

TYPES SN5490A, SN5492A, SN5493A, SN7490A, SN7492A, SN7493A DECADE, DIVIDE-BY-TWELVE, AND BINARY COUNTERS

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage	5.5 V
Interemitter voltage (see Note 2)	5.5 V
Operating free-air temperature range: SN5490A, SN5492A, SN5493A	-55°C to 125°C
SN7490A, SN7492A, SN7493A	0°C to 70°C
Storage temperature range	-65°C to 150°C

NOTES: 1. Voltage values, except interemitter voltage, are with respect to network ground terminal.
2. This is the voltage between two emitters of a multiple-emitter transistor. For these circuits, this rating applies between the two R_G inputs, and for the '90A circuit, it also applies between the two R_G inputs.

recommended operating conditions

		SN5490A, SN5492A, SN5493A			SN7490A, SN7492A, SN7493A			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}		4.5	5	5.5	4.75	5	5.25	V
High-level output current, I_{OH}		-800			-800			μ A
Low-level output current, I_{OL}		16			16			mA
Count frequency, f_{count} (see Figure 1)	A input	0		32	0		32	MHz
	B input	0		16	0		16	
Pulse width, t_w	A input	15			15			ns
	B input	30			30			
	Reset inputs	15			15			
Reset inactive-state setup, t_{setup}		25			25			ns
Operating free-air temperature, T_A		-55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		'90A			'92A			'93A			UNIT
		MIN	TYP [‡]	MAX	MIN	TYP [‡]	MAX	MIN	TYP [‡]	MAX	
V_{IH}	High-level input voltage	2			2			2			V
V_{IL}	Low-level input voltage			0.8			0.8			0.8	V
V_I	Input clamp voltage	$V_{CC} = \text{MIN}, I_I = -12 \text{ mA}$			$V_{CC} = \text{MIN}, I_I = -12 \text{ mA}$			$V_{CC} = \text{MIN}, I_I = -12 \text{ mA}$			V
V_{OH}	High-level output voltage	2.4	3.4		2.4	3.4		2.4	3.4		V
V_{OL}	Low-level output voltage		0.2	0.4		0.2	0.4		0.2	0.4	V
I_I	Input current at maximum input voltage	$V_{CC} = \text{MAX}, V_I = 5.5 \text{ V}$			$V_{CC} = \text{MAX}, V_I = 5.5 \text{ V}$			$V_{CC} = \text{MAX}, V_I = 5.5 \text{ V}$			mA
I_{IH}	Any reset		40			40			40		μ A
	A input		80			80			80		
	B input		120			120			80		
I_{IL}	Any reset		-1.6			-1.6			-1.6		mA
	A input		-3.2			-3.2			-3.2		
	B input		-4.8			-4.8			-3.2		
I_{OS}	Short-circuit output current [§]	$V_{CC} = \text{MAX}$			$V_{CC} = \text{MAX}$			$V_{CC} = \text{MAX}$			mA
		SN54'			SN74'						
		-20	-57	-20	-57	-20	-57	-20	-57	-57	
I_{CC}	Supply current	$V_{CC} = \text{MAX}$, See Note 3			$V_{CC} = \text{MAX}$, See Note 3			$V_{CC} = \text{MAX}$, See Note 3			mA
		29	42		26	39		26	39		

[†]For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable 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.

[¶]Outputs are tested at $I_{OL} = 16 \text{ mA}$ plus the limit value for I_{IL} for the B input. This permits driving the B input while maintaining full fan-out capability.

NOTE 3: I_{CC} is measured with all outputs open, both R_G inputs grounded following momentary connection to 4.5 V, and all other inputs grounded.