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†See Bipolar Microcomputer Components Data Book, LCC4270.

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†See Bipolar Microcomputer Components Data Book, LCC4270.

FUNCTIONAL INDEX/SELECTION GUIDE

The following pages contain functional indexes and selection guides designed to simplify the choice of a particular function to fit a specific application. Essential characteristics of similar or like functions are grouped for comparative analysis, and the electrical specifications are referenced by page number. The following categories of functions are covered:

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AND-OR-INVERT gates with totem-pole outputs	1-14
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SSI FUNCTIONS FUNCTIONAL INDEX/SELECTION GUIDE

POSITIVE-NAND GATES AND INVERTERS WITH TOTEM-POLE OUTPUTS
ELECTRICAL TABLES – PAGE 6-2

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
			–55°C to 125°C		0°C to 70°C		
HEX INVERTERS	3 ns	19 mW	SN54S04	J, W	SN74S04	J, N	5-7
	6 ns	22 mW	SN54H04	J, W	SN74H04	J, N	
	9.5 ns	2 mW	SN54LS04	J, W	SN74LS04	J, N	
	10 ns	10 mW	SN5404	J, W	SN7404	J, N	
	33 ns	1 mW	SN54L04	J, T	SN74L04	J, N	
QUADRUPLE 2-INPUT POSITIVE-NAND GATES	3 ns	19 mW	SN54S00	J, W	SN74S00	J, N	5-6
	6 ns	22 mW	SN54H00	J, W	SN74H00	J, N	
	9.5 ns	2 mW	SN54LS00	J, W	SN74LS00	J, N	
	10 ns	10 mW	SN5400	J, W	SN7400	J, N	
	33 ns	1 mW	SN54L00	J, T	SN74L00	J, N	
TRIPLE 3-INPUT POSITIVE-NAND GATES	3 ns	19 mW	SN54S10	J, W	SN74S10	J, N	
	6 ns	22 mW	SN54H10	J, W	SN74H10	J, N	
	9.5 ns	2 mW	SN54LS10	J, W	SN74LS10	J, N	
	10 ns	10 mW	SN5410	J, W	SN7410	J, N	
	33 ns	1 mW	SN54L10	J, T	SN74L10	J, N	
DUAL 4-INPUT POSITIVE-NAND GATES	3 ns	19 mW	SN54S20	J, W	SN74S20	J, N	5-10
	6 ns	22 mW	SN54H20	J, W	SN74H20	J, N	
	9.5 ns	2 mW	SN54LS20	J, W	SN74LS20	J, N	
	10 ns	10 mW	SN5420	J, W	SN7420	J, N	
	33 ns	1 mW	SN54L20	J, T	SN74L20	J, N	
8-INPUT POSITIVE-NAND GATES	3 ns	19 mW	SN54S30	J, W	SN74S30	J, N	5-12
	6 ns	22 mW	SN54H30	J, W	SN74H30	J, N	
	17 ns	2.4 mW	SN54LS30	J, W	SN74LS30	J, N	
	10 ns	10 mW	SN5430	J, W	SN7430	J, N	
	33 ns	1 mW	SN54L30	J, T	SN74L30	J, N	
13-INPUT POSITIVE-NAND GATES	3 ns	19 mW	SN54S133	J, W	SN74S133	J, N	5-38

POSITIVE-NAND GATES AND INVERTERS WITH OPEN-COLLECTOR OUTPUTS
ELECTRICAL TABLES – PAGE 6-4

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
			–55° C to 125° C		0° C to 70° C		
HEX INVERTERS	5 ns	17.5 mW	SN54S05	J, W	SN74S05	J, N	5-7
	8 ns	22 mW	SN54H05	J, W	SN74H05	J, N	
	16 ns	2 mW	SN54LS05	J, W	SN74LS05	J, N	
	24 ns	10 mW	SN5405	J, W	SN7405	J, N	
QUADRUPLE 2-INPUT POSITIVE-NAND GATES	5 ns	17.5 mW	SN54S03	J, W	SN74S03	J, N	5-7
	8 ns	22 mW	SN54H01	J, W	SN74H01	J, N	5-6
	16 ns	2 mW	SN54LS01	J, W	SN74LS01	J, N	5-6
	16 ns	2 mW	SN54LS03	J, W	SN74LS03	J, N	5-7
	22 ns	10 mW	SN5401	J, W	SN7401	J, N	5-6
	22 ns	10 mW	SN5403	J	SN7403	J, N	5-7
	46 ns	1 mW	SN54L01	T			5-6
	46 ns	1 mW	SN54L03	J	SN74L03	J, N	5-7
TRIPLE 3-INPUT POSITIVE-NAND GATES	16 ns	2 mW	SN54LS12	J, W	SN74LS12	J, N	5-9
	22 ns	10 mW	SN5412	J, W	SN7412	J, N	
DUAL 4-INPUT POSITIVE-NAND GATES	5 ns	17.5 mW	SN54S22	J, W	SN74S22	J, N	5-11
	8 ns	22 mW	SN54H22	J, W	SN74H22	J, N	
	16 ns	2 mW	SN54LS22	J, W	SN74LS22	J, N	
	22 ns	10 mW	SN5422	J, W	SN7422	J, N	

SSI FUNCTIONS FUNCTIONAL INDEX/SELECTION GUIDE

POSITIVE-NOR GATES WITH TOTEM-POLE OUTPUTS
ELECTRICAL TABLES – PAGE 6-8

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS
			–55° C to 125° C		0° C to 70° C		PAGE NO.
QUADRUPLE 2-INPUT POSITIVE-NOR GATES	3.5 ns	29 mW	SN54S02	J, W	SN74S02	J, N	5-6
	10 ns	2.75 mW	SN54LS02	J, W	SN74LS02	J, N	
	10 ns	14 mW	SN5402	J, W	SN7402	J, N	
	33 ns	1.5 mW	SN54L02	J, T	SN74L02	J, N	
TRIPLE 3-INPUT POSITIVE-NOR GATES	8.5 ns	22 mW	SN5427	J, W	SN7427	J, N	5-12
	10 ns	4.5 mW	SN54LS27	J, W	SN74LS27	J, N	
DUAL 4-INPUT POSITIVE-NOR GATES WITH STROBE	10.5 ns	23 mW	SN5425	J, W	SN7425	J, N	5-11
DUAL 5-INPUT POSITIVE-NOR GATES	4 ns	54 mW	SN54S260	J, W	SN74S260	J, N	5-58

POSITIVE-AND GATES WITH TOTEM-POLE OUTPUTS
ELECTRICAL TABLES – PAGE 6-10

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
			–55°C to 125°C		0°C to 70°C		
QUADRUPLE 2-INPUT POSITIVE-AND GATES	4.75 ns	32 mW	SN54S08	J, W	SN74S08	J, N	5-8
	12 ns	4.25 mW	SN54LS08	J, W	SN74LS08	J, N	
	15 ns	19 mW	SN5408	J, W	SN7408	J, N	
TRIPLE 3-INPUT POSITIVE-AND GATES	4.75 ns	31 mW	SN54S11	J, W	SN74S11	J, N	5-9
	8.2 ns	40 mW	SN54H11	J, W	SN74H11	J, N	
	12 ns	4.25 mW	SN54LS11	J, W	SN74LS11	J, N	
DUAL 4-INPUT POSITIVE-AND GATES	8.2 ns	40 mW	SN54H21	J, W	SN74H21	J, N	5-11
	12 ns	4.25 mW	SN54LS21	J, W	SN74LS21	J, N	

POSITIVE-AND GATES WITH OPEN-COLLECTOR OUTPUTS
ELECTRICAL TABLES – PAGE 6-12

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
			–55° C to 125° C		0° C to 70° C		
QUADRUPLE 2-INPUT POSITIVE-AND GATES	6.5 ns	32 mW	SN54S09	J, W	SN74S09	J, N	5-8
	18.5 ns	19.4 mW	SN5409	J, W	SN7409	J, N	
	20 ns	4.25 mW	SN54LS09	J, W	SN74LS09	J, N	
TRIPLE 3-INPUT POSITIVE-AND GATES	6 ns	28 mW	SN54S15	J, W	SN74S15	J, N	5-10
	10.5 ns	38 mW	SN54H15	J, W	SN74H15	J, N	
	20 ns	4.25 mW	SN54LS15	J, W	SN74LS15	J, N	

SCHMITT-TRIGGER POSITIVE-NAND GATES AND INVERTERS WITH TOTEM-POLE OUTPUTS
ELECTRICAL TABLES – PAGE 6-14

DESCRIPTION	TYPICAL HYSTERESIS	TYPICAL DELAY TIME	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS
			–55°C to 125°C		0°C to 70°C		PAGE NO.
HEX SCHMITT TRIGGER INVERTERS	0.8 V	15 ns	SN5414	J, W	SN7414	J, N	5-9
	0.8 V	15 ns	SN54LS14	J, W	SN74LS14	J, N	
QUADRUPLE 2-INPUT POSITIVE-NAND SCHMITT TRIGGERS	0.55 V	8 ns	SN54S132	J, W	SN74S132	J, N	5-37
	0.8 V	15 ns	SN54132	J, W	SN74132	J, N	
	0.8 V	15 ns	SN54LS132	J, W	SN74LS132	J, N	
DUAL 4-INPUT POSITIVE-NAND SCHMITT TRIGGERS	0.8 V	16.5 ns	SN5413	J, W	SN7413	J, N	5-9
	0.8 V	16.5 ns	SN54LS13	J, W	SN74LS13	J, N	

SSI FUNCTIONS FUNCTIONAL INDEX/SELECTION GUIDE

BUFFERS/CLOCK DRIVERS WITH TOTEM-POLE OUTPUTS (ALSO SEE 3-STATE BUFFERS AND DRIVERS ON PAGE 1-13)

ELECTRICAL TABLES – PAGE 6-20

DESCRIPTION	LOW-LEVEL OUTPUT CURRENT	HIGH-LEVEL OUTPUT CURRENT	TYPICAL DELAY TIME	TYP POWER PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
					–55°C to 125°C		0°C to 70°C		
					QUADRUPLE 2-INPUT POSITIVE-NOR BUFFERS	48 mA 24 mA 12 mA	–2.4 mA –1.2 mA –1.2 mA	7 ns 12 ns 12 ns	28 mW 5.5 mW 5.5 mW
QUADRUPLE 2-INPUT POSITIVE-NAND BUFFERS	60 mA 48 mA 24 mA 12 mA	–3 mA –1.2 mA –1.2 mA –1.2 mA	4 ns 10.5 ns 12 ns 12 ns	41 mW 27 mW 4.3 mW 4.3 mW	SN54S37 SN5437 SN54LS37	J, W J, W J, W	SN74S37 SN7437 SN74LS37	J, N J, N J, N	5-13
DUAL 4-INPUT POSITIVE-NAND BUFFERS	60 mA 60 mA 48 mA 24 mA 12 mA	–3 mA –1.5 mA –1.2 mA –1.2 mA –1.2 mA	4 ns 7.5 ns 10.5 ns 12 ns 12 ns	44 mW 44 mW 26 mW 4.3 mW 4.3 mW	SN54S40 SN54H40 SN5440 SN54LS40	J, W J, W J, W J, W	SN74S40 SN74H40 SN7440 SN74LS40	J, N J, N J, N J, N	5-14

