

# Subnanosecond Pulse Generator Module

## PPM0211



- Compact
- High efficiency and high output power
- Stable output pulse waveform with low jitter

Based on Drift Step Recovery Diodes (DSRD) - a new type of semiconductor devices, which allow to obtain high reliability, high efficiency, and long operation lifetime.

PPM0211 pulse generator module can be used for the high-performance ultra-wideband (UWB) radars and other applications which require high voltage subnanosecond rise time pulses with stable pulse waveform and low jitter. It has no internal triggering and requires an external triggering pulse generator as well as an external dual voltage DC power supply. The output pulse amplitude is proportional to the level of high voltage DC supply. PPM0211 has over-temperature and over-frequency protections, and the temperature stabilization system which helps to reduce the temperature drift of the output pulses. Pulse generator module is designed for the operation with matched 50 Ohm load, for example, UWB antenna. In case of the operation with unmatched load, please connect the generator by the cable with a length of 50 cm or more and reduce the maximum repetition rate twice.

Pulse amplitude	2 kV (see Fig.1)
Pulse polarity, waveform	positive, bell-like
Pulse rise time	500 ps ... 700 ps, fixed
Pulse width (FWHM)	1.4 ns ... 1.7 ns, fixed
Max repetition rate	1 MHz
Jitter (RMS)	< 20 ps
Jitter (peak-to-peak)	< 200 ps
Mean output power	100 W
Output connector	N type
Input triggering connector	SMA type
Triggering pulse	+5V, 10 ns ... 1 μs width
Power supply	
low voltage	DC +24V; 1A
high voltage	DC +105V; 2A

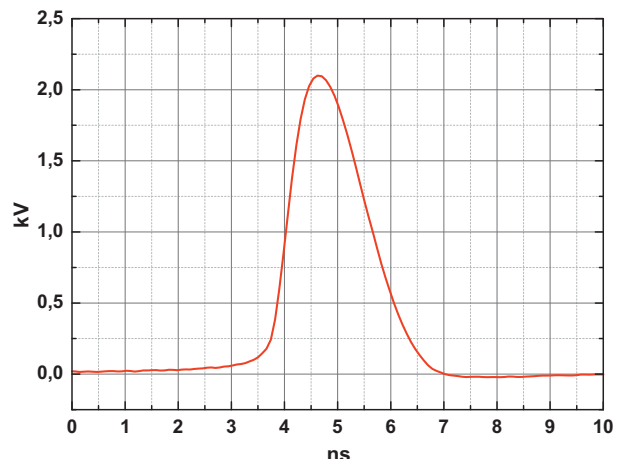
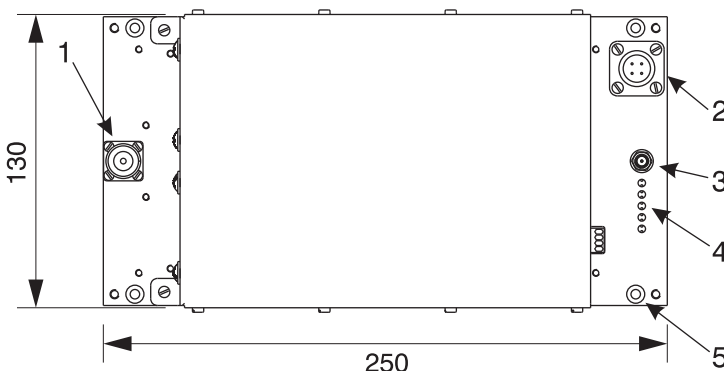
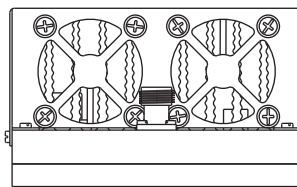
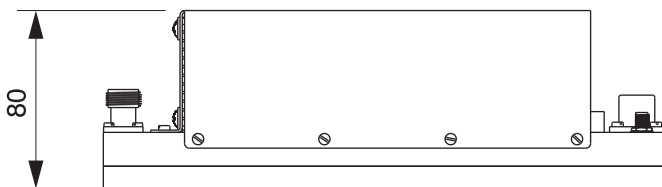


Fig.1. Typical output pulse waveform



- 1 - output N-type connector
- 2 - power supply connector
- 3 - input triggering SMA connector
- 4 - control LED
- 5 - 4x mounting holes, 4.2mm dia, 222mm x 118mm footprint

