

APPLICATION NOTES

HIGH FREQUENCY RESPONSE

The SMD99F tolerances are guaranteed for input pulse widths and periods greater than those specified in the test conditions. Although the device will function properly for pulse widths as small as 40% of the total delay and periods as small as 80% of the total delay (for a symmetric input), the delays may deviate from their values at low frequency. However, for a given input condition, the deviation will be repeatable from pulse to pulse. Contact technical support at Data

Delay Devices if your application requires device testing at a specific input condition.

POWER SUPPLY BYPASSING

The SMD99F relies on a stable power supply to produce repeatable delays within the stated tolerances. A 0.1uf capacitor from VCC to GND, located as close as possible to the VCC pin, is recommended. A wide VCC trace and a clean ground plane should be used.

DEVICE SPECIFICATIONS

TABLE 1: ABSOLUTE MAXIMUM RATINGS

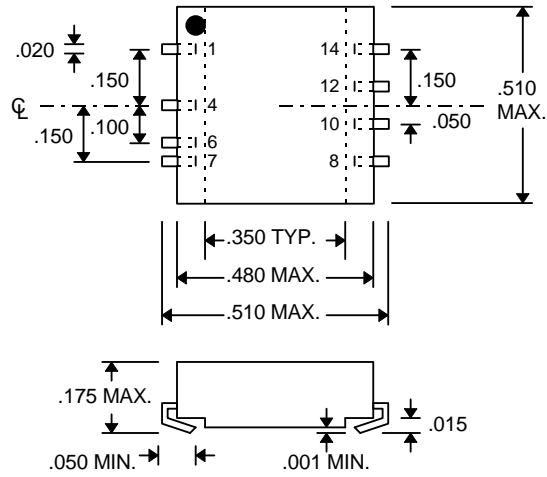
PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTES
DC Supply Voltage	V_{CC}	-0.3	7.0	V	
Input Pin Voltage	V_{IN}	-0.3	$V_{DD}+0.3$	V	
Storage Temperature	T_{STRG}	-55	150	C	
Lead Temperature	T_{LEAD}		300	C	10 sec

TABLE 2: DC ELECTRICAL CHARACTERISTICS

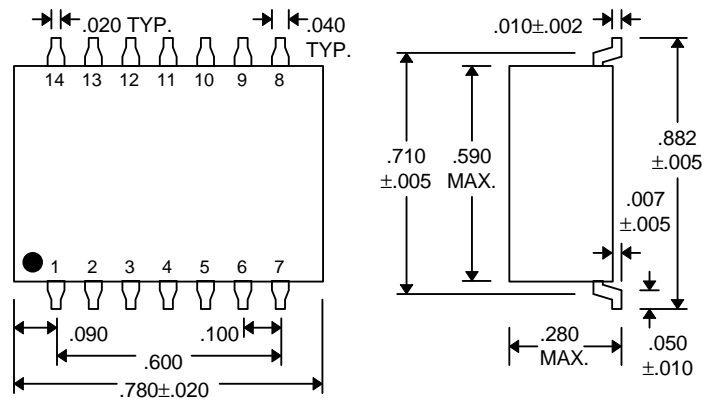
(0C to 70C, 4.75V to 5.25V)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
High Level Output Voltage	V_{OH}	2.5	3.4		V	$V_{CC} = \text{MIN}, I_{OH} = \text{MAX}$ $V_{IH} = \text{MIN}, V_{IL} = \text{MAX}$
Low Level Output Voltage	V_{OL}		0.35	0.5	V	$V_{CC} = \text{MIN}, I_{OL} = \text{MAX}$ $V_{IH} = \text{MIN}, V_{IL} = \text{MAX}$
High Level Output Current	I_{OH}			-1.0	mA	
Low Level Output Current	I_{OL}			20.0	mA	
High Level Input Voltage	V_{IH}	2.0			V	
Low Level Input Voltage	V_{IL}			0.8	V	
Input Clamp Voltage	V_{IK}			-1.2	V	$V_{CC} = \text{MIN}, I_I = I_{IK}$
Input Current at Maximum Input Voltage	I_{IHH}			0.1	mA	$V_{CC} = \text{MAX}, V_I = 7.0V$
High Level Input Current	I_{IH}			20	μA	$V_{CC} = \text{MAX}, V_I = 2.7V$
Low Level Input Current	I_{IL}			-0.6	mA	$V_{CC} = \text{MAX}, V_I = 0.5V$
Short-circuit Output Current	I_{OS}	-60		-150	mA	$V_{CC} = \text{MAX}$
Output High Fan-out				25	Unit	
Output Low Fan-out				12.5	Load	

