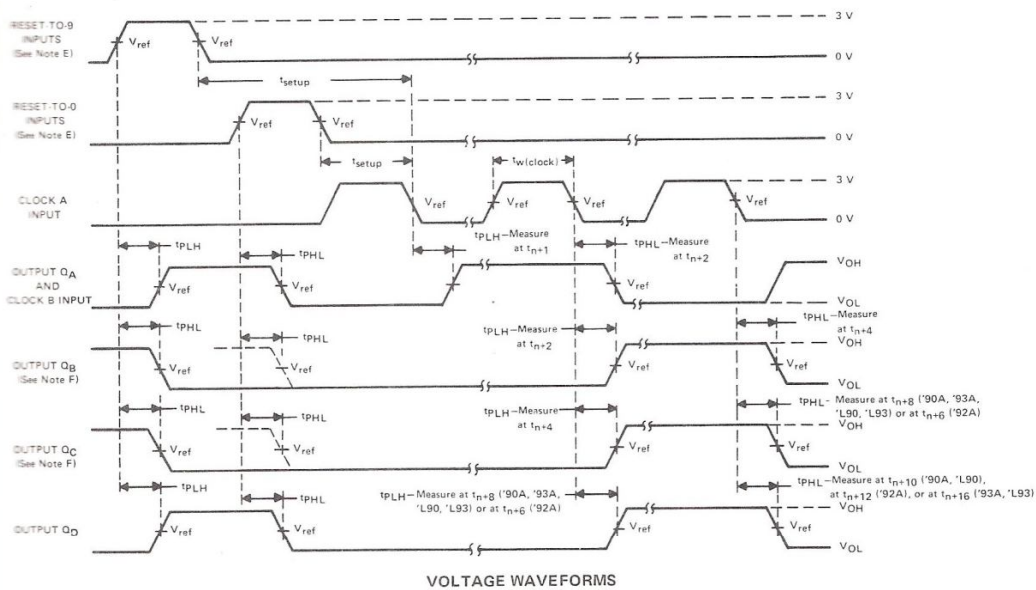
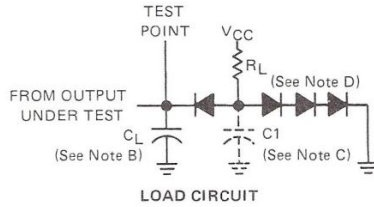


**TYPES SN5490A, SN5492A, SN5493A, SN54L90, SN54L93,
SN7490A, SN7492A, SN7493A, SN74L90, SN74L93
DECADE, DIVIDE-BY-TWELVE, AND BINARY COUNTERS**

PARAMETER MEASUREMENT INFORMATION



- NOTES:**
- Input pulses are supplied by a generator having the following characteristics:
for '90A, '92A, '93A, $t_r \leq 5$ ns, $t_f \leq 5$ ns, PRR = 1 MHz, duty cycle = 50%, $Z_{out} \approx 50$ ohms;
for 'L90, $t_r \leq 15$ ns, $t_f \leq 15$ ns, PRR = 500 kHz, duty cycle = 50%, $Z_{out} \approx 50$ ohms;
for 'L93, $t_r \leq 15$ ns, $t_f \leq 15$ ns, PRR = 500 kHz, duty cycle = 50%, $Z_{out} \approx 50$ ohms.
 - C_L includes probe and jig capacitance.
 - C_1 (30 pF) is applicable for testing 'L90 and 'L93.
 - All diodes are 1N916 or 1N3064.
 - Each reset input is tested separately with the other reset at 4.5 V.
 - Reference waveforms are shown with dashed lines.
 - For '90A, '92A, and '93A; $V_{ref} = 1.5$ V. For 'L90 and 'L93; $V_{ref} = 1.3$ V.

FIGURE 1

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