



DM5475 /DM7475 (SN5475/SN7475) quad latch

general description

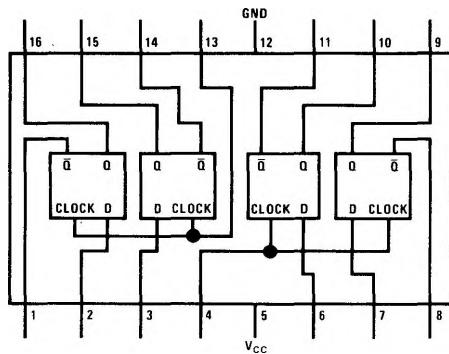
The DM5475/DM7475 is a four-bit storage element utilizing latch-connected gates to perform the memory function. TTL circuitry is employed providing fast speed and high noise immunity.

The information bits to be stored are applied to the D inputs. If the CLOCK input is in the logical 1 state, the Q output will follow the information applied to the corresponding D input. When the

CLOCK is taken to the logical 0 state, whatever binary state was present on the D input at the time of this transition will be stored on the Q output. $\bar{Q}$ is also provided for added flexibility.

Two separate clock input lines are provided, each controlling two latches, so that other applications—such as a two-phase flip-flop—can be performed.

logic and connection diagram



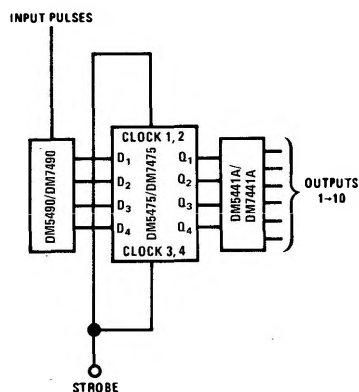
truth table

t_n	t_{n+1}	
0	0	$\bar{Q}$
1	1	0
0	0	1

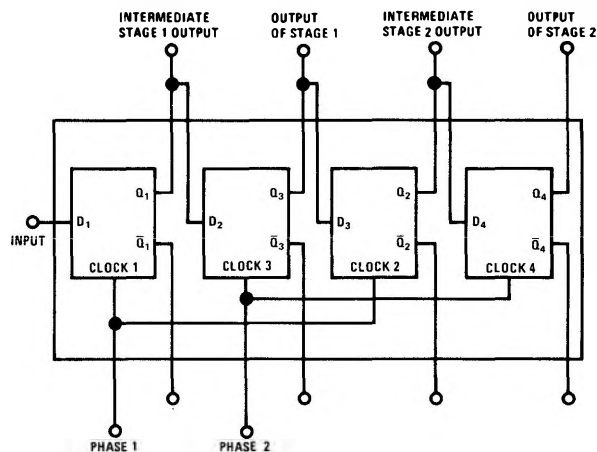
t_n = time previous to negative-going clock transition
 t_{n+1} = time after negative-going clock transition

typical applications

Buffer Storage for Indicators



Dual Rank Shift Register



absolute maximum ratings

Supply Voltage	+7V
Input Voltage	5.5V
Fanout	10
Storage Temperature Range	-65°C to +150°C
Operating Temperature Range	DM5475 -55°C to +125°C
	DM7475 0°C to +70°C
Lead Temperature (Soldering, 10 sec)	300°C

