DDU66F

VCC

N/C

Τ5

5-TAP, TTL-INTERFACED FIXED DELAY LINE SERIES DDU66F)

FEATURES

- Five equally spaced outputs •
- Fits standard 14-pin DIP socket
- Low profile •
- Auto-insertable •
- Input & outputs fully TTL interfaced & buffered •
- 10 T²L fan-out capability



PACKAGES

IN 12 T1 N/C T2 🗆 14 N/C 12 T1 10 T3 T2 N/C Τ4 N/C T3 N/C Τ4 GND 7 8 T5 GND DDU66F-xx DIP DDU66F-xxD1 Com. SMD DDU66F-xxA2 Gull-Wing DDU66F-xxD4 Com. SMD DDU66F-xxB2 J-Lead DDU66F-xxMD1 Mil. SMD DDU66F-xxME7 Military DIP DDU66F-xxMD4 Mil. SMD

FUNCTIONAL DESCRIPTION

The DDU66F-series device is a 5-tap digitally buffered delay line. The signal input (IN) is reproduced at the outputs (T1-T5), shifted in time by an amount given by the device dash number. For dash numbers less than 25, the total delay of the line is measured from T1 to T5, with the nominal value given by the dash number. The nominal tap-to-tap delay increment is

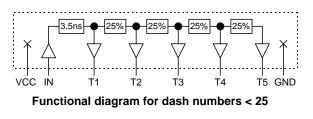
PIN DESCRIPTIONS

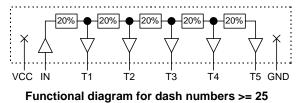
IN T4 T5	Signal Input
T1-T5 VCC	Tap Outputs +5 Volts
GND	Ground

given by 1/4 of this number. The inherent delay from IN to T1 is nominally 3.5ns. For dash numbers greater than or equal to 25, the total delay of the line is measured from IN to T5, with the nominal value given by the dash number. The nominal tap-to-tap delay increment is given by 1/5 of this number.

SERIES SPECIFICATIONS

- Minimum input pulse width: 40% of total delay
- Output rise time: 2ns typical
- Supply voltage: 5VDC ± 5%
- Supply current: $I_{CCL} = 32ma$ typical •
- $I_{CCH} = 7$ ma typical Operating temperature: 0° to 70° C
- Temp. coefficient of total delay: 100 PPM/°C





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DASH NUMBER SPECIFICATIONS

Dent	Tatal	Delau Dea
Part	Total	Delay Per
Number	Delay (ns)	Tap (ns)
DDU66F-4	4 ± 1.0 *	1.0 ± 0.5
DDU66F-6	6 ± 1.0 *	1.5 ± 0.5
DDU66F-8	8 ± 2.0 *	2.0 ± 1.0
DDU66F-10	10 ± 2.0 *	2.5 ± 1.0
DDU66F-12	12 ± 2.0 *	3.0 ± 1.0
DDU66F-16	16 ± 2.0 *	4.0 ± 1.5
DDU66F-20	20 ± 3.0 *	5.0 ± 1.5
DDU66F-25	25 ± 3.0	5.0 ± 2.0
DDU66F-30	30 ± 3.0	6.0 ± 2.0
DDU66F-35	35 ± 3.0	7.0 ± 2.0
DDU66F-40	40 ± 3.0	8.0 ± 2.0
DDU66F-45	45 ± 3.0	9.0 ± 3.0
DDU66F-50	50 ± 3.0	10.0 ± 3.0
DDU66F-60	60 ± 3.0	12.0 ± 3.0
DDU66F-75	75 ± 4.0	15.0 ± 3.0
DDU66F-100	100 ± 5.0	20.0 ± 3.0
DDU66F-125	125 ± 6.5	25.0 ± 3.0
DDU66F-150	150 ± 7.5	30.0 ± 3.0
DDU66F-175	175 ± 8.0	35.0 ± 4.0
DDU66F-200	200 ± 10.0	40.0 ± 4.0
DDU66F-250	250 ± 12.5	50.0 ± 5.0

* Total delay is referenced to first tap output Input to first tap = 3.5ns ± 1ns

NOTE: Any dash number between 4 and 250 not chawn ic alea availabla

APPLICATION NOTES

HIGH FREQUENCY RESPONSE

The DDU66F 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 DDU66F 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