50-OHM/75-OHM LINE DRIVERS

ELECTRICAL TABLES – PAGE 6-22

DESCRIPTION	LOW-LEVEL OUTPUT CURRENT	HIGH-LEVEL OUTPUT CURRENT	TYPICAL DELAY TIME	TYP POWER PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
					–55°C to 125°C		0°C to 70°C		
DUAL 4-INPUT POSITIVE-NAND LINE DRIVERS	60 mA	–40 mA	4 ns	44 mW	SN54S140	J, W	SN74S140	J, N	5-39
QUADRUPLE 2-INPUT POSITIVE-NOR LINE DRIVERS	48 mA 48 mA	–42.4 mA –29 mA	7 ns 7 ns	28 mW 28 mW	SN54128	J, W	SN74128	J, N	5-37

BUFFER AND INTERFACE GATES WITH OPEN-COLLECTOR OUTPUTS

ELECTRICAL TABLES – PAGES 6-24 AND 6-26

DESCRIPTION	HIGH-LEVEL OUTPUT VOLTAGE	LOW-LEVEL OUTPUT CURRENT	TYPICAL DELAY TIME	TYP POWER PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS
					–55° C to 125° C		0° C to 70° C		PAGE NO.
HEX BUFFERS/DRIVERS	30 V	40 mA	13 ns	21 mW	SN5407	J, W	SN7407	J, N	5-8
	30 V	30 mA	13 ns	21 mW					
	15 V	40 mA	13 ns	21 mW	SN5417	J, W	SN7417	J, N	5-10
	15 V	30 mA	13 ns	21 mW					
HEX INVERTER BUFFERS/DRIVERS	30 V	40 mA	12.5 ns	26 mW	SN5406	J, W	SN7406	J, N	5-7
	30 V	30 mA	12.5 ns	26 mW					
	15 V	40 mA	12.5 ns	26 mW	SN5416	J, W	SN7416	J, N	5-10
	15 V	30 mA	12.5 ns	26 mW					
QUADRUPLE 2-INPUT POSITIVE-NAND BUFFERS	15 V	16 mA	13.5 ns	10 mW	SN5426	J	SN7426	J, N	5-12
	15 V	8 mA	16 ns	2 mW			SN74LS26	J, N	5-12
	15 V	4 mA	16 ns	2 mW	SN54LS26	J, W			5-12
	5.5 V	60 mA	6.5 ns	41 mW	SN54S38	J, W	SN74S38	J, N	5-13
	5.5 V	48 mA	12.5 ns	24.4 mW	SN5438	J, W	SN7438	J, N	5-13
	5.5 V	24 mA	19 ns	4.3 mW			SN74LS38	J, N	5-13
	5.5 V	12 mA	19 ns	4.3 mW	SN54LS38	J, W			5-13
QUADRUPLE 2-INPUT POSITIVE- NOR BUFFERS	5.5 V	48 mA	11 ns	28 mW	SN5433	J, W	SN7433	J, N	5-13
	5.5 V	24 mA	19 ns	5.45 mW			SN74LS33	J, N	
	5.5 V	12 mA	19 ns	5.45 mW	SN54LS33	J, W			

MSI/LSI FUNCTIONS FUNCTIONAL INDEX/SELECTION GUIDE

GATES, BUFFERS, DRIVERS, AND BUS TRANSCEIVERS WITH 3-STATE OUTPUTS

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	MAXIMUM SOURCE CURRENT	MAXIMUM SINK CURRENT	DEVICE TYPE AND PACKAGE		PIN ASSIGNMENTS PAGE NO.	ELECTRICAL CHARACTERISTICS PAGE NO.
				-55°C to 125°C	0°C to 70°C		
12-INPUT NAND GATE	4.5 ns 4.5 ns	-6.5 mA -2 mA	20 mA 20 mA	SN54S134	J, W	SN74S134 J, N	5-38 6-33
QUADRUPLE BUS BUFFERS/DRIVERS WITH INDEPENDENT OUTPUT CONTROLS	8 ns	-2.6 mA	16 mA	SN74LS125	J, W	SN74LS125 J, N	5-37
	8 ns	-1 mA	8 mA	SN54LS125	J, W	SN74LS126 J, N	5-37
	8.5 ns	-2.6 mA	16 mA	SN74LS126	J, W	SN74LS126 J, N	5-37
	8.5 ns	-1 mA	8 mA	SN54LS126	J, W	SN74LS125 J, N	5-37
	10 ns	-5.2 mA	16 mA	SN54125	J, W	SN74125 J, N	5-37
	10 ns	-2 mA	16 mA	SN54125	J, W	SN74425 J, N	5-37
	10 ns	-5.2 mA	16 mA	SN54126	J, W	SN74126 J, N	5-37
	10 ns	-2 mA	16 mA	SN54126	J, W	SN74425 J, N	5-37
	10 ns	-5.2 mA	16 mA	SN54425	J, W	SN74425 J, N	5-74
	10 ns	-2 mA	16 mA	SN54425	J, W	SN74426 J, N	5-74
HEX BUS BUFFERS/DRIVERS	9.5 ns	-2.6 mA	16 mA	SN74LS365	J, W	SN74LS365 J, N	5-68
	9.5 ns	-1 mA	8 mA	SN54LS365	J, W	SN74LS366 J, N	5-68
	9.5 ns	-2.6 mA	16 mA	SN74LS366	J, W	SN74LS367 J, N	5-68
	9.5 ns	-1 mA	8 mA	SN54LS366	J, W	SN74LS367 J, N	5-69
	9.5 ns	-1 mA	8 mA	SN54LS367	J, W	SN74LS368 J, N	5-69
	9.5 ns	-2.6 mA	16 mA	SN54LS367	J, W	SN74LS368 J, N	5-69
	9.5 ns	-1 mA	8 mA	SN54LS368	J, W	SN74366A J, N	5-69
	11 ns	-5.2 mA	32 mA	SN54366A	J, W	SN74368A J, N	5-68
	11 ns	-2 mA	32 mA	SN54368A	J, W	SN74365A J, N	5-68
	11 ns	-5.2 mA	32 mA	SN54368A	J, W	SN74365A J, N	5-68
	11 ns	-2 mA	32 mA	SN54365A	J, W	SN74367A J, N	5-68
	12 ns	-5.2 mA	32 mA	SN54365A	J, W	SN74367A J, N	5-68
	12 ns	-2 mA	32 mA	SN54367A	J, W		5-69
	12 ns	-5.2 mA	32 mA	SN54367A	J, W		5-69
OCTAL BUS BUFFERS/DRIVERS	5 ns	-15 mA	64 mA	SN74S240	J	SN74S240 J, N	5-54
	5 ns	-12 mA	48 mA	SN54S240	J	SN74S241 J, N	5-54
	5 ns	-15 mA	64 mA	SN54S241	J	SN74LS240 J, N	5-55
	10 ns	-12 mA	48 mA	SN74LS240	J	SN74LS241 J, N	5-55
	10 ns	-15 mA	24 mA	SN54LS240	J	SN74LS241 J, N	5-55
	10 ns	-12 mA	12 mA	SN54LS241	J	SN74LS244 J, N	5-55
	10 ns	-15 mA	24 mA	SN54LS241	J	SN74LS244 J, N	5-55
	10 ns	-12 mA	12 mA	SN54LS244	J		5-55
CONTROLLER AND BUS DRIVER FOR 8080A SYSTEMS (MSI)		-1 mA -1 mA	10 mA 10 mA			SN74S428 N SN74S438 N	7-514
QUADRUPLE TRANSCEIVERS	11 ns	-15 mA	24 mA	SN74LS242	J, W	SN74LS242 J, N	5-55
	11 ns	-12 mA	12 mA	SN74LS243	J, W	SN74LS243 J, N	5-55
	12 ns	-15 mA	24 mA	SN54LS242	J, W		5-55
QUADRUPLE TRANSCEIVERS WITH STORAGE (MSI)	10 ns	-10.3 mA -6.5 mA	20 mA 20 mA	SN54S226	J, W	SN74S226 J, N	7-345
OCTAL TRANSCEIVERS (MSI)	12 ns	-15 mA	24 mA	SN74LS245	J	SN74LS245 J, N	7-349
	12 ns	-12 mA	12 mA	SN54LS245	J		7-349

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POSITIVE-OR GATES WITH TOTEM-POLE OUTPUTS

ELECTRICAL TABLES – PAGE 6-28

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE			PIN ASSIGNMENTS PAGE NO.
			–55° C to 125° C		0° C to 70° C	
QUADRUPLE 2 INPUT POSITIVE-OR GATES	4 ns	35 mW	SN54S32	J, W	SN74S32	J, N
	12 ns	24 mW	SN5432	J, W	SN7432	J, N
	12 ns	5 mW	SN54LS32	J, W	SN74LS32	J, N

AND-OR-INVERT GATES WITH TOTEM-POLE OUTPUTS

ELECTRICAL TABLES – PAGE 6-30

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
			–55° C to 125° C		0° C to 70° C		
2-WIDE 4-INPUT	12.5 ns	2.75 mW	SN54LS55	J, W	SN74LS55	J, N	5-19
	43 ns	1.5 mW	SN54L55	J, T	SN74L55	J, N	
4-WIDE 4-2-3-2-INPUT	3.5 ns	29 mW	SN54S64	J, W	SN74S64	J, N	5-20
4-WIDE 2-2-3-2-INPUT	6.6 ns	41 mW	SN54H54	J, W	SN74H54	J, N	5-18
4-WIDE 2-INPUT	10.5 ns	23 mW	SN5454	J, W	SN7454	J, N	5-18
4-WIDE 2-3-3-2-INPUT	12.5 ns	4.5 mW	SN54LS54	J, W	SN74LS54	J, N	5-18
4-WIDE 2-3-3-2-INPUT	43 ns	1.5 mW	SN54L54	J, T	SN74L54	J, N	5-18
DUAL 2-WIDE 2-INPUT	3.5 ns	28 mW	SN54S51	J, W	SN74S51	J, N	5-16
	6.5 ns	29 mW	SN54H51	J, W	SN74H51	J, N	
	10.5 ns	14 mW	SN5451	J, W	SN7451	J, N	
	12.5 ns	2.75 mW	SN54LS51	J, W	SN74LS51	J, N	
	43 ns	1.5 mW	SN54L51	J, T	SN74L51	J, N	

