

Sub-THz Oscillators (IMPATT Diodes)



- ✓ 80 - 110 GHz frequency range
- ✓ Available output power 10 mW
- ✓ Linewidth can be narrowed down to 1 MHz
- ✓ TTL modulation option with 1 μ s rise and fall times is available
- ✓ Compact and low cost
- ✓ Customer-focused solutions
- ✓ 1 year warranty

DESCRIPTION

IMPATT diodes (IMPact ionization Avalanche Transit-Time) are high-power sub-THz radiation sources. They operate in 3 - 400 GHz frequency range. Their main advantages are high-power capability and small size. IMPATT diodes are operated typically over a narrow frequency band, and their internal dimensions correlate with the operating frequency.

Terasense series of IMPATT diodes are silicon double-drift diodes with a 0.6 μ m transit region, mounted on copper heat sink. The layers in double-drift diodes are: a heavily doped (p⁺)-region, a moderately doped p-region, a moderately doped n-region, and a heavily doped (n⁺)-region. The (p⁺)- and (n⁺)- regions provides for ohmic electrical contacts to the external circuit. The devices rely on the negative differential resistance to generate and sustain oscillations.

IMPATT DIODE SPECIFICATIONS

- 80 - 110 GHz frequency range (each diode is factory tuned to specific frequency)
- Available output power 10 mW and higher
- Linewidth can be narrowed down to 1 MHz
- Each diode is equipped with stable current source with dc input power 2-5 W and high-gain horn antenna
- TTL modulation option with 1 μ s rise and fall times is available
- Requires stabilized current source, TeraSense-supplied source is highly recommended
- 1 year warranty period

ABOUT TERASENSE

TeraSense is a manufacturer of low-cost portable sub-terahertz imaging cameras, generators and ultrafast detectors. Our products balance at the cutting edge of scientific and technological breakthroughs. TeraSense has headquarters in Mountain View (CA, USA) and Chernogolovka (Russia). The company has a strong team of 20 skilled scientists and engineers. Most of them are young specialists with Ph.D. in the field of microwave and terahertz research. The team is led by highly renowned Prof. Igor Kukushkin, CEO, a corresponding member of the Russian Academy of Sciences.