

Integrated Module of Photoconductive antenna chip and Lens for THz Electromagnetic Wave

FEATURES

- Possible to use for both emission and detection
- No need for alignment between photoconductive antenna chip and lens
Alignment of photoconductive antenna chip and lens is already done in this module.
- Easy Connection to other devices
SMA connector facilitates the connection with other equipments.

APPLICATIONS

- Nondestructive Inspection for Industrial Field,
Non-contact Measurement for Biological Tissue
- Far-infrared Spectroscopy
- Material Analysis
- Structure Inspection
- Security, etc.

OUTLINES

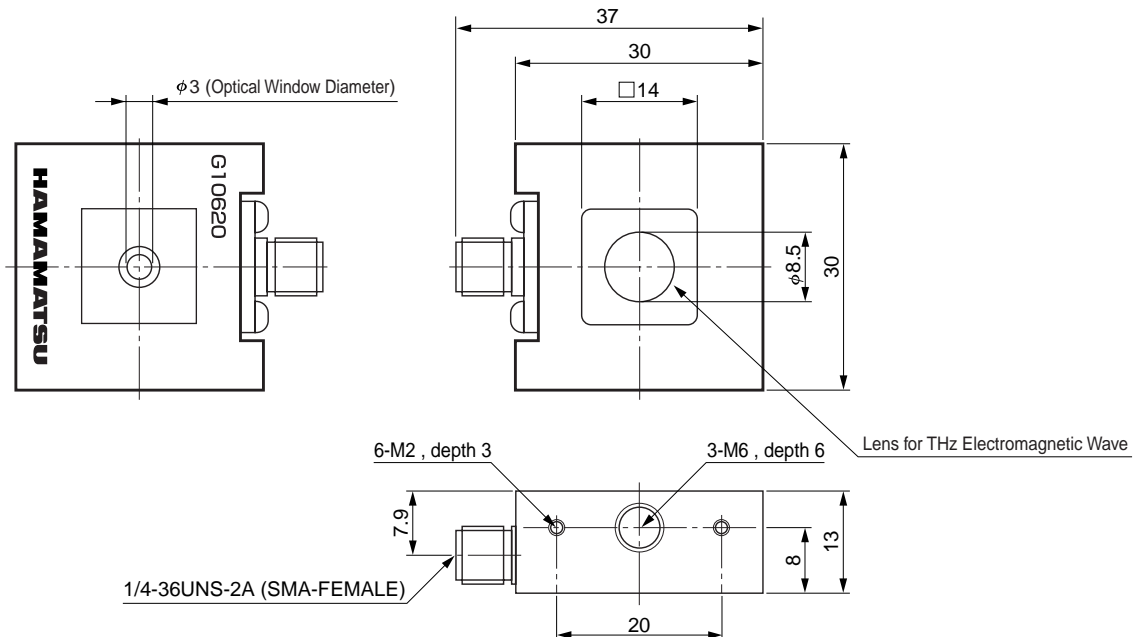
G10620 series are THz electromagnetic waves emission/detection modules, in which a photoconductive antenna chip and a lens for THz electromagnetic wave are integrated. This module also has a SMA connector, which facilitates easy connection to other equipments. Alignment between the photoconductive antenna chip and the lens is factory set. M6 and M2 tapping holes are prepared on three faces to help easy setup. There are three prepared design pattern of photoconductive antenna chips; Dipole: G10620-01, Bow-tie: G10620-02, and Spiral: G10620-03. When other pattern of photoconductive antenna chip is necessary, please contact HAMAMATSU sales person.



Dimensional Outline (Unit: mm)

Excitation Light Input Side

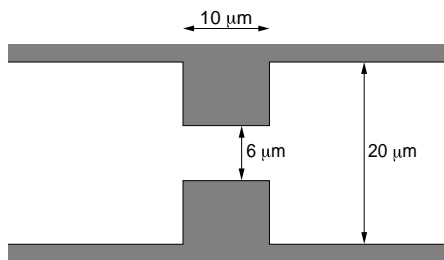
THz Emission / Detection Side



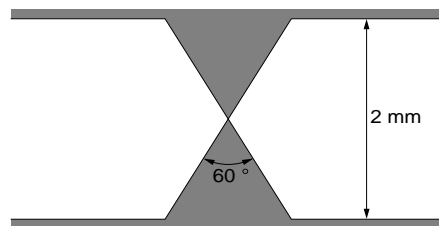
THz Antenna Modules G10620 Series

Typical Pattern of Photoconductive Antenna / Schematic Figure of Photoconductive Part