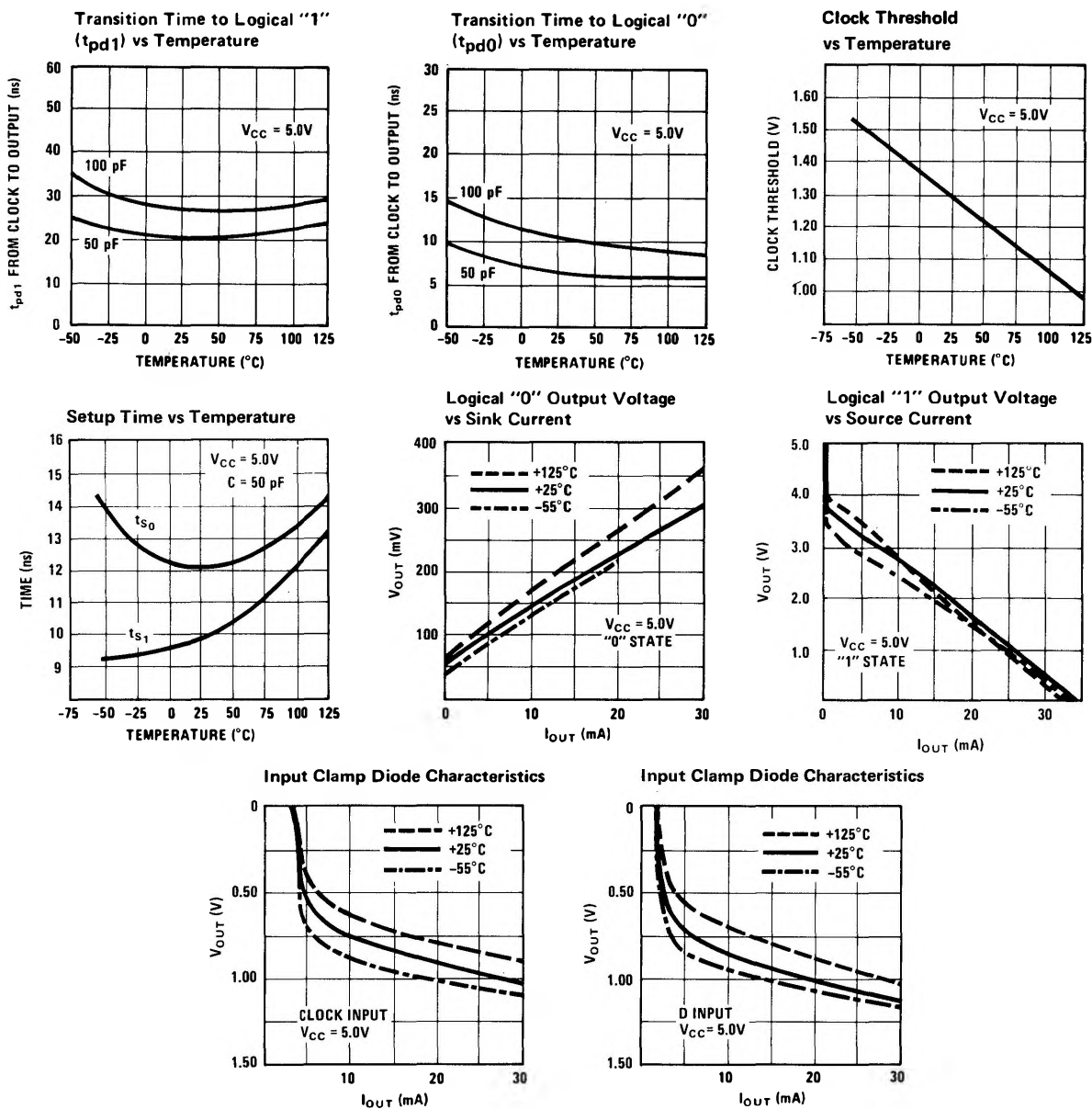
electrical characteristics (Note 1)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Diode Clamp Voltage	$V_{CC} = 5.0V$ $I_{OUT} = -12\text{ mA}$ $T_A = 25^\circ\text{C}$		-0.95	-1.5	V
Logical "1" Input Voltage	DM5475 $V_{CC} = 4.5V$ DM7475 $V_{CC} = 4.75V$	2.0			V
Logical "0" Input Voltage	DM5475 $V_{CC} = 4.5V$ DM7475 $V_{CC} = 4.75V$			0.8	V
Logical "1" Output Voltage	DM5475 $V_{CC} = 4.5V$ DM7475 $V_{CC} = 4.75V$ $I_{OUT} = -400\text{ }\mu\text{A}$	2.4			V
Logical "0" Output Voltage	DM5475 $V_{CC} = 4.5V$ DM7475 $V_{CC} = 4.75V$ $I_{OUT} = 16\text{ mA}$			0.4	V
Logical "1" Input Current	DM5475 $V_{CC} = 5.5V$ DM7475 $V_{CC} = 5.25V$ $V_{IN} = 2.4V$ D CLOCK			80 80	μA μA
Logical "1" Input Current	DM5475 $V_{CC} = 5.5V$ DM7475 $V_{CC} = 5.25V$ $V_{IN} = 5.5V$			1	mA
Logical "0" Input Current	DM5475 $V_{CC} = 5.5V$ DM7475 $V_{CC} = 5.25V$ $V_{IN} = 0.4V$ D CLOCK		-2.1 -2.1	-3.2 -3.2	mA mA
Output Short Current (Note 2)	DM5475 $V_{CC} = 5.5V$ DM7475 $V_{CC} = 5.25V$ $V_{OUT} = 0V$	-20 -18	-32	-55	mA
Supply Current	DM5475 $V_{CC} = 5.5V$ DM7475 $V_{CC} = 5.25V$		32	46 50	mA mA
Propagation Delay Time to a Logical "0" from Clock, t_{pd0}	$V_{CC} = 5.0V$ $T_A = 25^\circ\text{C}$	3	7	15	ns
Propagation Delay Time to a Logical "1" from Clock, t_{pd1}	$V_{CC} = 5.0V$ $T_A = 25^\circ\text{C}$	10	21	40	ns
Setup Time for a Logical "1", t_{S1}	$V_{CC} = 5.0V$ $T_A = 25^\circ\text{C}$		10	20	ns
Setup Time for a Logical "0", t_{S0}	$V_{CC} = 5.0V$ $T_A = 25^\circ\text{C}$		12	25	ns

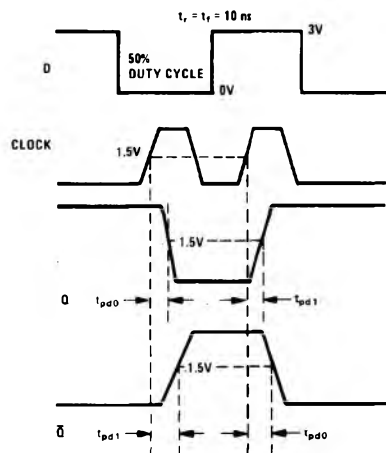
Note 1: These specifications apply across the -55°C to +125°C temperature range for the DM5475 and the 0°C to +70°C temperature range for the DM7475 unless otherwise specified. Typicals apply only to 25°C @ $V_{CC} = 5.0V$.

Note 2: Only one output should be shorted at a time.

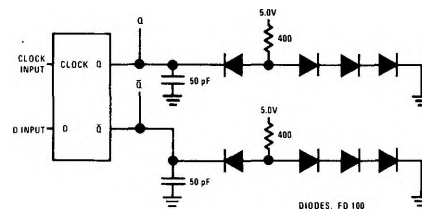
typical performance characteristics



switching time waveforms



ac test circuit



timing requirements

