

SNEG-34B series Subnanosecond electrical generator

Specifications.

Signal amplitude (into 50 Ohm load)	> 20V, fixed
Polarity	Negative
Pulse width (FWHM)	< 400 ps
Pulse front duration (10%-90%) ¹	<210ps
PRF, external trigger	0 to 2 MHz
Post-pulse ringing	±5% or less
Propagation delay (External Trigger Input to Output pulse)	10-20 ns, fixed
Sync delay (Sync Out to Output pulse)	2-12 ns, fixed
Jitter, RMS	<8 ps
DC offset or bias insertion	No
Trigger required	TTL level
Sync output	3.5V (into 50 Ohm load), pulsewidth 30ns approx.
Connectors, signal	SMA (F)
Connector, power	Barrel, 3.5mm pin (M)
Power requirement	+14V, (200mA)
Dimensions	106 x 30 x 120 mm

¹ Pulse front duration (20%-80%) <190 ps.



Figure 1. General view.

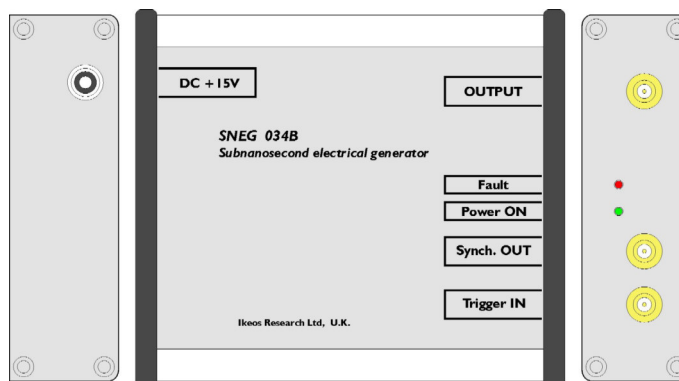


Figure 2. Rear panel. Top panel. Front panel.

Description.

SNEG-34B is a series of generators of low-voltage, ultrashort electrical pulses in picosecond range. They provide the front duration (i.e. rise time or fall time at the beginning of the pulse, depending on the polarity) shorter than 210 ps, and the guaranteed peak magnitude is 20 V. The output pulse polarity is negative or positive, pre-set at factory.

The output pulse possesses a short, virtually linear, front with a longer, quasi-exponential tail. The output from the SNEG generator is virtually free from the precursor pulse, occurring before the main peak.

The triggering is provided either by an external clock.

The generator is designed in compact module format and powered by a single-rail DC supply.

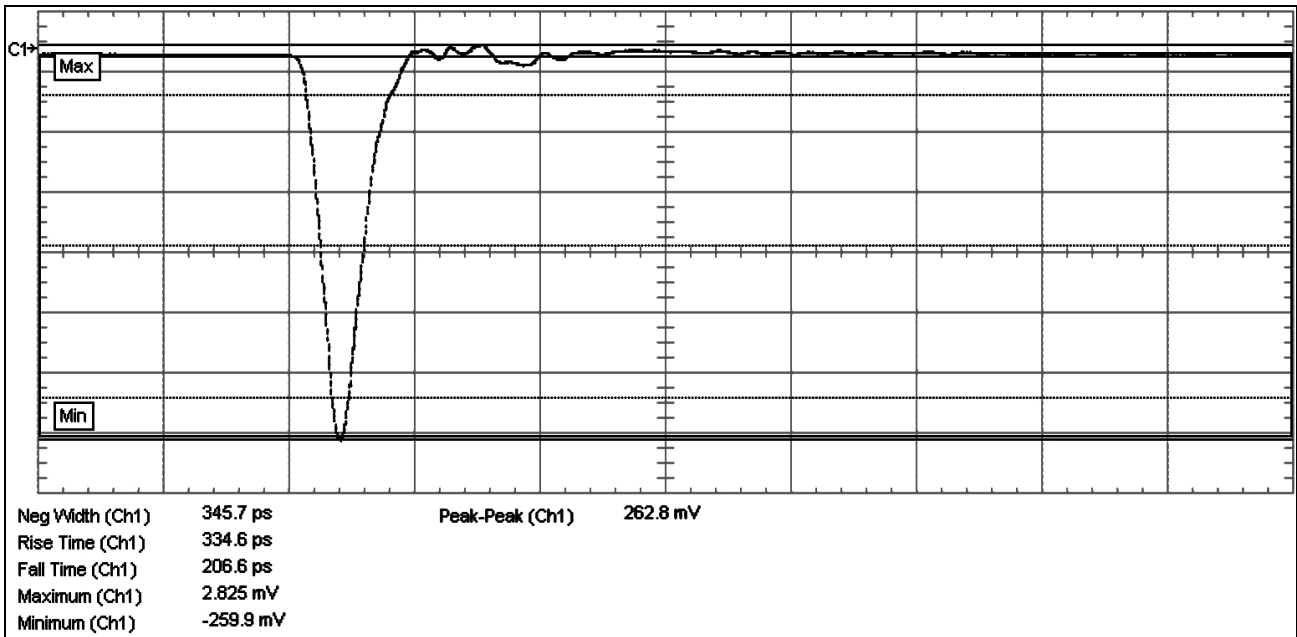


Figure 3. Oscilloscope trace of the generator output, corresponding to the pulse front of 205ps, pulsewidth of 340ps and amplitude of 25.3V. Ringing magnitude is $\pm 2.7\%$ of the peak voltage. Signal is attenuated by 40dB.

Options and modifications.

The following options should be specified when placing the order.

Parameter	Standard	Available options
Signal amplitude (into 50 Ohm load)	> 20V, fixed	Up to 40V, fixed; or 20V, tuneable, 100%-70% voltage ratio.
Polarity	Negative output pulse	Positive
Pulse width (FWHM)	< 400 ps	300ps - 1500ps
PRF, external trigger	0 to 2 MHz	Up to 20MHz
Propagation delay (External Trigger Input to Output pulse)	10-20 ns, fixed	6ns - 500ns, fixed
Sync output	3.5V (into 50 Ohm load), pulsewidth 30ns approx.	5ns - 50ns
Connector, power	Barrel, 3.5mm pin (M)	Power D-Sub 2W2; USB-C; micro-USB; screw wire terminal, 5.2mm.
Power requirement	+14V, (200mA)	12V(200mA); 5V(500mA)
Enclosure dimensions	106 x 30 x 120 mm	Enclosure with mounting flanges, 150x35x120mm.