Electrical Pulse Generator

EPG-210

- Generate high-speed electrical pulses as short as 30ps
- 17ps fast rise-time for driving modulators and lasers
- Generate pulses on-demand or at repetition rates up to 5GHz

Shortest 30ps | Rise-Time 18ps | Tunable Pulse Width | Laser Driver | Modulator Driver

Single-Shot | Max. 5GHz | Tunable Rep. Rate | External Trigger

EPG-210 Module

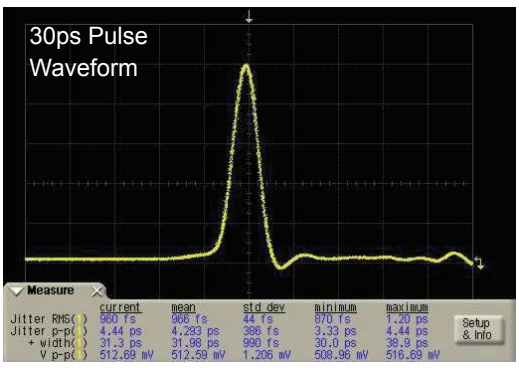
Specifications

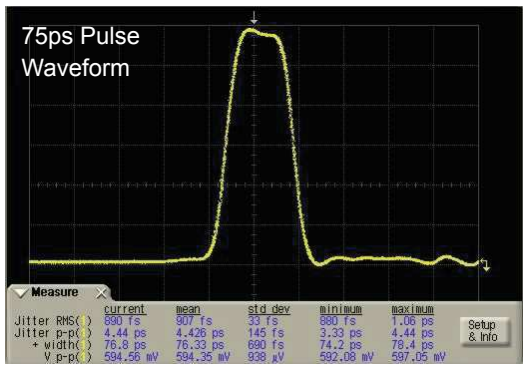
Category	Parameter		FWHM = 30ps	FWHM > 50ps	Unit
Input Characteristics	Signal Type[1]		Sine or Square		
	Input Level		0.3 ~ 0.5		Vpp
	Frequency Repetition Rate[2]		0.001 ~ 5		GHz
Output Characteristics	Electrical Coupling		AC		
	Pulse Shape		Square		
	Pulse Width (FWHM)[3]		30	50, 75, 100, Custom	ps
	Pulse Width Tunability (Optional)		200		ps
	Rise / Fall Time (20-80%)		14	17	ps
	Output Voltage	(Standard)[4]	0.4	0.5	Vpp
		(High-Voltage: Optional)[5]	>5		Vpp
	Additive Timing Jitter[6]		<0.5		ps
Electrical	Electrical Connector		Advanced SMA		
	Output Impedance		50		Ohm
	Power Supply	(Module)	DC 3.3V, 2A		
		(Benchtop)	AC 100-240 (50/60Hz)		Vac
Physical	Dimensions (W x H x D)	(Module)[7]	60 x 15 x 60		mm
		(Benchtop)	236 x 88 x 380		mm
	Weight	(Module)	90		g
		(Benchtop)	<5		kg

1. Use square wave for minimal additive jitter, particulary at repetition below 100MHz.
2. Repetition rate can be tuned by tuning the input clock frequency. Max. repetition rate is limited by pulse width. Please inquire for operation at <1MHz. The device can also be triggered on-demand within the specified frequency range.
3. Custom pulse width up to 2.5ns is possible. The pulse width is fixed at user-selected value, and is set at factory. This represents the minimum pulse width when combined with tunable pulse width option. The pulse width may broaden when combined with the high-voltage option (e.g. for 30ps model, the pulses may broaden up to 35ps).
4. Voltage for single-ended output.
5. Available for single-ended output only. Rise / Fall times, and hence pulse width, may increase by a few ps. The output voltage may vary with pulse repetition rate.
6. When driven at >1GHz, actual jitter depends on clock / trigger source.
7. Module type only for fixed pulse widths of 30, 50, 75 or 100ps, and with standard output voltage.

Note: The above specifications may change without prior notice.