AND-OR-INVERT GATES WITH OPEN-COLLECTOR OUTPUTS

ELECTRICAL TABLES – PAGE 6-32

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
			–55° C to 125° C		0° C to 70° C		
4-WIDE 4-2-3-2-INPUT	5.5 ns	36 mW	SN54S65	J, W	SN74S65	J, N	5-20

EXPANDABLE GATES

ELECTRICAL TABLE – PAGE 6-39

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
			–55°C to 125°C		0°C to 70°C		
DUAL 4-INPUT POSITIVE-NOR GATES WITH STROBE	10.5 ns	23 mW	SN5423	J, W	SN7423	J, N	5-11
4-WIDE AND-OR GATES	9.9 ns	88 mW	SN54H52	J, W	SN74H52	J, N	5-17
4-WIDE AND-OR-INVERT GATES	6.6 ns	41 mW	SN54H53	J, W	SN74H53	J, N	5-17
	10.5 ns	23 mW	SN5453	J, W	SN7453	J, N	
2-WIDE AND-OR-INVERT GATES	6.8 ns	30 mW	SN54H55	J, W	SN74H55	J, N	5-19
DUAL 2-WIDE AND-OR-INVERT GATES	6.5 ns	29 mW	SN54H50	J, W	SN74H50	J, N	5-16
	10.5 ns	14 mW	SN5450	J, W	SN7450	J, N	

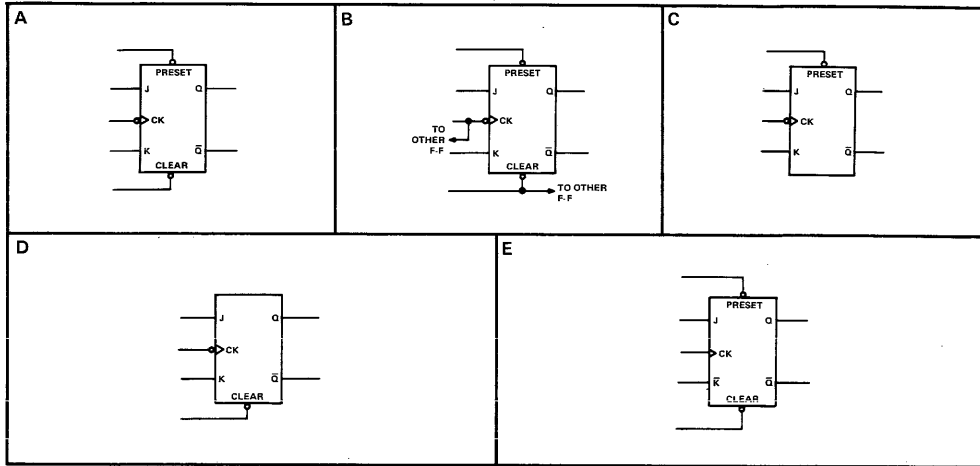
EXPANDERS

ELECTRICAL TABLES – PAGES 6-43, 6-44, AND 6-45

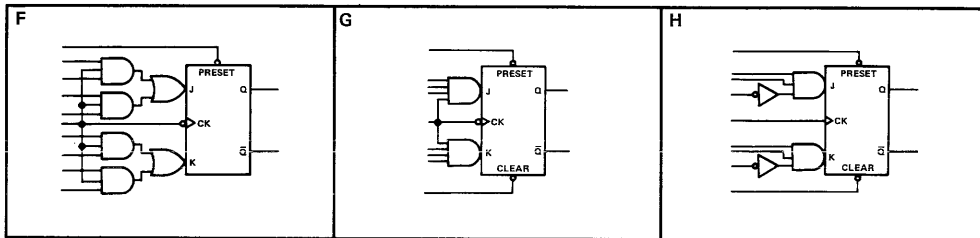
DESCRIPTION	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
		–55° C to 125° C		0° C to 70° C		
		4 mW	SN5460	J, W	SN7460	J, N
DUAL 4-INPUT EXPANDERS	6 mW	SN54H60	J, W	SN74H60	J, N	
TRIPLE 3-INPUT EXPANDERS	13 mW	SN54H61	J, W	SN74H61	J, N	5-19
3-2-2-3-INPUT AND-OR EXPANDERS	25 mW	SN54H62	J, W	SN74H62	J, N	5-20

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DUAL J-K EDGE-TRIGGERED FLIP-FLOPS



SINGLE J-K EDGE-TRIGGERED FLIP-FLOPS

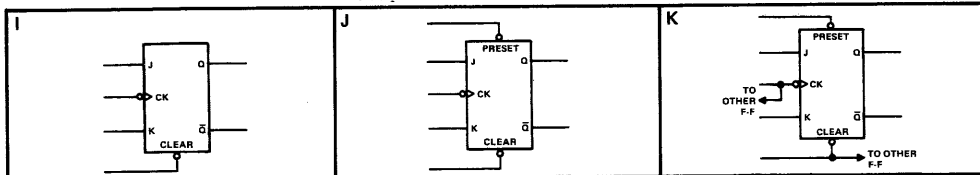


DWG REF.	TYPICAL CHARACTERISTICS		DATA TIMES		DEVICE TYPE AND PACKAGE				PAGE REFERENCES	
	f_{max} (MHz)	Pwr/F-F (mW)	SETUP (ns)	HOLD (ns)					PIN ASSIGNMENTS	ELECTRICAL
A	125	75	3↓	0↓	SN54S112	J, W	SN74S112	J, N	5-34	6-58
	50	100	13↓	0↓	SN54H106	J, W	SN74H106	J, N	5-32	6-52
	45	10	20↓	0↓	SN54LS76	J, W	SN74LS76	J, N	5-23	6-58
	45	10	20↓	0↓	SN54LS112	J, W	SN74LS112	J, N	5-34	6-56
B	125	75	3↓	0↓	SN54S114	J, W	SN74S114	J, N	5-34	6-58
	50	100	13↓	0↓	SN54H108	J, W	SN74H108	J, N	5-32	6-52
	45	10	20↓	0↓	SN54LS78	J, W	SN74LS78	J, N	5-24	6-56
	45	10	20↓	0↓	SN54LS114	J, W	SN74LS114	J, N	5-34	6-56
C	125	75	3↓	0↓	SN54S113	J, W	SN74S113	J, N	5-34	6-58
	45	10	20↓	0↓	SN54LS113	J, W	SN74LS113	J, N	5-34	6-56
D	50	100	13↓	0↓	SN54H103	J, W	SN74H103	J, N	5-31	6-52
	45	10	20↓	0↓	SN54LS73	J, W	SN74LS73	J, N	5-22	6-56
	45	10	20↓	0↓	SN54LS107	J	SN74LS107	J, N	5-32	6-56
E	33	10	20↓	5↓	SN54LS109A	J, W	SN74LS109A	J, N	5-33	6-56
	33	45	10↓	6↓	SN54109	J, W	SN74109	J, N	5-33	6-46
F	50	100	13↓	0↓	SN54H101	J, W	SN74H101	J, N	5-31	6-52
G	50	100	13↓	0↓	SN54H102	J, W	SN74H102	J, N	5-31	6-52
H	35	65	20↓	5↓	SN5470	J, W	SN7470	J, N	5-21	6-46

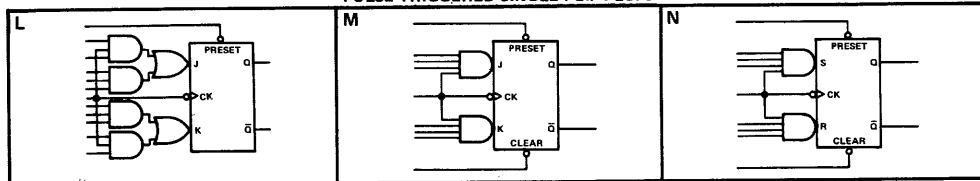
↑↓ The arrow indicates the edge of the clock pulse used for reference: ↑ for the rising edge, ↓ for the falling edge.

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PULSE-TRIGGERED DUAL FLIP-FLOPS

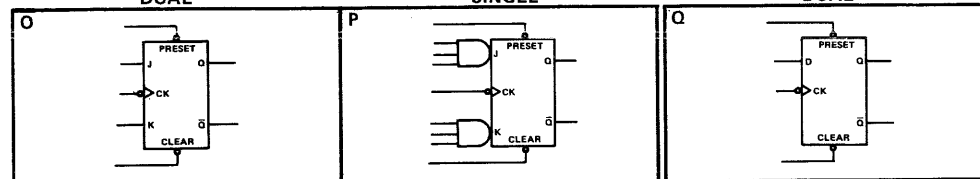


PULSE-TRIGGERED SINGLE FLIP-FLOPS



DWG. REF.	TYPICAL CHARACTERISTICS		DATA TIMES		DEVICE TYPE				PAGE REFERENCES	
					AND PACKAGE				PIN ASSIGNMENTS	ELECTRICAL
	f _{max} (MHz)	Pwr/F-F (mW)	SETUP (ns)	HOLD (ns)	-55°C to 125°C		0°C to 70°C			
I	30	80	0†	0‡	SN54H73	J, W	SN74H73	J, N	5-22	6-50
	20	50	0†	0‡	SN5473	J, W	SN7473	J, N	5-22	6-46
	20	50	0†	0‡	SN54107	J	SN74107	J, N	5-32	6-46
	3	3.8	0†	0‡	SN54L73	J, T	SN74L73	J, N	5-22	6-54
J	30	80	0†	0‡	SN54H76	J, W	SN74H76	J, N	5-23	6-50
	20	50	0†	0‡	SN5476	J, W	SN7476	J, N	5-23	6-46
K	30	80	0†	0‡	SN54H78	J, W	SN74H78	J, N	5-24	6-50
	3	3.8	0†	0‡	SN54L78	J, T	SN74L78	J, N	5-24	6-54
L	30	80	0†	0‡	SN54H71	J, W	SN74H71	J, N	5-21	6-50
M	30	80	0†	0‡	SN54H72	J, W	SN74H72	J, N	5-22	6-50
	20	50	0†	0‡	SN5472	J, W	SN7472	J, N	5-22	6-46
	3	3.8	0†	0‡	SN54L72	J, T	SN74L72	J, N	5-22	6-54
	3	3.8	0†	0‡	SN54L71	J, T	SN74L71	J, N	5-21	6-54

J-K FLIP-FLOPS WITH DATA LOCKOUT



DWG. REF.	TYPICAL CHARACTERISTICS		DATA TIMES		DEVICE TYPE				PAGE REFERENCES	
					AND PACKAGE				PIN ASSIGNMENTS	ELECTRICAL
	$f_{\max}$ (MHz)	Pwr/F-F (mW)	SETUP (ns)	HOLD (ns)	-55°C to 125°C		0°C to 70°C			
O	25	70	0†	30†	SN54111	J, W	SN74111	J, N	5-33	6-46
P	25	100	20†	5†	SN54110	J, W	SN74110	J, N	5-33	6-46
Q	110	75	3†	2†	SN54S74	J, W	SN74S74	J, N	5-22	6-58
	43	75	15†	5†	SN54H74	J, W	SN74H74	J, N	5-22	6-50
	33	10	25†	5†	SN54LS74A	J, W	SN74LS74A	J, N	5-22	6-56
	25	43	20†	5†	SN5474	J, W	SN7474	J, N	5-22	6-46
	3	4	50†	15†	SN54L74	J, T	SN74L74	J, N	5-22	6-54

†‡ The arrow indicates the edge of the clock pulse used for reference: † for the rising edge, ‡ for the falling edge.