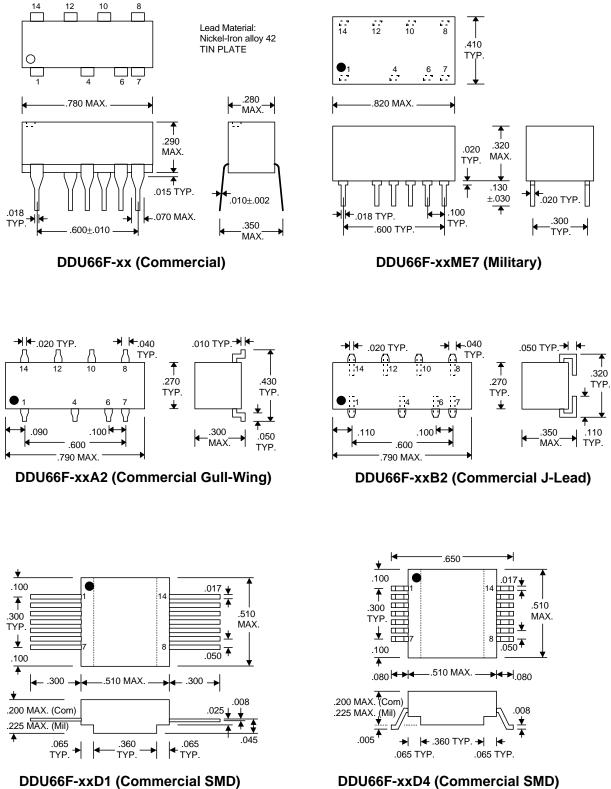
PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTES
DC Supply Voltage	V _{cc}	-0.3	7.0	V	
Input Pin Voltage	V _{IN}	-0.3	V _{CC} +0.3	V	
Storage Temperature	T _{STRG}	-55	150	С	
Lead Temperature	T _{LEAD}		300	С	10 sec

TABLE 1: ABSOLUTE MAXIMUM RATINGS

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	$V_{CC} = MIN, I_{OH} = MAX$
						$V_{IH} = MIN, V_{IL} = MAX$
Low Level Output Voltage	V _{OL}		0.35	0.5	V	$V_{CC} = MIN, I_{OL} = MAX$
						$V_{IH} = MIN, V_{IL} = MAX$
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	$V_{CC} = MIN, I_I = I_{IK}$
Input Current at Maximum	I _{IHH}			0.1	mA	$V_{CC} = MAX, V_I = 7.0V$
Input Voltage						
High Level Input Current	I _{IH}			20	μA	$V_{CC} = MAX, V_I = 2.7V$
Low Level Input Current	IIL			-0.6	mA	$V_{CC} = MAX, V_I = 0.5V$
Short-circuit Output Current	I _{OS}	-60		-150	mA	$V_{CC} = MAX$
Output High Fan-out				25	Unit	
Output Low Fan-out				12.5	Load	

PACKAGE DIMENSIONS



DDU66F-xxMD4 (Military SMD)

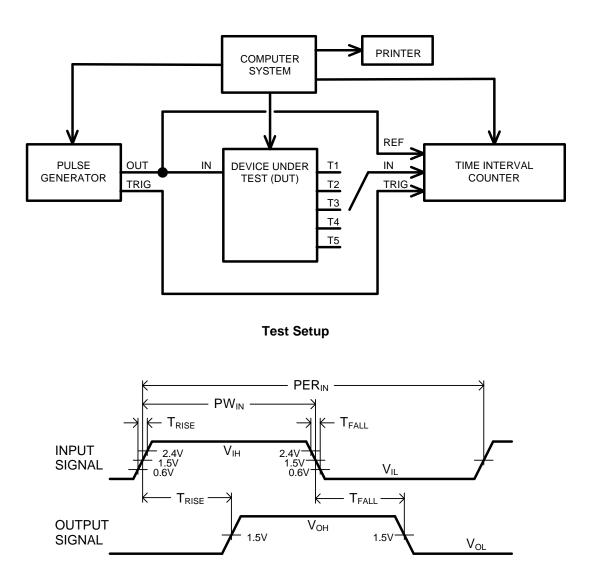
DDU66F-xxMD1 (Military SMD)

DELAY LINE AUTOMATED TESTING

TEST CONDITIONS

INPUT:		OUTPUT:	
Ambient Temperature:	$25^{\circ}C \pm 3^{\circ}C$	Load:	1 FAST-TTL Gate
Supply Voltage (Vcc):	$5.0V \pm 0.1V$	C _{load} :	5pf ± 10%
Input Pulse:	High = $3.0V \pm 0.1V$	Threshold:	1.5V (Rising & Falling)
	$Low = 0.0V \pm 0.1V$		
Source Impedance:	50Ω Max.		
Rise/Fall Time:	3.0 ns Max. (measured		
	between 0.6V and 2.4V)		
Pulse Width:	PW _{IN} = 1.5 x Total Delay		
Period:	PER _{IN} = 10 x Total Delay		

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



Timing Diagram For Testing