Typical Performance





Ordering Information

EPG-210□-□□□□-□-□-□-□-□

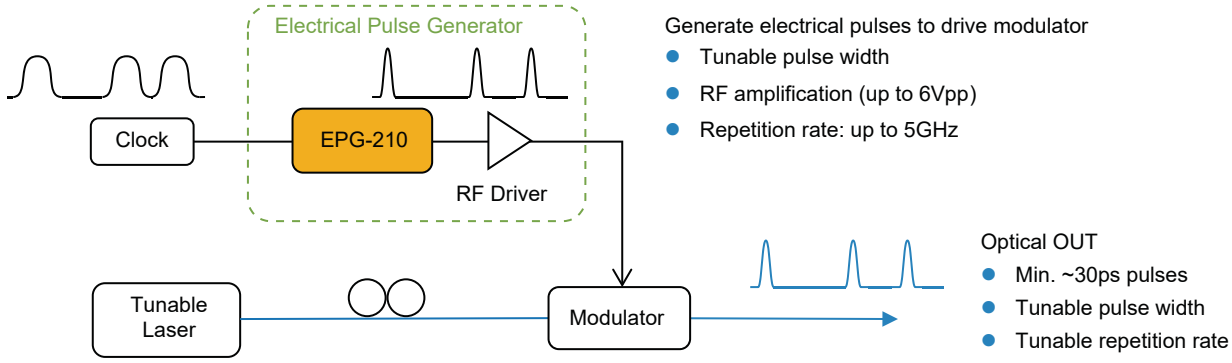
Type	Pulse width [ps]	Output	Pulse Polarity	Pulse Width Tunability	RF Amplification
M: Module		S: Single-End	P: Positive	T: Tunable	A: Amplifier
B: Benchtop		D: Differential	N: Negative	N: N/A	N: N/A

Generating Optical Pulses with EPG-210

The EPG-210 is a versatile solution for generating <100ps optical pulses, either by driving LN modulators or driving gain-switched lasers. In particular:

- Electrical pulse width as short as 30ps, with option to add 200ps tunability.
- Fast rise / fall time of 17ps, and low additive jitter.
- Repetition rate can be tuned from 5GHz to 1MHz, and in principle to single-shot, simply by tuning the input clock / trigger.
- Much more cost-effective than expensive 40Gbps pulse pattern generators.

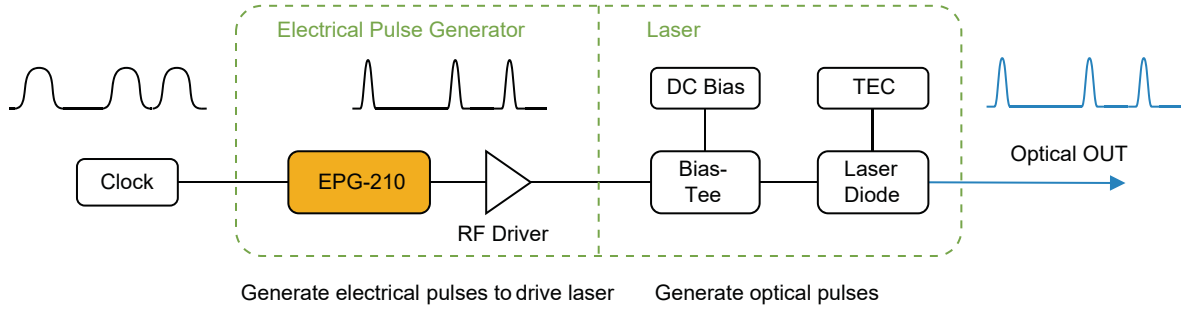
Driving a LN Modulator



Optical Pulses with Fast Rise-Time

The EPG-210 generates electrical pulses with fixed, fast rise/fall time of 17ps (for pulse width >50ps). By driving LN modulators with the EPG-210, optical pulses with similarly fast rise/fall times of ~17ps can be generated.

Driving a Gain-Switched Laser



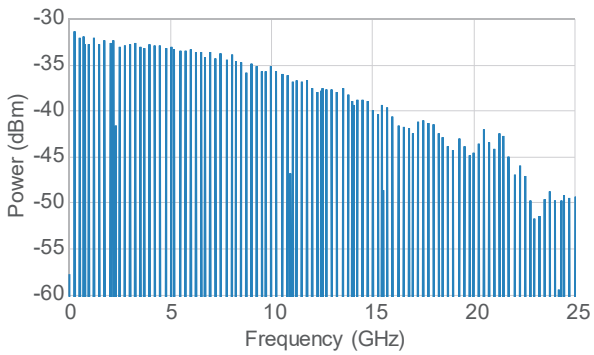
Low-Jitter

The EPG-210 can be used to gain-switched lasers to generate 30-60ps optical pulses. The 18ps fast rise-time of the driver electrical pulse helps to suppress timing jitter.

EPG-210 as a RF Comb Source

The EPG-210 can also be applied as a RF comb source. The output pulses have high-speed RF components that span to over 25GHz, while the frequency-spacing of the comb lines can be adjusted by tuning the pulse repetition rate. Applications include characterization of RF antennas.

RF Spectrum of 50ps Pulses at 250MHz Repetition



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