



90–100 GHz three-stage pulse amplifier



APPLICATION

Amplifying module **M322003** is designed for application in transmitting devices of various purposes in frequency range $F_0 = 90\text{--}100$ GHz.

DESCRIPTION

The amplifier consists of three in-series amplifying stages. Each stage is executed under the reflective scheme using as active elements high efficient silicon pulse IMPATT-diodes of RI "Orion" production.

The output of the three-stage amplifier is protected from external load by waveguide isolator. For stable operation the first and second stages of the amplifier are isolated by one more isolator.

In a band of operating frequencies $F_0 \pm 0.5$ GHz amplifier has 30 dB gain and provides maximum output power of 10 W at output pulse duration of the order of 80-100 nanoseconds and repetition rate 50 kHz. Each of three IMPATT-stages is supplied by built-in pulse current source having protection against the wrong sequence of control pulses.

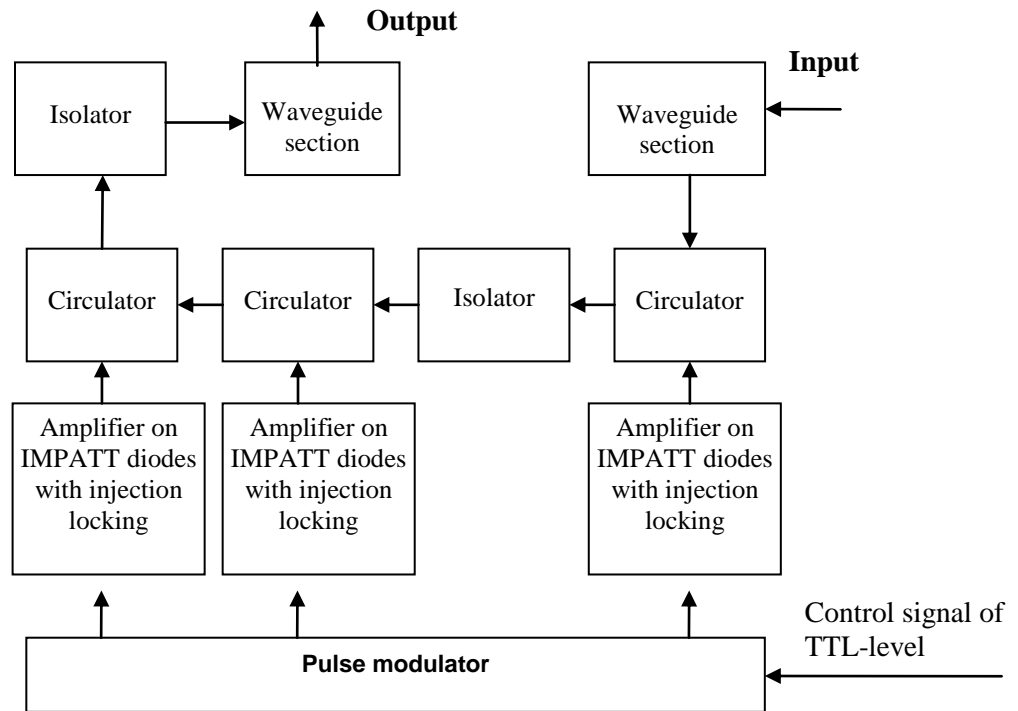
The amplifier is made in the form of autonomic unit of $116 \times 70 \times 44$ mm³ size and is fully integrated and self-contained. Two DC voltage sources of 48 V and 7 V, input pulse microwave signal of 10 W and external pulse control signal of TTL-level are necessary for amplifier operation.



SPECIFICATIONS

Range of central operating frequency, F_0^* , GHz	90–100
Operating frequency band, GHz	$F_0 \pm 0.5$
Gain, dB, not less	30
Output pulse power, W	10
Pulse duration of output signal, nsec	80–100
Pulse repetition rate of output signal, kHz, no more	50
Power of input pulse signal, mW	
continuous	10–15
pulse	10–15
Repetition rate of input signal, no more, kHz	50
Supply voltage, V / current consumption, mA, no more	+48/150 +7/50
Type of connecting waveguide flange: UG-387/U, channel WR-10	
<i>Electrical characteristics of start control pulse</i>	
Input levels on load 50 Ohm, V	
low	0...+0.4
high	+2.4...4.0
Start pulse duration, ns	130
Repetition rate of start control pulse, kHz, no more	50
Input resistance at control input, Ohm	50

* F_0 value is specified by a customer.



OUTLINE DRAWING