SSI FUNCTIONS FUNCTIONAL INDEX/SELECTION GUIDE

S-R LATCHES

ELECTRICAL TABLES – PAGE 6-60

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
			–55° C to 125° C		0° C to 70° C		
QUADRUPLE S-R LATCHES	12 ns	19 mW	SN54LS279	J, W	SN74LS279	J, N	5-60
	12 ns	90 mW	SN54279	J, W	SN74279	J, N	

CURRENT-SENSING-GATES

ELECTRICAL TABLES – PAGE 6-62

DESCRIPTION	TYPICAL PROPAGATION DELAY TIME	TYP POWER DISSIPATION PER GATE	DEVICE TYPE AND PACKAGES				PIN ASSIGNMENTS
			–55°C to 125°C		0°C to 70°C		PAGE NO.
			HEX	21 ns	3.3 mW	SN54LS63	

MONOSTABLE MULTIVIBRATORS WITH SCHMITT-TRIGGER INPUTS

ELECTRICAL TABLES – PAGES 6-64 AND 6-68

DESCRIPTION	NO. OF INPUTS		OUTPUT PULSE RANGE	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
	POSITIVE	NEGATIVE			-55° C to 125° C		0° C to 70° C		
SINGLE	1	2	40 ns-28 s	90 mW	SN54121	J, W	SN74121	J, N	5-35
	1	2	40 ns-28 s	40 mW	SN54L121	J, T	SN74L121	J, N	
DUAL	1	1	20 ns-70 s	23 mW	SN54LS221	J, W	SN74LS221	J, N	5-54
	1	1	20 ns-49 s	23 mW					
	1	1	20 ns-28 s	130 mW	SN54221	J, W	SN74221	J, N	
	1	1	20 ns-21 s	130 mW					

RETRIGGERABLE MONOSTABLE MULTIVIBRATORS

ELECTRICAL TABLES – PAGE 6-76

DESCRIPTION	NO. OF INPUTS		DIRECT CLEAR	OUTPUT PULSE RANGE	TYP TOTAL POWER	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS PAGE NO.
	POSITIVE	NEGATIVE				–55°C to 125°C		0°C to 70°C		
SINGLE	2	2	Yes	45 ns–∞	115 mW	SN54122	J, W	SN74122	J, N	5-36
	2	2	Yes	90 ns–∞	55 mW	SN54L122	J, T	SN74L122	J, N	
	2	2	Yes	45 ns–∞	30 mW	SN54LS122	J, W	SN74LS122	J, N	
DUAL	1	1	Yes	45 ns–∞	230 mW	SN54123	J, W	SN74123	J, N	5-36
	1	1	Yes	90 ns–∞	115 mW	SN54L123	J	SN74L123	J, N	
	1	1	Yes	45 ns–∞	60 mW	SN54LS123	J, W	SN74LS123	J, N	

CLOCK GENERATOR CIRCUITS

ELECTRICAL TABLES – PAGES 6-89 AND 7-123

DESCRIPTION	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PIN ASSIGNMENTS
		–55° C to 125° C		0° C to 70° C		PAGE NO.
QUADRUPLE COMPLEMENTARY-OUTPUT LOGIC ELEMENTS	125 mW	SN54265	J, W	SN74265	J, N	5-58
DUAL VOLTAGE-CONTROLLED OSCILLATORS (MSI)	90 mW	SN54LS124	J, W	SN74LS124	J, N	7-123
	525 mW	SN54S124	J, W	SN74S124	J, N	

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ADDERS

DESCRIPTION	TYPICAL CARRY TIME	TYPICAL ADD TIME	TYP POWER DISSIPATION PER BIT	DEVICE TYPE AND PACKAGE				PAGE NO.
				-55°C to 125°C		0°C to 70°C		
SINGLE 1-BIT GATED FULL ADDERS	10.5 ns	52 ns	105 mW	SN5480	J, W	SN7480	J, N	7-41
SINGLE 2-BIT FULL ADDERS	14.5 ns	25 ns	87 mW	SN5482	J, W	SN7482	J, N	7-49
SINGLE 4-BIT FULL ADDERS	10 ns	15 ns	24 mW	SN54LS83A	J, W	SN74LS83A	J, N	7-53
	10 ns	15 ns	24 mW	SN54LS283	J, W	SN74LS283	J, N	7-415
	11 ns	7 ns	124 mW	SN54S283	J	SN74S283	J, N	7-415
	10 ns	16 ns	76 mW	SN5483A	J, W	SN7483A	J, N	7-53
	10 ns	16 ns	76 mW	SN54283	J, W	SN74283	J, N	7-415
DUAL 1-BIT CARRY-SAVE FULL ADDERS	11 ns	11 ns	110 mW	SN54H183	J, W	SN74H183	J, N	7-287
	15 ns	15 ns	23 mW	SN54LS183*	J, W	SN74LS183*	J, N	7-287

ACCUMULATORS, ARITHMETIC LOGIC UNITS, LOOK-AHEAD CARRY GENERATORS

DESCRIPTION	TYPICAL CARRY TIME	TYPICAL ADD TIME	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
				-55°C to 125°C		0°C to 70°C		
4-BIT PARALLEL BINARY ACCUMULATORS	10 ns	20 ns	720 mW	SN54S281	J, W	SN74S281	J, N	7-410
4-BIT ARITHMETIC LOGIC UNITS/ FUNCTION GENERATORS	11 ns	20 ns	525 mW			SN74S381	N	7-484
	7 ns	11 ns	600 mW	SN54S181	J, W	SN74S181	J, N	7-271
	12.5 ns	24 ns	455 mW	SN54181	J, W	SN74181	J, N	7-271
	16 ns	24 ns	102 mW	SN54LS181	J, W	SN74LS181	J, N	7-271
LOOK-AHEAD CARRY GENERATORS	7 ns		260 mW	SN54S182	J, W	SN74S182	J, N	7-282
	13 ns		180 mW	SN54182	J, W	SN74182	J, N	

MULTIPLIERS

DESCRIPTION	DEVICE TYPE AND PACKAGE				PAGE NO.
	-55°C to 125°C		0°C to 70°C		
2-BIT-BY-4-BIT PARALLEL BINARY MULTIPLIERS	SN54LS261	J, W	SN74LS261	J, N	7-380
4-BIT-BY-4-BIT PARALLEL BINARY MULTIPLIERS	SN54284, SN54285	J, W	SN74284, SN74285	J, N	7-420
	SN54S274	J	SN74S274	J, N	7-391
7-BIT-SLICE WALLACE TREES	SN54LS275	J	SN74LS275	J, N	7-391
	SN54S275	J	SN74S275	J, N	7-102
25-MHz 6-BIT-BINARY RATE MULTIPLIERS	SN5497	J, W	SN7497	J, N	7-102
25-MHz DECADE RATE MULTIPLIERS	SN54167	J, W	SN74167	J, N	7-222

COMPARATORS

COMPARATORS							
DESCRIPTION	TYPICAL COMPARE TIME	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
			-55°C to 125°C		0°C to 70°C		
4-BIT MAGNITUDE COMPARATORS	11.5 ns	365 mW	SN54S85	J, W	SN74S85	J, N	7-57
	21 ns	275 mW	SN5485	J, W	SN7485	J, N	
	23.5 ns	52 mW	SN54LS85	J, W	SN74LS85	J, N	
	82 ns	20 mW	SN54L85	J	SN74L85	J, N	

* New product in development as of October 1976.

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PARITY GENERATORS/CHECKERS

DESCRIPTION	TYPICAL DELAY TIME	TYP TOTAL POWER DISSIPATION	DEVICE TYPE						PAGE NO.
			-55°C to 125°C			0°C to 70°C			
			9-BIT ODD/EVEN PARITY GENERATORS/CHECKERS	31 ns 13 ns	80 mW 335 mW	SN54LS280 SN54S280	J, W J, W	SN74LS280 SN74S280	J, N J, N
8-BIT ODD/EVEN PARITY GENERATORS/CHECKERS	35 ns	170 mW	SN54180	J, W	SN74180	J, N	7-269		

OTHER ARITHMETIC OPERATORS

DESCRIPTION	TYPICAL	TYP TOTAL	DEVICE TYPE				PAGE
	DELAY	POWER	AND PACKAGE				
	TIME	DISSIPATION	-55° C to 125° C		0° C to 70° C		
QUADRUPLE 2-INPUT EXCLUSIVE-OR GATES WITH TOTEM-POLE OUTPUTS	7 ns	250 mW	SN54S86	J, W	SN74S86	J, N	7-65
	10 ns	30 mW	SN54LS86	J, W	SN74LS86	J, N	7-65
	10 ns	30 mW	SN54LS386	J, W	SN74LS386	J, N	7-487
	14 ns	150 mW	SN5486	J, W	SN7486	J, N	7-65
	55 ns	15 mW	SN54L86	J, T	SN74L86	J, N	7-65
QUADRUPLE 2-INPUT EXCLUSIVE-OR GATES WITH OPEN-COLLECTOR OUTPUTS	18 ns	30 mW	SN54LS136	J, W	SN74LS136	J, N	7-131
	27 ns	150 mW	SN54136	J, W	SN74136	J, N	
QUADRUPLE 2-INPUT EXCLUSIVE-NOR GATES	18 ns	40 mW	SN54LS266	J, W	SN74LS266	J, N	7-386
QUADRUPLE EXCLUSIVE OR/NOR GATES	8 ns	325 mW	SN54S135	J, W	SN74S135	J, N	7-129
4-BIT TRUE/COMPLEMENT, ZERO/ONE ELEMENT	14 ns	270 mW	SN54H87	J, W	SN74H87	J, N	7-70

