

PULSE GENERATORS & DATA GENERATORS

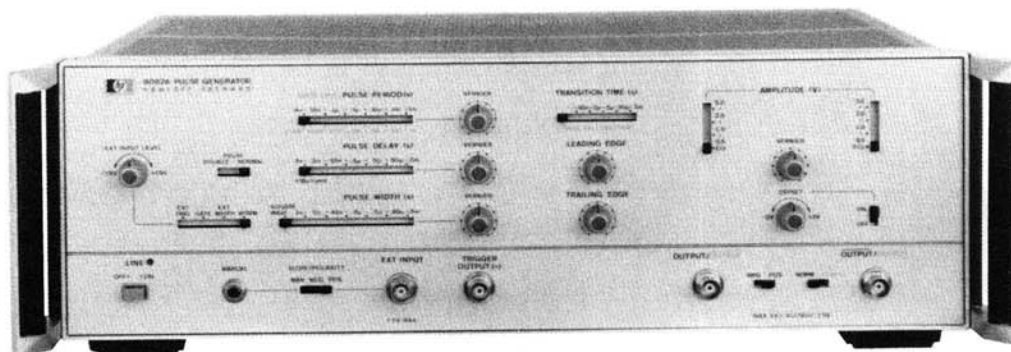
250 MHz Fast Pulse Source

HP 8082A

507

- <1 ns variable transition times
- Ultra-clean 50 ohm source

- Switch-selectable ECL levels
- Dual ± 5 V outputs



HP 8082A

The HP 8082A is a fast pulse generator with all pulse parameters variable. With repetition rates to 250 MHz, transition times down to 1 ns, and amplitudes to 5 V, the HP 8082A is ideally suited for state-of-the-art TTL and ECL logic designs. Using the HP 8082A, you can rapidly test logic circuits under all operating conditions by simply varying pulse parameters.

Hybrid ICs, manufactured by Hewlett-Packard, are used extensively in the design of the HP 8082A. These ICs eliminate the need for fans, reduce power consumption, and enable a low reactance 50 ohm source impedance to be used. This source impedance absorbs 98% of reflections from signals up to 4 V amplitude.

Specifications

Pulse Characteristics (50 Ω source and load impedance)

Transition times: (10% to 90%): 1 ns to 0.5 ms in 6 ranges at amplitudes >1.8 V and >4.5 V respectively in the two upper output ranges. Minimum value may increase to 1.2 ns at other amplitudes. Leading/trailing times are common on fastest range, and independently variable over 1:10 ratio on other ranges.

Overshoot and ringing: $\leq \pm 10\%$ of pulse amplitude may increase to $\pm 10\%$ with amplitude vernier CCW.

Preshoot: $\leq \pm 5\%$ of pulse amplitude

Linearity: Linearity aberration for both slopes $\leq 5\%$ for transition times >5 ns

Output: Maximum amplitude is 5 V from 50 Ω into 50 Ω . Maximum output voltage is ± 5 V (amplitude + offset).

Offset: ± 2 V, into 50 Ω

DC-source impedance: 50 Ω +5% -10%

Reflection coefficient: 5% in ECL setting, increasing to 15% in 5 V range

Output protection: Cannot be damaged by open or short circuits or application of ext. $\leq \pm 6$ V or ± 200 mA independent of control settings

Attenuator: Two separate three step-attenuators reduce the outputs to 1 V. Vernier is common for both outputs and reduces the output to 0.4 V minimum. A further position provides ECL-compatible outputs (-0.9 V to -1.7 V typ. open circuit).

Timing

Repetition rate: 250 MHz to 1 kHz in 6 ranges

Period jitter: <0.1% of setting +50 ps

Delay: 2 ns to 0.5 ms in 6 ranges plus typ. 17 ns fxd. with respect to trigger output. Duty cycle >50%

Delay jitter: <0.1% of setting +50 ps

Double pulse: Up to 125 MHz max. (simulates 250 MHz)

Pulse width: 2.4 ns to 0.5 ms in 6 ranges

Width jitter: <0.1% of setting +50 ps

Width duty cycle: >50%

Square wave: Delay and double pulse are disabled, max. Rep. Rate 250 MHz. Duty cycle is 50% $\pm 10\%$ up to 100 MHz, 50% $\pm 15\%$ for >100 MHz.

Trigger output: Negative going Square Wave (50% duty cycle typ.) >500 mV from 50 Ω into 50 Ω . Internal 50 Ω can be switched off by slide-switch on PC-board. Amplitude up to 1 V into 50 Ω up to 200 MHz

Trigger output protection: Cannot be damaged by short circuit or application of external ± 200 mA

External Operating Modes

External Input

Input impedance: 50 Ω $\pm 10\%$, dc coupled

Maximum input: ± 6 V

Trigger level: Adjustable -1.5 V to +1.5 V

Slope control: Positive, negative, or manual selectable. In the manual position all ext. functions can be controlled by push button. Button pushed in simulates an "on-signal."

Sensitivity: Sine-wave >200 mV p-p pulses >200 mV

Repetition rate: 0 to 250 MHz

External-Controlled Modes

External trigger: There is approximately 7 ns delay between the external input and the trigger output. Rep. rate is externally controlled (is triggered by external signal). Trigger output provides the pulse-shaped input signal.

Synchronous gating: Gating signal turns rep. rate generator on. Last pulse normal width even if gate ends during pulse.

External width: Output pulse width determined by width of drive input. Rep. rate and delay are disabled. Trigger output provides shaped input signal.

General

Operating temperature: 0 $^{\circ}$ C to 55 $^{\circ}$ C

Power: 100/120/220/240 Vrms; +5%, -10%; 48 to 440 Hz. 85 VA max

Weight: Net, 7.9 kg (17.44 lb); shipping, 8.9 kg (19.63 lb)

Size: 133 mm H x 426 mm W x 345 mm D (5.2 in x 16.75 in x 13.6 in)

Ordering Information

HP 8082A Pulse Generator

Opt 907 Front Handle Kit (HP 5062-3989).

Opt 908 Rack Flange Kit (HP 5062-3977).

Opt 909 Opt 907, 908 Combined (HP 5062-3983).

Opt 910 Additional Operating and Service Manual

Opt W30 Extended Repair Service. See page 671.

Price

\$6,650

+ \$56

+ \$33

+ \$82

+ \$28

+ \$195

☎ For off-the-shelf shipment, call 800-452-4844.