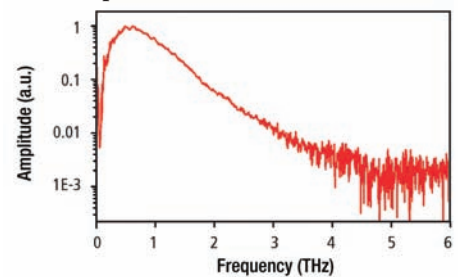
### Features

- Optimized for Lasers Around 1560 nm and Pulse Widths <150 fs at 100 MHz Repetition Rate
- Patented LT InGaAs/InAlAs on InP Multi-Layer Quantum Well System with Mesa Structure
- Antenna Design Specified for Emitter/Receiver Applications
- Each Device is Tested and Ships with Individualized Test Report

### Electrical Field as Function of Time



### Spectrum of Emitted THz Radiation



### Test Conditions for Plots

Laser model: Menlo Systems C-Fiber HP, 1560 nm center wavelength, 100 MHz repetition rate, dispersion precompensated for 10 m of SMF; pulse width at antenna <100 fs, 30 mW of optical input power at emitter and detector, electrical input at emitter of 10 V, 1 kHz modulation, electrical output of receiver pre-amplified by  $10^7$  before lock-in detection.

### Specifications

|  | Emitter SL25                | Detector DP25                                  |
|--|-----------------------------|--|
| Photoconductive Material                 | LT InGaAs/InAlAs            | LT InGaAs/InAlAs                               |
| Photosensitivity                         | Up to 1.57 $\mu\text{m}$    | Up to 1.57 $\mu\text{m}$                       |
| Antenna Type                             | Strip Line 25 $\mu\text{m}$ | Dipole 25 $\mu\text{m}$ , Gap 10 $\mu\text{m}$ |
| Chip Size                                | 4 mm x 4 mm, d = 0.35 mm    | 4 mm x 4 mm, d = 0.35 mm                       |
| Optical Power at 100 MHz Repetition Rate | <40 mW                      | <40 mW   |
| Bias Voltage                             | $\pm 10$ V                  | N/A  |

### Characteristics Measured in Fiber Testbed

|                                    |                                      |
|------------------------------------|--------------------------------------|
| THz pulse Shape                    | Peak-to-Peak Time Difference <700 fs |
| Maximum of Fourier Spectrum        | >0.5 THz                             |
| 1/10 Bandwidth of Fourier Spectrum | >1.5 THz                             |
| Noise Floor                        | >3 THz                               |

### Recommended Optical Light Sources

|  |                              |
|--|------------------------------|
| Menlo Systems Femtosecond Fiber Lasers | T-Light, C-Fiber HP, M-Fiber |
|--|------------------------------|

| ITEM #      | \$ | £ | €    | RMB | DESCRIPTION  |
|-------------|----|---|------|-----|--|
| TERA15-SL25 |    |   | CALL |     | THz Emitter, Strip Line 25 $\mu\text{m}$                     |
| TERA15-DP25 |    |   | CALL |     | THz Detector, Dipole 25 $\mu\text{m}$ , Gap 10 $\mu\text{m}$ |

For local and updated pricing, please call Menlo Systems, Inc. in North America 973-300-4490, Menlo Systems GmbH in Europe +49-89-189-1660, or Thorlabs Japan, Inc. in Asia +81-3-5979-8889, or email [sales@menlosystems.com](mailto:sales@menlosystems.com).