QUAD, HEX, AND OCTAL FLIP-FLOPS

DESCRIPTION	F-F PER PKG	FREQ	POWER PER FLIP-FLOP	DATA TIMES		DEVICE TYPE AND PACKAGE				PAGE NO.
				SETUP ns	HOLD ns	-55°C to 125°C		0°C to 70°C		
D TYPE 3-STATE WITH ENABLE	8	50 MHz	26 mW	20†	0†	SN54LS364*	J	SN74LS364*	J, N	7-467
		50 MHz	17 mW	20†	0†	SN54LS374*	J	SN74LS374*	J, N	7-471
		100 MHz	56 mW	5†	2†	SN54S374	J	SN74S374	J, N	7-471
D TYPE WITH ENABLE	8	40 MHz	10.6 mW	20†	5†	SN54LS377	J	SN74LS377	J, N	7-481
	6	40 MHz	10.6 mW	20†	5†	SN54LS378	J, W	SN74LS378	J, N	7-481
	4	40 MHz	10.6 mW	20†	5†	SN54LS379	J	SN74LS379	J, N	7-481
D TYPE WITH CLEAR	8	40 MHz	39 mW	20†	5†	SN54273	J	SN74273	J, N	7-388
		40 MHz	10.6 mW	20†	5†	SN54LS273	J	SN74LS273	J, N	
		35 MHz	38 mW	20†	5†	SN54174	J, W	SN74174	J, N	
	6	40 MHz	10.6 mW	20†	5†	SN54LS174	J, W	SN74LS174	J, N	7-253
		110 MHz	75 mW	5†	3†	SN54S174	J, W	SN74S174	J, N	
		35 MHz	38 mW	20†	5†	SN54175	J, W	SN74175	J, N	
	4	40 MHz	10.6 mW	20†	5†	SN54LS175	J, W	SN74LS175	J, N	7-253
		110 MHz	75 mW	5†	3†	SN54S175	J, W	SN74S175	J, N	
		40 MHz	10.6 mW	20†	5†	SN54LS175	J, W	SN74LS175	J, N	
J-K TYPE WITH SEPARATE CLOCK	4	50 MHz	75 mW	3↓	10↓	SN54276	J	SN74276	J, N	7-401
J-K TYPE WITH COMMON CLOCK	4	45 MHz	65 mW	0†	20†	SN54376	J, W	SN74376	J, N	7-479

REGISTER FILES

DESCRIPTION	TYPICAL ADDRESS TIME	TYP READ ENABLE TIME	DATA INPUT RATE	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
					-55°C to 125°C		0°C to 70°C		
EIGHT WORDS OF TWO BITS	33 ns	15 ns	20 MHz	560 mW			SN74172	J, N	7-245
FOUR WORDS OF FOUR BITS	27 ns	15 ns	20 MHz	125 mW	SN54LS170	J, W	SN74LS170	J, N	7-237
	30 ns	15 ns	20 MHz	635 mW	SN54170	J, W	SN74170	J, N	
FOUR WORDS OF FOUR BITS (3-STATE OUTPUTS)	24 ns	19 ns	20 MHz	135 mW	SN54LS670	J, W	SN74LS670	J, N	7-526

* New product in development as of October 1976.

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SHIFT REGISTERS

DESCRIPTION	NO. OF BITS	SHIFT FREQ	SERIAL DATA INPUT	ASYNC CLEAR	MODES			TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.	
					SRT	S-LT	LOAD		-55°C to 125°C		0°C to 70°C			
PARALLEL-IN, PARALLEL-OUT (BIDIRECTIONAL)	8	50 MHz	D	Low	X	X	X	750 mW	SN54S299	J, W	SN74S299	J, N	7-437	
		35 MHz	D	Low	X	X	X	175 mW	SN54LS299*	J	SN74LS299*	J, N	7-437	
		35 MHz	D	Sync L	X	X	X	175 mW	SN54LS323*	J	SN74LS323*	J, N	7-443	
		25 MHz	D	Low	X	X	X	360 mW	SN54198	J, W	SN74198	J, N	7-338	
	4	70 MHz	D	Low	X	X	X	450 mW	SN54S194	J, W	SN74S194	J, N	7-316	
		25 MHz	D	Low	X	X	X	75 mW	SN54LS194A	J, W	SN74LS194A	J, N		
25 MHz		D	Low	X	X	X	195 mW	SN54194	J, W	SN74194	J, N			
PARALLEL-IN, PARALLEL-OUT	8	25 MHz	J-K	Low	X	X	X	360 mW	SN54199	J, W	SN74199	J, N	7-338	
		5	10 MHz	D	Low	X	X	X	60 mW	SN54LS96	J, W	SN74LS96	J, N	7-95
			10 MHz	D	Low	X	X	X	240 mW	SN5496	J, W	SN7496	J, N	
	5 MHz		D	Low	X	X	X	120 mW	SN54L96	J	SN74L96	J, N		
	4	70 MHz	J-K	Low	X	X	X	375 mW	SN54S195	J, W	SN74S195	J, N	7-324	
		30 MHz	J-K	Low	X	X	X	195 mW	SN54195	J, W	SN74195	J, N	7-324	
		25 MHz	D	Low	X	X	X	75 mW	SN54LS395A*	J, W	SN74LS395A*	J, N	7-496	
		25 MHz	D	None	X	X	X	195 mW	SN5495A	J, W	SN7495A	J, N	7-89	
		25 MHz	D	Low	X	X	X	230 mW	SN54179	J, W	SN74179	J, N	7-265	
		25 MHz	D	None	X	X	X	230 mW	SN54178	J, W	SN74178	J, N	7-265	
		30 MHz	J-K	Low	X	X	X	70 mW	SN54LS195A	J, W	SN74LS195A	J, N	7-324	
		25 MHz	D	None	X	X	X	65 mW	SN54LS95B	J, W	SN74LS95B	J, N	7-89	
		25 MHz	D	None	X	X	X	70 mW	SN54LS295B*	J, W	SN74LS295B*	J, N	7-429	
		3 MHz	J-K	None	X	X	X	19 mW	SN54L99	J	SN74L99	J, N	7-109	
		3 MHz	D	None	X	X	X	19 mW	SN54L95	J, T	SN74L95	J, N	7-89	
SERIAL-IN, PARALLEL-OUT		8	25 MHz	Gated D	Low	X			80 mW	SN54LS164	J, W	SN74LS164	J, N	7-206
	25 MHz		Gated D	Low	X			167 mW	SN54164	J, W	SN74164	J, N		
	12 MHz		Gated D	Low	X			84 mW	SN54L164	J, T	SN74L164	J, N		
PARALLEL-IN, SERIAL-OUT	8	25 MHz	D	None	X	X	X	210 mW	SN54165	J, W	SN74165	J, N	7-212	
		35 MHz	D	None	X	X	X	105 mW	SN54LS165	J, W	SN74LS165	J, N	7-212	
		20 MHz	D	Low	X	X	X	360 mW	SN54166	J, W	SN74166	J, N	7-217	
		35 MHz	D	Low	X	X	X	110 mW	SN54LS166	J, W	SN74LS166	J, N	7-217	
SERIAL-IN, SERIAL-OUT	4	10 MHz	D	High	X	X		175 mW	SN5494	J, W	SN7494	J, N	7-86	
		8	25 MHz	Gated D	None	X			60 mW	SN54LS91	J, W	SN74LS91	J, N	7-81
			10 MHz	Gated D	None	X			175 mW	SN5491A	J, W	SN7491A	J, N	
			3 MHz	Gated D	None	X			17.5 mW	SN54L91	J, T	SN74L91	J, N	

*S-R = shift right, S-L = shift left

OTHER REGISTERS

DESCRIPTION	FREQ	ASYNC CLEAR	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
				-55°C to 125°C		0°C to 70°C		
QUADRUPLE MULTIPLEXERS WITH STORAGE	30 MHz	None	36,5 mW	SN54LS398	J	SN74LS398	J, N	7-499
	30 MHz	None	36,5 mW	SN54LS399	J, W	SN74LS399	J, N	7-499
	25 MHz	None	65 mW	SN54LS298	J, W	SN74LS298	J, N	7-432
	25 MHz	None	195 mW	SN54298	J, W	SN74298	J, N	7-432
	3 MHz	None	25 mW	SN54L98	J	SN74L98	J, N	7-107
8-BIT UNIVERSAL SHIFT/STORAGE REGISTERS	35 MHz	Low	175 mW	SN54LS299*	J	SN74LS299*	J, N	7-437
	50 MHz	Low	750 mW	SN54S299	J, W	SN74S299	J, N	
QUADRUPLE BUS-BUFFER REGISTERS	25 MHz	High	250 mW	SN54173	J, W	SN74173	J, N	7-249
	50 MHz	High	85 mW	SN54LS173*	J, W	SN74LS173*	J, N	

*New product in development as of October 1976.

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LATCHES

DESCRIPTION	NO. OF BITS	CLEAR	OUTPUTS	TYPICAL DELAY TIME	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
						-55°C to 125°C		0°C to 70°C		
MULTI-MODE BUFFERED	8	Low	Q	11 ns	410 mW	SN54S412	J	SN74S412	J, N	7-502
ADDRESSABLE	8	Low	Q	12 ns	300 mW	SN54259	J, W	SN74259	J, N	7-376
		Low	Q	17 ns	110 mW	SN54LS259	J, W	SN74LS259	J, N	
TRANSPARENT	8	None	Q	17 ns	210 mW	SN54LS363*	J	SN74LS363*	J, N	7-467
		None	Q	19 ns	120 mW	SN54LS373*	J	SN74LS373*	J, N	7-471
		None	Q	7 ns	525 mW	SN54S373	J	SN74S373	J, N	7-471
DUAL 4-BIT WITH INDEPENDENT ENABLE	8	Low	Q	11 ns	250 mW	SN54116	J, W	SN74116	J, N	7-115
		None	Q	15 ns	320 mW	SN54100	J, W	SN74100	J, N	7-113
DUAL 2-BIT WITH INDEPENDENT ENABLE	4	None	Q, $\bar{Q}$	15 ns	160 mW	SN5475	J, W	SN7475	J, N	7-35
		None	Q, $\bar{Q}$	30 ns	80 mW	SN54L75	J	SN74L75	J, N	7-35
		None	Q, $\bar{Q}$	11 ns	32 mW	SN54LS75	J, W	SN74LS75	J, N	7-35
		None	Q	15 ns	160 mW	SN5477	W			7-35
		None	Q	30 ns	80 mW	SN54L77	T			7-35
		None	Q	10 ns	35 mW	SN54LS77	W			7-35
		None	Q, $\bar{Q}$	12 ns	32 mW	SN54LS375	J, W	SN74LS375	J, N	7-478
QUAD $\bar{S}\text{-}\bar{R}$ (SSI)	4	None	Q	12 ns	90 mW	SN54279	J, W	SN74279	J, N	6-60
		None	Q	12 ns	19 mW	SN54LS279	J, W	SN74LS279	J, N	