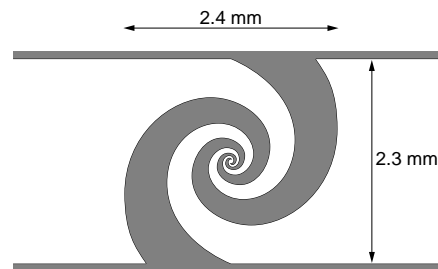
● Dipole:
G10620-01



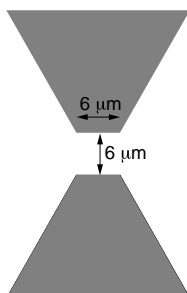
● Bow-Tie:
G10620-02



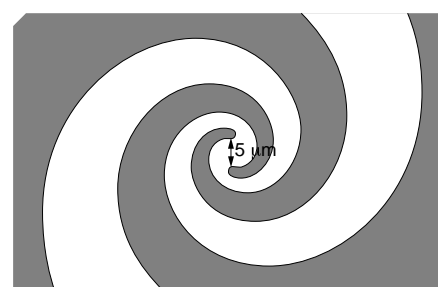
● Spiral:
G10620-03



Magnified (Figure)



Magnified (Figure)



An Example of Measured Results of Frequency Spectrum

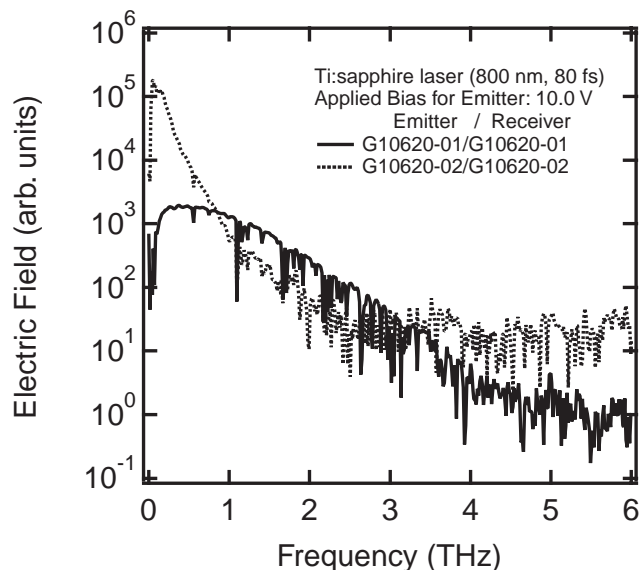
※These data are typical measured results. Under improper experimental conditions, the similar results cannot be obtained.

※To acquire these data, a pair of pallabolooidal mirrors are used between emission and detection modules.

※Measurement conditions of input optical power are shown below.

G10620-01 Emitter 5 mW, Receiver 5 mW

G10620-02 Emitter 5 mW, Receiver 5 mW



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Maximum applied voltage	V_{max}	15 *1	V
Maximum input optical power	P_{max}	15 *2, *3	mW
Operating Temperature *4	$T_{op(c)}$	+5 to +35	°C
Storage Temperature *4	T_{stg}	-20 to +40	°C

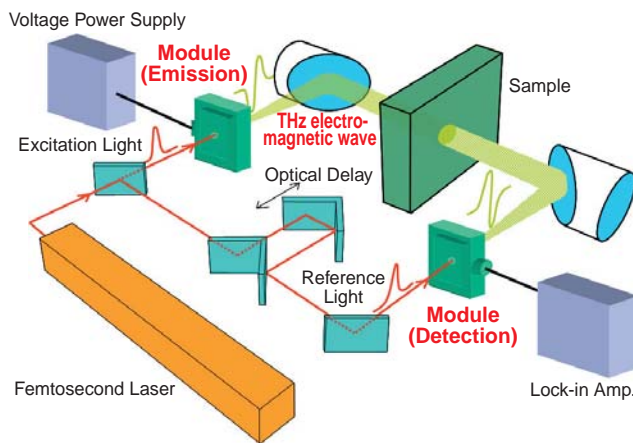
*1 : Recommended value 10 V

*2 : Recommended value 10 mW

*3 : Use a femtosecond laser, which has repetition rate from 50 MHz to 150 MHz.

*4 : No condensation.

An Example of Experimental Setup



HAMAMATSU

<http://jp.hamamatsu.com>

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