

DIGITAL 54/74 TTL SERIES ■ S5476, N7476

RECOMMENDED OPERATING CONDITIONS

		MIN	NOM	MAX	UNIT
Supply Voltage V_{CC} :	S5476 Circuits	4.5	5	5.5	V
	N7476 Circuits	4.75	5	5.25	V
Operating Free-Air Temperature Range, T_A :	S5476 Circuits	-55	25	125	$^{\circ}\text{C}$
	N7476 Circuits	0	25	70	$^{\circ}\text{C}$
Normalized Fanout from each Output, N				10	
Width of Clock Pulse, $t_{p(\text{clock})}$		20			ns
Width of Preset Pulse, $t_{p(\text{preset})}$		25			ns
Width of Clear Pulse, $t_{p(\text{clear})}$		25			ns
Input Setup Time, t_{setup}		$\geq t_{p(\text{clock})}$			
Input Hold Time, t_{hold}		0			

ELECTRICAL CHARACTERISTICS (over recommended operating free-air temperature range unless otherwise noted)

PARAMETER		TEST CONDITIONS*		MIN	TYP**	MAX	UNIT
$V_{in(1)}$	Input voltage required to ensure logical 1 at any input terminal	$V_{CC} = \text{MIN}$		2			V
$V_{in(0)}$	Input voltage required to ensure logical 0 at any input terminal	$V_{CC} = \text{MIN}$				0.8	V
$V_{out(1)}$	Logical 1 output voltage	$V_{CC} = \text{MIN}$,	$I_{\text{load}} = -400\mu\text{A}$	2.4	3.5		V
$V_{out(0)}$	Logical 0 output voltage	$V_{CC} = \text{MIN}$,	$I_{\text{sink}} = 16\text{mA}$		0.22	0.4	V
$I_{in(0)}$	Logical 0 level input current at J or K	$V_{CC} = \text{MAX}$,	$V_{in} = 0.4\text{V}$			-1.6	mA
$I_{in(0)}$	Logical 0 level input current at clear, preset, or clock	$V_{CC} = \text{MAX}$,	$V_{in} = 0.4\text{V}$			-3.2	mA
$I_{in(1)}$	Logical 1 level input current at J or K	$V_{CC} = \text{MAX}$,	$V_{in} = 2.4\text{V}$			40	μA
$I_{in(1)}$	Logical 1 level input current at J or K	$V_{CC} = \text{MAX}$,	$V_{in} = 5.5\text{V}$			1	mA
$I_{in(1)}$	Logical 1 level input current at clear, preset, or clock	$V_{CC} = \text{MAX}$,	$V_{in} = 2.4\text{V}$			80	μA
$I_{in(1)}$	Logical 1 level input current at clear, preset, or clock	$V_{CC} = \text{MAX}$,	$V_{in} = 5.5\text{V}$			1	mA
I_{OS}	Short circuit output current†	$V_{CC} = \text{MAX}$,	$V_{in} = 0$	S5476 N7476	-20 -18	-57 -57	mA
I_{CC}	Supply current (each flip-flop)	$V_{CC} = \text{MAX}$,	$V_{in} = 5\text{V}$		20	40	mA

SWITCHING CHARACTERISTICS, $V_{CC} = 5\text{V}$, $T_A = 25^{\circ}\text{C}$, N = 10

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
f_{clock}	Maximum clock frequency	$C_L = 15\text{pF}$,	$R_L = 400\Omega$	15	20		MHz
t_{pd1}	Propagation delay time to logical 0 level from clear or preset to output	$C_L = 15\text{pF}$,	$R_L = 400\Omega$		16	25	ns
t_{pd0}	Propagation delay time to logical 1 level from clear or preset to output	$C_L = 15\text{pF}$,	$R_L = 400\Omega$		25	40	ns
t_{pd1}	Propagation delay time to logical 1 level from clock to output	$C_L = 15\text{pF}$,	$R_L = 400\Omega$	10	16	25	ns
t_{pd0}	Propagation delay time to logical 0 level from clock to output	$C_L = 15\text{pF}$,	$R_L = 400\Omega$	10	25	40	ns

* For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.

** All typical values are at $V_{CC} = 5\text{V}$, $T_A = 25^{\circ}\text{C}$.

† Not more than one output should be shorted at a time.