CLOCK GENERATOR CIRCUITS

DESCRIPTION	TYP TOTAL POWER	DEVICE TYPE AND PACKAGE				PAGE NO.
	DISSIPATION	-55°C to 125°C		0°C to 70°C		
CLOCK GENERATOR/DRIVERS (FOR TMS 9900)	669 mW			SN74LS362*	J, N	7-460
(FOR TMS 8080A)	719 mW			SN74LS424	J, N	7-507
DUAL VOLTAGE-CONTROLLED OSCILLATOR WITH ENABLE	90 mW	SN54LS124	J, W	SN74LS124	J, N	7-123
	525 mW	SN54S124	J, W	SN74S124	J, N	7-123
	90 mW	SN54LS326	J, W	SN74LS326	J, N	7-445
DUAL VOLTAGE-CONTROLLED OSCILLATOR	150 mW	SN54LS325	J, W	SN74LS325	J, N	7-445
	150 mW	SN54LS327	J, W	SN74LS327	J, N	
VOLTAGE-CONTROLLED OSCILLATOR WITH ENABLE	90 mW	SN54LS324	J, W	SN74LS324	J, N	7-445
DUAL 30-MHz PULSE SYNCHRONIZERS/DRIVERS	255 mW	SN54120	J, W	SN74120	J, N	7-118
QUAD COMPLIMENTARY GATES (CLOCK/CLOCK) [SSI]	125 mW	SN54265	J, W	SN74265	J, N	6-89

CODE CONVERTERS

DESCRIPTION	TYPICAL DELAY TIME PER PACKAGE LEVEL	TYPICAL TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
			-55° C to 125° C		0° C to 70° C		
6-LINE-BCD TO 6-LINE BINARY, OR 4-LINE TO 4-LINE BCD 9's/BCD 10's CONVERTERS	25 ns	280 mW	SN54184	J, W	SN74184	J, N	7-290
6-BIT-BINARY TO 6-BIT-BCD CONVERTERS	25 ns	280 mW	SN54185A	J, W	SN74185A	J, N	7-290

*New product in development as of October 1976.

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PRIORITY ENCODERS/REGISTERS

DESCRIPTION	TYPICAL DELAY TIME	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
			-55°C to 125°C		0°C to 70°C		
FULL BCD PRIORITY ENCODERS	10 ns	225 mW	SN54147	J, W	SN74147	J, N	7-151
	15 ns	60 mW	SN54LS147*	J, W	SN74LS147*	J, N	
CASCADABLE OCTAL PRIORITY ENCODERS	12 ns	190 mW	SN54148	J, W	SN74148	J, N	7-151
	15 ns	60 mW	SN54LS148*	J, W	SN74LS148*	J, N	
CASCADABLE OCTAL PRIORITY ENCODERS WITH 3-STATE OUTPUTS	16 ns	63 mW	SN54LS348*	J, W	SN74LS348*	J, N	7-448
4-BIT CASCADABLE PRIORITY REGISTERS	35 ns	275 mW	SN54278	J, W	SN74278	J, N	7-403

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DATA SELECTORS/MULTIPLEXERS

DESCRIPTION	TYPE OF OUTPUT	TYPICAL DELAY TIMES			TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
		DATA TO INV OUTPUT	DATA TO NON-INV OUTPUT	FROM ENABLE		-55°C to 125°C		0°C to 70°C		
16-LINE-TO-1-LINE	2-State	11 ns		18 ns	200 mW	SN54150	J, W	SN74150	J, N	7-157
DUAL 8-LINE-TO-1-LINE	3-State	10 ns		17 ns	220 mW			SN74351	N	7-451
8-LINE-TO-1-LINE	3-State	4.5 ns	8 ns	14 ns	275 mW	SN54S251	J, W	SN74S251	J, N	7-362
	3-State	17 ns	21 ns	21 ns	250 mW	SN54251	J, W	SN74251	J, N	7-362
	3-State	17 ns	21 ns	21 ns	35 mW	SN54LS251	J, W	SN74LS251	J, N	7-362
	2-State	4.5 ns	8 ns	9 ns	225 mW	SN54S151	J, W	SN74S151	J, N	7-157
	2-State	8 ns	16 ns	22 ns	145 mW	SN54151A	J, W	SN74151A	J, N	7-157
	2-State	8 ns			130 mW	SN54152A	W			7-157
	2-State	11 ns	18 ns	27 ns	30 mW	SN54LS151	J, W	SN74LS151	J, N	7-157
	2-State	11 ns		18 ns	28 mW	SN54LS152	W			7-157
DUAL 4-LINE-TO-1-LINE	3-State		12 ns	16 ns	35 mW	SN54LS253	J, W	SN74LS253	J, N	7-369
	2-State	15 ns		22 ns	31 mW	SN54LS352	J, W	SN74LS352	J, N	7-454
	3-State	12 ns		21 ns	43 mW	SN54LS353	J, W	SN74LS353	J, N	7-457
	2-State		6 ns	9.5 ns	225 mW	SN54S153	J, W	SN74S153	J, N	7-165
	2-State		14 ns	17 ns	180 mW	SN54153	J, W	SN74153	J, N	7-165
	2-State		14 ns	17 ns	31 mW	SN54LS153	J, W	SN74LS153	J, N	7-165
	2-State		27 ns	34 ns	90 mW	SN54L153	J	SN74L153	J, N	7-165
QUADRUPLE 2-LINE-TO-1-LINE WITH STORAGE	2-State		20 ns [†]		65 mW	SN54LS298	J, W	SN74LS298	J, N	7-432
	2-State		20 ns [†]		195 mW	SN54298	J, W	SN74298	J, N	7-432
	2-State		20 ns [†]		32 mW	SN54LS398	J	SN74LS398	J, N	7-499
	2-State	20 ns [†]	20 ns [†]		37 mW	SN54LS399	J, W	SN74LS399	J, N	7-499
	2-State		120 ns [†]		25 mW	SN54L98	J	SN74L98	J, N	7-107
QUADRUPLE 2-LINE-TO-1-LINE	3-State	4 ns		14 ns	280 mW	SN54S258	J, W	SN74S258	J, N	7-372
	3-State		5 ns	14 ns	320 mW	SN54S257	J, W	SN74S257	J, N	7-372
	2-State	4 ns		7 ns	195 mW	SN54S158	J, W	SN74S158	J, N	7-181
	2-State		5 ns	8 ns	250 mW	SN54S157	J, W	SN74S157	J, N	7-181
	3-State	12 ns		20 ns	60 mW	SN54LS258A*	J, W	SN74LS258A*	J, N	7-372
	3-State		12 ns	20 ns	60 mW	SN54LS257A*	J, W	SN74LS257A*	J, N	7-372
	2-State	7 ns		12 ns	24 mW	SN54LS158	J, W	SN74LS158	J, N	7-181
	2-State		9 ns	14 ns	49 mW	SN54LS157	J, W	SN74LS157	J, N	7-181
	2-State		9 ns	14 ns	150 mW	SN54157	J, W	SN74157	J, N	7-181
	2-State		18 ns	27 ns	75 mW	SN54L157	J	SN74L157	J, N	7-181

†From clock.

*New product in development as of October 1976.

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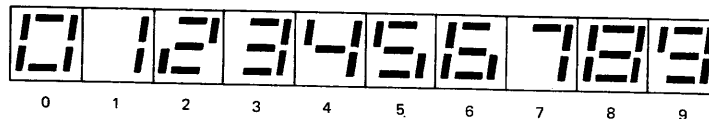
DECODERS/DEMULTIPLEXERS

DESCRIPTION	TYPE OF OUTPUT	TYPICAL SELECT TIME	TYPICAL ENABLE TIME	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
					-55°C to 125°C		0°C to 70°C		
4-LINE-TO-16-LINE	Totem-Pole	23 ns	19 ns	170 mW	SN54154	J, W	SN74154	J, N	7-171
	Totem-Pole	46 ns	38 ns	85 mW	SN54L154	J	SN74L154	J, N	7-171
	Open-Collector	24 ns	19 ns	170 mW	SN54159	J, W	SN74159	J, N	7-188
4-LINE-TO-10-LINE, BCD-TO-DECIMAL	Totem-Pole	17 ns		35 mW	SN54LS42	J, W	SN54LS42	J, N	7-15
	Totem-Pole	17 ns		140 mW	SN5442A	J, W	SN7442A	J, N	
	Totem-Pole	34 ns		70 mW	SN54L42	J	SN74L42	J, N	
4-LINE-TO-10-LINE, EXCESS-3-TO-DECIMAL	Totem-Pole	17 ns		140 mW	SN5443A	J, W	SN7443A	J, N	7-15
	Totem-Pole	34 ns		70 mW	SN54L43	J	SN74L43	J, N	
4-LINE-TO-10-LINE EXCESS-3-GRAY-TO-DECIMAL	Totem-Pole	17 ns		140 mW	SN5444A	J, W	SN7444A	J, N	7-15
	Totem-Pole	34 ns		70 mW	SN54L44	J	SN74L44	J, N	
3-LINE-TO-8-LINE	Totem-Pole	8 ns	7 ns	245 mW	SN54S138	J, W	SN74S138	J, N	7-134
	Totem-Pole	22 ns	21 ns	31 mW	SN54LS138	J, W	SN74LS138	J, N	7-134
DUAL 2-LINE-TO-4-LINE	Totem-Pole	7.5 ns	6 ns	300 mW	SN54S139	J, W	SN74S139	J, N	7-134
	Totem-Pole	22 ns	19 ns	34 mW	SN54LS139	J, W	SN74LS139	J, N	7-134
	Totem-Pole	18 ns	15 ns	30 mW	SN54LS155	J, W	SN74LS155	J, N	7-175
	Totem-Pole	21 ns	16 ns	125 mW	SN54155	J, W	SN74155	J, N	7-175
	Open-Collector	23 ns	18 ns	125 mW	SN54156	J, W	SN74156	J, N	7-175
	Open-Collector	33 ns	26 ns	31 mW	SN54LS156	J, W	SN74LS156	J, N	7-175

