Table 1- 1. Specifications

PULSE CHARACTERISTICS

Transition times: 5ns – 0.5s with INT. LOAD switched IN. 6ns – 0.5s with INT. LOAD switched OUT. In four ranges, common for leading and trailing edges. Verniers provide separate control of leading and trailing edges within each range up to a maximum ratio of 100:1 or 1:100.

Linearity: for transition times > 30ns, maximum deviation from a straight line between the 10% and 90% points is lesss than 5% of pulse amplitude.

Overshoot and Ringing: < ± 5% of pulse amplitude unless INT LOAD is switched OUT and amplitude reduced to 0.4V – 4V when it may increase to ± 10%.

Preshoot: < ± 5% of pulse amplitude.

Pulse Width: < 10ns to 1s in four ranges. Vernier provides continuous adjustment within ranges.

Width Jitter: < 0.1% + 50ps on any width setting.

Maximum Duty Cycle: > 75% from 1 Hz to 10 MHz, decreasing to ≥ 40% at 50 MHz. Up to 100% in COMPL mode.

Maximum Output: With INT LOAD switched IN, output is 5V across 50 ohms, 10V across open circuit. With INT LOAD switched OUT, output is 10V across 50 ohms, Output circuit cannot be damaged by short circuits.

Attenuator: 4-step attenuator reduces output to 0.2V with INT LOAD switched IN, or to 0.4V with INT LOAD switched OUT. Vernier provides continuous adjustment within ranges.

Polarity: positive or negative selectable.

Output Format: symmetrical, normal or complement selectable.

Source Impedance: 50 ohms ± 10% shunted by typically 20pF with INT LOAD switched IN. > 50 ohms shunted by typically 20pF with INT LOAD switched OUT.

DC Offset: With INT LOAD switched IN, offset is ± 2.5V across 50 ohms and is independent of amplitude settings. With INT LOAD switched OUT, offset is automatically switched off.

Pulse Delay: < 35ns to 1s (with respect to trigger output) in four ranges; vernier provides continuous adjustment within ranges.

Delay Jitter: < 0.1% + 50ps on any delay setting.

REPETITION RATE AND TRIGGER

Repetition Rate: 1 Hz to 50 MHz in four ranges, continous adjustment within ranges.

Period Jitter: < 0.1% + 50ps on any rate setting.

Square Wave: 0.5 Hz to 25 MHz in four ranges. Duty cycle 50% ± 5% up to 1 MHz, tolerance increases to ± 15% at 25 MHz.

Double Pulse: up to 25 MHz simulating 50 MHz.

Trigger Output: > +1V across 50Ω, 16ns ± 10ns wide. Suitable for triggering another 8012B/13B.

EXTERNALLY CONTROLLED OPERATION

External Triggering

Repetition Rate: 0 to 50 MHz. For square wave output, frequency is divided by 2.

Trigger input: sinewaves > 1.7V p-p (about zero) or pulses > 0.8V either polarity with a width of > 7ns.

Maximum input amplitude: ± 7V.

Delay: 25ns ± 8ns between leading edge of trigger input and trigger output signals.

Input impedance: 50 ohms ± 10%, dc-coupled.

Manual: front panel pushbutton for single pulse.

Table 1–1. Specifications (cont'd)

Gating

Synchronous gating: gating signal turns generator on. First trigger output pulse is coincident with leading edge of gate pulse. Last output pulse is always generated with normal width even if the gate pulse ends during the generation of the pulse.

Gate input: dc-coupled; voltage at open connector approx. -1.8V. Shorting current ≤ 12mA. Input impedance approx. 160Ω. Gate input signal: voltage > +1.5V or resistor > 1KΩ to ground enables rep. rate generator. Voltage < +0.8V or resistor < 160Ω disables rep. rate generator. Gate input TTL compatible. Maximum input ± 5V.

External Width and RZ Modes

External width: output pulse width determined by the width of the drive input signal. Transition times and amplitude are selectable. Trigger pulses, produced by internal rate generator, are independent of the output pulses.

RZ Mode: external input signal switched directly to delay generator. Output pulse period determined by period of RZ input signal. Transition times, delay, width, amplitude and output formats are selectable. Trigger pulses, produced by internal rate generator, are independent of the output pulses.

Input signal: input impedance 50 ohms, dc-coupled. Signal amplitude > +1V, maximum input ± 5V. Width > 7ns.

GENERAL

Operating temperature range: 0°C to 55°C.

Power: 100/120/220/240V, +5%, −10%, 48 to 400 Hz, 100VA max.

Weight: net 4 kg (8.8 lbs); shipping 6.5 kg (14.6 lbs).

Dimensions: 200mm wide, 142mm high, 330mm deep, (7.9" x 5.6" x 13").

Accessories: 15179A Adapter Frame; rackmount for two units.