PACKAGE DIMENSIONS



SMD99F-xx (Commercial)



SMD99F-xxMC2 (Military)

DELAY LINE AUTOMATED TESTING

TEST CONDITIONS

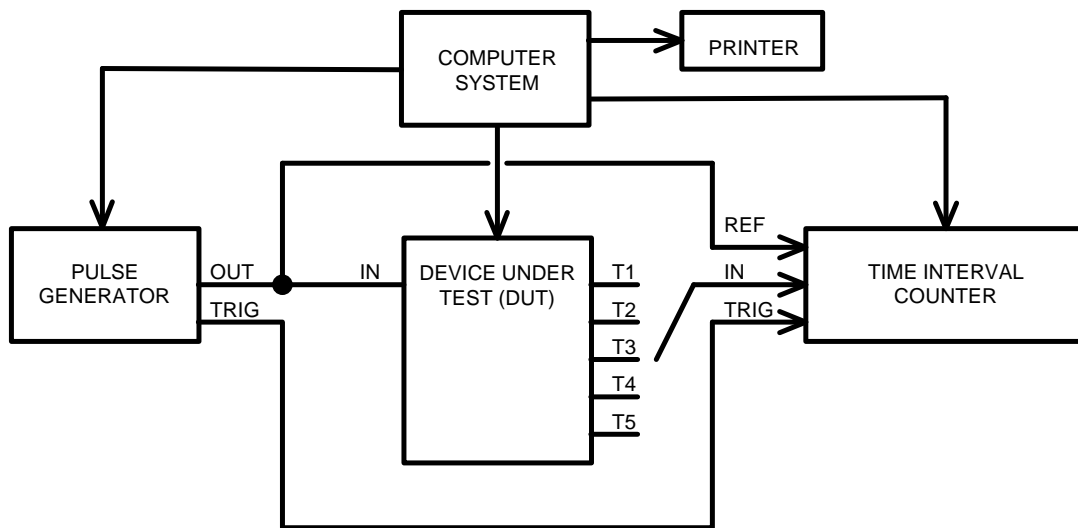
INPUT:

Ambient Temperature: $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$
Supply Voltage (Vcc): $5.0\text{V} \pm 0.1\text{V}$
Input Pulse: High = $3.0\text{V} \pm 0.1\text{V}$
 Low = $0.0\text{V} \pm 0.1\text{V}$
Source Impedance: 50Ω Max.
Rise/Fall Time: 3.0 ns Max. (measured between 0.6V and 2.4V)
Pulse Width: $\text{PW}_{\text{IN}} = 1.5 \times \text{Total Delay}$
Period: $\text{PER}_{\text{IN}} = 10 \times \text{Total Delay}$

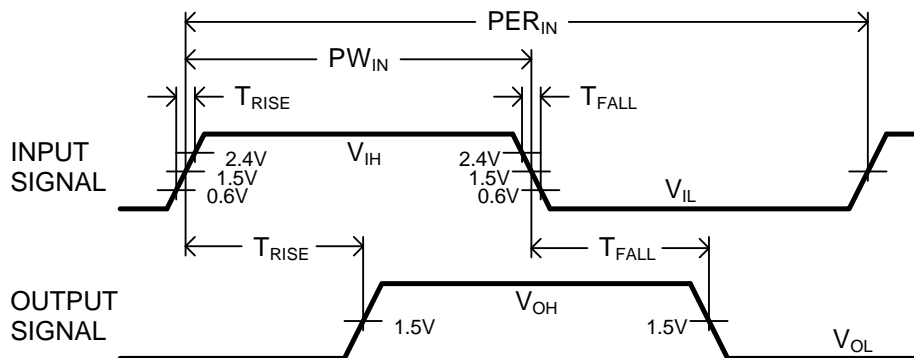
OUTPUT:

Load: 1 FAST-TTL Gate
C_{load}: $5\text{pf} \pm 10\%$
Threshold: 1.5V (Rising & Falling)

NOTE: The above conditions are for test only and do not in any way restrict the operation of the device.



Test Setup



Timing Diagram For Testing