OPEN-COLLECTOR DISPLAY DECODERS/DRIVERS WITH COUNTERS/LATCHES

COUNTERS/DRIVERS WITH COUNTERS/LATCHES									
DESCRIPTION	OUTPUT SINK CURRENT	OFF-STATE OUTPUT VOLTAGE	TYP TOTAL POWER DISSIPATION	BLANKING	DEVICE TYPE AND PACKAGE				PAGE NO.
					-55°C to 125°C		0°C to 70°C		
BCD COUNTER/ 4-BIT LATCH/ BCD-TO-DECIMAL DECODER/DRIVER	7 mA	55 V	340 mW				SN74142	J, N	7-140
BCD COUNTER/ 4-BIT LATCH/ BCD-TO-SEVEN- SEGMENT DECODER/ LED DRIVER	Constant Current 15 mA	7 V	280 mW	Ripple	SN54143	J, W	SN74143	J, N	7-143
BCD COUNTER/ 4-BIT LATCH/ BCD-TO-SEVEN- SEGMENT DECODER/ LAMP DRIVER	20 mA 25 mA	15 V 15 V	280 mW 280 mW	Ripple Ripple	SN54144	J, W	SN74144	J, N	7-143

RESULTANT DISPLAYS USING '143, '144



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OPEN-COLLECTOR DISPLAY DECODERS/DRIVERS

OPEN-COLLECTOR DISPLAY DECODERS/DRIVERS									
DESCRIPTION	OUTPUT SINK CURRENT	OFF-STATE OUTPUT VOLTAGE	TYP TOTAL POWER DISSIPATION	BLANKING	DEVICE TYPE AND PACKAGE				PAGE NO.
					-55°C to 125°C		0°C to 70°C		
BCD-TO-DECIMAL DECODERS/DRIVERS	80 mA	30 V	215 mW	Invalid Codes	SN5445	J, W	SN7445	J, N	7-20
	80 mA	15 V	35 mW	Invalid Codes			SN74LS145	J, N	7-148
	12 mA	15 V	35 mW	Invalid Codes	SN54LS145	J, W			7-148
	80 mA	15 V	215 mW	Invalid Codes	SN54145	J, W	SN74145	J, N	7-148
	7 mA	60 V	80 mW	Invalid Codes			SN74141	J, N	7-138
BCD-TO- SEVEN-SEGMENT DECODERS/DRIVERS	40 mA	30 V	320 mW	Ripple	SN5446A	J, W	SN7446A	J, N	7-22
	40 mA	30 V	320 mW	Ripple	SN54246	J, W	SN74246	J, N	7-22
	40 mA	15 V	320 mW	Ripple	SN5447A	J, W	SN7447A	J, N	7-22
	40 mA	15 V	320 mW	Ripple	SN54247	J, W	SN74247	J, N	7-351
	24 mA	15 V	35 mW	Ripple			SN74LS47	J, N	7-22
	24 mA	15 V	35 mW	Ripple			SN74LS247	J, N	7-351
	12 mA	15 V	35 mW	Ripple	SN54LS47	J, W			7-22
	12 mA	15 V	35 mW	Ripple	SN54LS247	J, W			7-351
	20 mA	30 V	133 mW	Ripple	SN54L46	J	SN74L46	J, N	7-22
	20 mA	15 V	133 mW	Ripple	SN54L47	J	SN74L47	J, N	7-22
	6.4 mA	5.5 V	265 mW	Ripple	SN5448	J, W	SN7448	J, N	7-22
	6.4 mA	5.5 V	265 mW	Ripple	SN54248	J, W	SN74248	J, N	7-351
	6 mA	5.5 V	125 mW	Ripple			SN74LS48	J, N	7-22
	6 mA	5.5 V	125 mW	Ripple			SN74LS248	J, N	7-351
	2 mA	5.5 V	125 mW	Ripple	SN54LS48	J, W			7-22
	2 mA	5.5 V	125 mW	Ripple	SN54LS248	J, W			7-351
	10 mA	5.5 V	165 mW	Direct	SN5449	W			7-22
	10 mA	5.5 V	265 mW	Direct	SN54249	J, W	SN74249	J, N	7-351
	8 mA	5.5 V	40 mW	Direct			SN74LS249	J, N	7-351
	8 mA	5.5 V	40 mW	Direct			SN74LS49	J, N	7-22
	4 mA	5.5 V	40 mW	Direct	SN54LS49	J, W			7-22
	4 mA	5.5 V	40 mW	Direct	SN54LS249	J, W			7-351

RESULTANT DISPLAYS USING '46A, '47A, '48, '49, 'L46, 'L47, 'LS47, 'LS48, 'LS49

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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RESULTANT DISPLAYS USING '246, '247, '248, '249, 'LS247, 'LS248, 'LS249

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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BUS TRANSCEIVERS AND DRIVERS

DESCRIPTION	TYPICAL PROPAGATION DELAY TIMES	MAXIMUM SOURCE CURRENT	MAXIMUM SINK CURRENT	DEVICE TYPE AND PACKAGE				PAGE NO.
				-55°C to 125°C		0°C to 70°C		
CONTROLLER AND BUS DRIVER FOR 8080A SYSTEMS		-1 mA -1 mA	10 mA 10 mA			SN74S428 SN74S438	N N	7-514
OCTAL BUS TRANSCEIVERS	12 ns	-12 mA	12 mA	SN54LS245*	J	SN74LS245*	J, N	7-349
4-BIT BUS TRANSCEIVERS WITH STORAGE	10 ns	-6.5 mA	20 mA	SN54S226*	J, W	SN74S226*	J, N	7-345

ASYNCHRONOUS COUNTERS (RIPPLE CLOCK)—NEGATIVE-EDGE TRIGGERED

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DESCRIPTION	COUNT FREQ	PARALLEL LOAD	CLEAR	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
					-55° C to 125° C		0° C to 70° C		
DECADE	50 MHz	Yes	Low	240 mW	SN54196	J, W	SN74196	J, N	7-331
	100 MHz	Yes	Low	375 mW	SN54S196	J, W	SN74S196	J, N	7-331
	35 MHz	Yes	Low	150 mW	SN54176	J, W	SN74176	J, N	7-259
	32 MHz	Set-to-9	High	40 mW	SN54LS90	J, W	SN74LS90	J, N	7-72
	32 MHz	Set-to-9	High	40 mW	SN54LS290	J, W	SN74LS290	J, N	7-423
	32 MHz	Set-to-9	High	160 mW	SN5490A	J, W	SN7490A	J, N	7-72
	32 MHz	Set-to-9	High	160 mW	SN54290	J, W	SN74290	J, N	7-423
	30 MHz	Yes	Low	60 mW	SN54LS196	J, W	SN74LS196	J, N	7-331
	3 MHz	Set-to-9	High	20 mW	SN54L90	J, T	SN74L90	J, N	7-72
4-BIT BINARY	50 MHz	Yes	Low	240 mW	SN54197	J, W	SN74197	J, N	7-331
	100 MHz	Yes	Low	375 mW	SN54S197	J, W	SN74S197	J, N	7-331
	35 MHz	Yes	Low	150 mW	SN54177	J, W	SN74177	J, N	7-259
	32 MHz	None	High	39 mW	SN54LS93	J, W	SN74LS93	J, N	7-72
	32 MHz	None	High	39 mW	SN54LS293	J, W	SN74LS293	J, N	7-423
	32 MHz	None	High	160 mW	SN5493A	J, W	SN7493A	J, N	7-72
	32 MHz	None	High	160 mW	SN54293	J, W	SN74293	J, N	7-423
	30 MHz	Yes	Low	60 mW	SN54LS197	J, W	SN74LS197	J, N	7-331
	3 MHz	None	High	20 mW	SN54L93	J, T	SN74L93	J, N	7-72
DIVIDE-BY-12	32 MHz	None	High	39 mW	SN54LS92	J, W	SN74LS92	J, N	7-72
	32 MHz	None	High	160 mW	SN5492A	J, W	SN7492A	J, N	
DUAL DECADE	25 MHz	None	High	210 mW	SN54390	J, W	SN74390	J, N	7-489
	35 MHz	None	High	75 mW	SN54LS390	J, W	SN74LS390	J, N	7-489
	25 MHz	Set-to-9	High	225 mW	SN54490	J, W	SN74490	J, N	7-520
	35 MHz	Set-to-9	High	75 mW	SN54LS490	J, W	SN74LS490	J, N	7-520
DUAL 4-BIT BINARY	25 MHz	None	High	190 mW	SN54393	J, W	SN74393	J, N	7-489
	35 MHz	None	High	75 mW	SN54LS393	J, W	SN74LS393	J, N	7-489

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SYNCHRONOUS COUNTERS—POSITIVE-EDGE TRIGGERED

DESCRIPTION	COUNT FREQ	PARALLEL LOAD	CLEAR	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
					-55°C to 125°C		0°C to 70°C		
DECADE	40 MHz	Sync	Sync-L	475 mW	SN54S162	J, W	SN74S162	J, N	7-190
	25 MHz	Sync	Sync-L	93 mW	SN54LS162A	J, W	SN74LS162A	J, N	
	25 MHz	Sync	Async-L	93 mW	SN54LS160A	J, W	SN74LS160A	J, N	
	25 MHz	Sync	Sync-L	305 mW	SN54162	J, W	SN74162	J, N	
	25 MHz	Sync	Async-L	305 mW	SN54160	J, W	SN74160	J, N	
DECADE UP/DOWN	40 MHz	Sync	None	500 mW	SN54S168	J, W	SN74S168	J, N	7-226
	25 MHz	Sync	None	100 mW	SN54LS168A	J, W	SN74LS168A	J, N	7-226
	25 MHz	Async	Async-H	85 mW	SN54LS192	J, W	SN74LS192	J, N	7-306
	25 MHz	Async	Async-H	325 mW	SN54192	J, W	SN74192	J, N	7-306
	20 MHz	Async	None	100 mW	SN54LS190	J, W	SN74LS190	J, N	7-296
	20 MHz	Async	None	325 mW	SN54190	J, W	SN74190	J, N	7-296
	3 MHz	Async	Async-H	42 mW	SN54L192	J	SN74L192	J, N	7-306
DECADE $\frac{1}{10}$ RATE MULTIPLIER, N ₁₀	25 MHz	Set-to-9	Async-H	270 mW	SN54167	J, W	SN74167	J, N	7-222
4-BIT BINARY	40 MHz	Sync	Sync-L	475 mW	SN54S163	J, W	SN74S163	J, N	7-190
	25 MHz	Sync	Sync-L	93 mW	SN54LS163A	J, W	SN74LS163A	J, N	
	25 MHz	Sync	Async-L	93 mW	SN54LS161A	J, W	SN74LS161A	J, N	
	25 MHz	Sync	Sync-L	305 mW	SN54163	J, W	SN74163	J, N	
	25 MHz	Sync	Async-L	305 mW	SN54161	J, W	SN74161	J, N	
4-BIT BINARY UP/DOWN	40 MHz	Sync	None	500 mW	SN54S169	J, W	SN74S169	J, N	7-226
	25 MHz	Sync	None	100 mW	SN54LS169A	J, W	SN74LS169A	J, N	7-226
	25 MHz	Async	Async-H	85 mW	SN54LS193	J, W	SN74LS193	J, N	7-306
	25 MHz	Async	Async-H	325 mW	SN54193	J, W	SN74193	J, N	7-306
	20 MHz	Async	None	90 mW	SN54LS191	J, W	SN74LS191	J, N	7-296
	20 MHz	Async	None	325 mW	SN54191	J, W	SN74191	J, N	7-296
	3 MHz	Async	Async-H	42 mW	SN54L193	J	SN74L193	J, N	7-306
6-BIT BINARY $\frac{1}{2}$ RATE MULTIPLIER, N ₂	25 MHz		Async-H	345 mW	SN5497	J, W	SN7497	J, N	7-102

