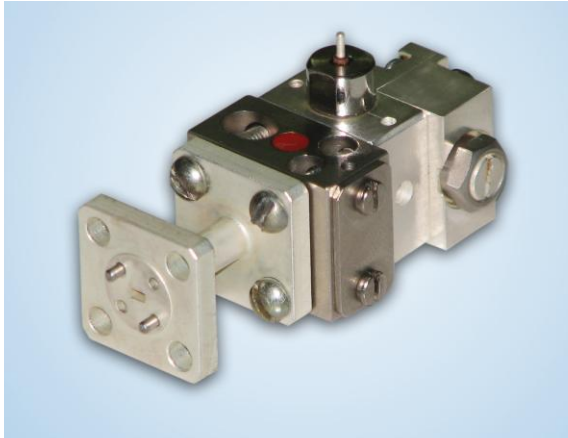




80–100 GHz high stable pulse IMPATT oscillator



APPLICATION

High stable pulse oscillator on IMPATT-diodes, **M312004** module, is intended for use as a master oscillator (for example, in W-band transmitting devices), both in the equipment of common application, and onboard equipment in frequency range $F_0 = 80\text{--}100$ GHz. In operating frequency band the oscillator provides output power of 2–3 W at pulse duration of 50-100 nsec and repetition rate no more than 50 kHz.

DESCRIPTION

Mechanically the oscillator consists of oscillating chamber, high-Q invar resonator, waveguide isolator and current pulsed source.

As an active element in those oscillators special packaged silicon double-drift pulsed IMPATT-diodes, production of RI "Orion", are used.

Application of high-Q invar resonator provides high stability of output signal (temperature instability of $10^{-5}/^{\circ}\text{C}$) in a wide range of operating temperature. Waveguide isolator protects the oscillator output from external load effect.



Oscillating modules M312004

The oscillator is supplied with pulsed current source delivered as a unit with the oscillator. The pulsed current source provides supplying IMPATT-diode with current pulses of 5–10 A amplitude at pulse duration up to 120 nanoseconds and pulse repetition rate up to 50 kHz.

Stability of specified characteristics of the pulse oscillator within pulse width limit and in the range of external temperature effects is carried out by current stabilization method.

SPECIFICATIONS

Range of central operating frequencies, F_0^* , GHz	80–100
Operating frequency, GHz	F_0^*
Output pulse power, W	2–3
Pulse width of output signal, nanosecond	50–100
Temperature instability, 1/°C, no more	10^{-5}
Pulse rate of output signal, kHz, no more	50
Supply voltage, V/ current consumption, mA	+48/150 +7/30
Type of connecting waveguide flange according to ГOCT 13317-89 or UG-387/U, channel WR-10	
<i>Electric characteristics of starting pulse</i>	
Input levels at 50 Ohm loading, V	0.0–0.4 2.4–4.0
Width of starting pulse, nanosecond	130
Repetition rate of control starting pulse, kHz, no more	50
Input resistance by control input, Ohm	50

*Value of F_0 is specified at the order



OVERALL DIMENSION DRAWING