\*) All dimensions are in mm

**see next page**

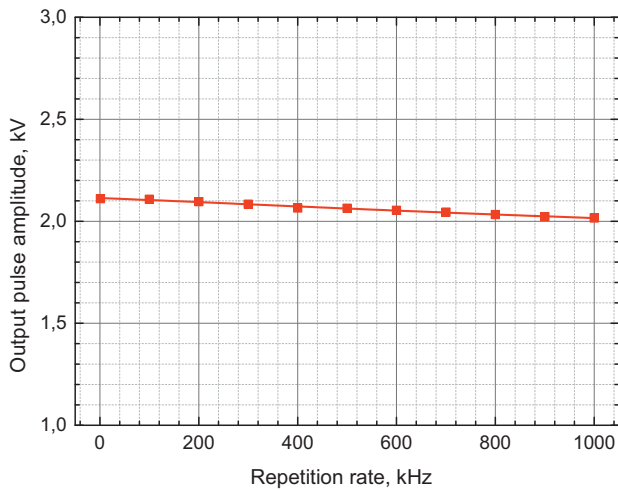


Fig.2. Typical output pulse amplitude versus repetition rate

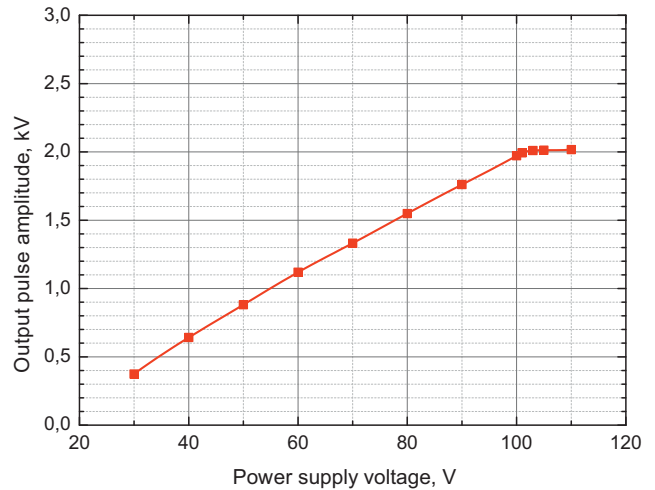


Fig.3. Typical output pulse amplitude versus power supply voltage

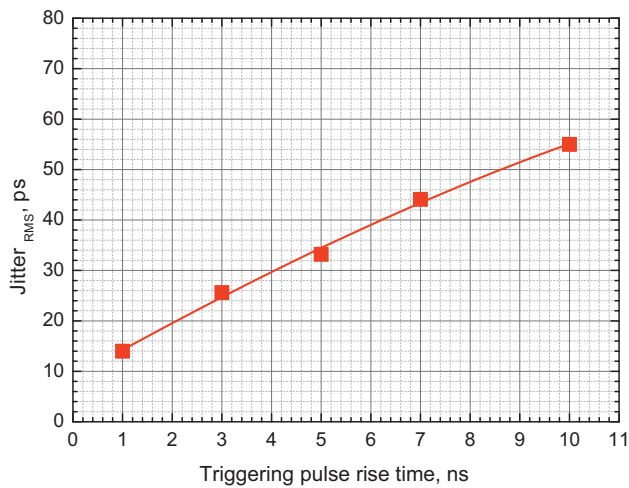


Fig.4. Output pulse jitter<sub>RMS</sub> versus triggering pulse front rise time

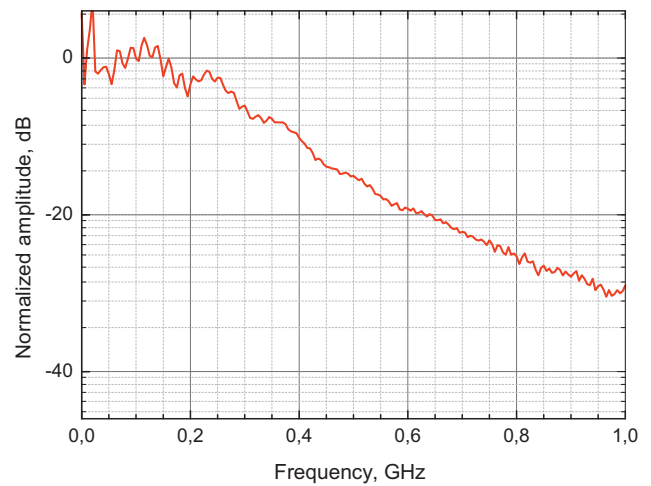


Fig.5. Output pulse spectrum

**PPM0211 delivery set includes:**

1. PPM0211 pulse generator module.
2. PS3001 fixed DC power supply voltage AC-DC converter.
3. N-SM141(50)-open semirigid 50 cm length output cable assembly with one N-type connector.
4. SMA-RG316(100)-SMA 100 cm length cable assembly with SMA connectors for the triggering pulses feeding.

**Accessories:**

1. PI-5/100 pulse inverter.
2. N-SM141(50)-N semirigid 50 cm length output cable assembly with two N-type connectors.

**Recommended models of the triggering pulse generators:**

1. LeCroy 9210 with 9214 or 9211 module (old, only used are available, but cheap and very good).
2. Berkeley Nucleonics 745T (inexpensive, uncomfortable control, significant pulse drift).
3. Stanford Research DG645 (good parameters).
4. Keysight 81160A (modern, excellent parameters, very expensive).
5. Tektronix AFG31251 (modern and good, but expensive; 2 ns triggering pulse rise time results in increased output pulse jitter).