BIPOLAR BIT-SLICE PROCESSOR ELEMENTS†

DESCRIPTION	CASCADABLE TO N-BITS	TYPICAL μ -OPERATION TIME	TECHNOLOGY	DEVICE TYPE AND PACKAGE			
				-55°C to 125°C		0°C to 70°C	
4-BIT SLICE	Yes	100 ns	STTL	SN54S481	J	SN74S481	J, N
	Yes	230 ns	I ² L	SBP0400AM	J	SBP0400AC	J, N
	Yes	230 ns	I ² L	SBP0401AM	J	SBP0401AC	J, N

FIRST-IN FIRST-OUT MEMORIES (FIFO'S)†

DESCRIPTION	TYPE OF OUTPUT	DELAY TIME FROM CLOCK	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE			
				-55°C to 125°C		0°C to 70°C	
ASYNCHRONOUS 16 X 5	3-State	50 ns	400 mW			SN74S225	J

†See Bipolar Microcomputer Components Data Book, LCC4270.

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RANDOM-ACCESS READ-WRITE MEMORIES (RAM'S)

DESCRIPTION	ORGANI- ZATION	TYPE OF OUTPUT	TYPICAL ADDRESS TIME	TYPICAL ENABLE TIME	TYP POWER DISSIPATION PER BIT	DEVICE TYPE AND PACKAGE				PAGE NO.
						-55°C to 125°C		0°C to 70°C		
1024-BIT ARRAYS WITH POWER-DOWN	1024 X 1	3-State	65 ns	20 ns	0.2/0.07 mW	SN54LS215	JD	SN74LS215	JD, N	†
	1024 X 1	O-C	65 ns	20 ns	0.2/0.07 mW	SN54LS315	JD	SN74LS315	JD, N	†
1024-BIT ARRAYS	1024 X 1	3-State	65 ns	20 ns	0.2 mW	SN54LS214	JD	SN74LS214	JD, N	†
	1024 X 1	3-State	30 ns	15 ns	0.51 mW	SN54S214	JD	SN74S214	JD, N	†
	1024 X 1	O-C	65 ns	20 ns	0.2 mW	SN54LS314	JD	SN74LS314	JD, N	†
	1024 X 1	O-C	30 ns	15 ns	0.51 mW	SN54S314	JD	SN74S314	JD, N	†
	256 X 4	3-State	60 ns	20 ns	0.3 mW	SN54LS207	J	SN74LS207	J, N	†
	256 X 4	3-State	40 ns	15 ns	0.59 mW	SN54S207	J	SN74S207	J, N	†
	256 X 4	3-State	60 ns	20 ns	0.3 mW	SN54LS208	J	SN74LS208	J, N	†
	256 X 4	3-State	40 ns	15 ns	0.59 mW	SN54S208	J	SN74S208	J, N	†
256-BIT ARRAYS WITH POWER-DOWN	256 X 1	3-State	35 ns	15 ns	1.1/0.39 mW	SN54LS202	J, W	SN74LS202	J, N	†
	256 X 1	O-C	35 ns	15 ns	1.1/0.39 mW	SN54LS302	J, W	SN74LS302	J, N	†
256-BIT ARRAYS	256 X 1	3-State	35 ns	15 ns	1.1 mW	SN54LS200A	J, W	SN74LS200A	J, N	†
	256 X 1	3-State	25 ns	15 ns	1.9 mW	SN54S200A	J, W	SN74S200A	J, N	†
	256 X 1	3-State	42 ns	17 ns	1.9 mW	SN54S201	J, W	SN74S201	J, N	†
	256 X 1	O-C	35 ns	15 ns	1.1 mW	SN54LS300A	J, W	SN74LS300A	J, N	†
	256 X 1	O-C	25 ns	15 ns	1.9 mW	SN54S300A	J, W	SN74S300A	J, N	†
	256 X 1	O-C	42 ns	13 ns	1.9 mW	SN54S301	J, W	SN74S301	J, N	†
64-BIT ARRAYS	16 X 4	3-State	25 ns	12 ns	5.9 mW	SN54S189	J, W	SN74S189	J, N	†
	16 X 4	O-C	25 ns	12 ns	5.9 mW	SN54S289	J, W	SN74S289	J, N	†
	16 X 4	O-C	32 ns	30 ns	5.9 mW			SN7489	J, N	†
16-BIT ARRAYS	16 X 1	O-C	15 ns	15 ns	14 mW	SN5481A	J, W	SN7481A	J, N	†
	16 X 1	O-C	15 ns	15 ns	14 mW	SN5484A	J, W	SN7484A	J, N	†
16-BIT MULTIPLE-PORT REGISTER FILE	8 X 2	3-State	33 ns	15 ns	35 mW			SN74172	J, N	7-245
16-BIT REGISTER FILE	4 X 4	O-C	27 ns	15 ns	7.8 mW	SN54LS170	J, W	SN74LS170	J, N	7-237
	4 X 4	O-C	30 ns	15 ns	40 mW	SN54170	J, W	SN74170	J, N	7-237
	4 X 4	3-State	24 ns	19 ns	9.3 mW	SN54LS670	J, W	SN74LS670	J, N	7-526

READ-ONLY MEMORIES (ROM'S)†

DESCRIPTION	ORGANI- ZATION	TYPE OF OUTPUT	TYPICAL ADDRESS TIME	TYPICAL ENABLE TIME	TYP POWER DISSIPATION PER BIT	DEVICE TYPE AND PACKAGE			
						-55°C to 125°C		0°C to 70°C	
2048-BIT ARRAYS	512 X 4	O-C	45 ns	15 ns	0.26 mW	SN54S270	J	SN74S270	J, N
	256 X 8	O-C	45 ns	15 ns	0.26 mW	SN54S271	J	SN74S271	J, N
	512 X 4	3-State	45 ns	15 ns	0.26 mW	SN54S370	J	SN74S370	J, N
	256 X 8	3-State	45 ns	15 ns	0.26 mW	SN54S371	J	SN74S371	J, N
1024-BIT ARRAYS	256 X 4	O-C	40 ns	20 ns	0.46 mW	SN54187	J, W	SN74187	J, N
256-BIT ARRAYS	32 X 8	O-C	26 ns	22 ns	1.1 mW	SN5488A	J, W	SN7488A	J, N

†See Bipolar Microcomputer Components Data Book, LCC4270.

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PROGRAMMABLE READ-ONLY MEMORIES (PROM'S)†

DESCRIPTION	ORGANIZATION	TYPE OF OUTPUT	TYPICAL ADDRESS TIME	TYPICAL ENABLE TIME	TYP POWER DISSIPATION PER BIT	DEVICE TYPE AND PACKAGE			
						-55°C to 125°C		0°C to 70°C	
4096-BIT ARRAYS	512 X 8	3-State	55 ns	20 ns	0.14 mW	SN54S472	J	SN74S472	J, N
	512 X 8	O-C	55 ns	20 ns	0.14 mW	SN54S473	J	SN74S473	J, N
	512 X 8	3-State	55 ns	20 ns	0.14 mW	SN54S474	J, W	SN74S474	J, N
	512 X 8	O-C	55 ns	20 ns	0.14 mW	SN54S475	J, W	SN74S475	J, N
2048-BIT ARRAYS	256 X 8	O-C	50 ns	20 ns	0.24 mW	SN54S470	J	SN74S470	J, N
	256 X 8	3-State	50 ns	20 ns	0.27 mW	SN54S471	J	SN74S471	J, N
1024-BIT ARRAYS	256 X 4	3-State	40 ns	15 ns	0.49 mW	SN54S287	J, W	SN74S287	J, N
	256 X 4	O-C	40 ns	15 ns	0.49 mW	SN54S387	J, W	SN74S387	J, N
512-BIT ARRAYS	64 X 8	O-C	50 ns	47 ns	0.6 mW	SN54186	J, W	SN74186	J, N
256-BIT ARRAYS	32 X 8	O-C	29 ns	28 ns	1.3 mW	SN54188A	J, W	SN74188A	J, N
	32 X 8	O-C	25 ns	12 ns	1.56 mW	SN54S188	J, W	SN74S188	J, N
	32 X 8	3-State	25 ns	12 ns	1.56 mW	SN54S288	J, W	SN74S288	J, N

MICROPROCESSOR CONTROLLERS AND SUPPORT FUNCTIONS

DESCRIPTION	SYSTEM APPLICATION	TYP TOTAL POWER DISSIPATION	DEVICE TYPE AND PACKAGE				PAGE NO.
			-55°C to 125°C		0°C to 70°C		
SYSTEM CONTROLLERS	8080A	700 mW			SN74S428 (TIM8228)	N	7-514
	8080A	700 mW			SN74S438 (TIM8238)	N	7-514
	Universal	450 mW	SN54S482	J	SN74S482	J, N	†
REGISTERS	TMS 9900	110 mW	SN54LS259	J, W	SN74LS259 (TIM9906)	J, N	7-376
	MOS	210 mW	SN54LS363*	J	SN74LS363*	J, N	7-467
		210 mW	SN54LS364*	J	SN74LS364*	J, N	7-467
MULTI-MODE LATCHES	8080A	410 mW	SN54S412	J, W	SN74S412 (TIM8212)	J, N	7-502
TRANSCEIVERS AND BUS DRIVERS		625 mW	SN54S226*	J, W	SN74S226*	J, N	7-345
		207 mW	SN54LS245*	J	SN74LS245*	J, N	7-349
TRANSCEIVERS AND BUS DRIVERS (SSI)		98 mW	SN54LS240	J	SN74LS240	J, N	6-83
		450 mW	SN54S240	J	SN74S240	J, N	6-83
		100 mW	SN54LS241	J	SN74LS241	J, N	6-83
		538 mW	SN54S241	J	SN74S241	J, N	6-83
		128 mW	SN54LS242	J, W	SN74LS242	J, N	6-87
		128 mW	SN54LS243	J, W	SN74LS243	J, N	6-87
		100 mW	SN54LS244	J	SN74LS244	J, N	6-83
CLOCK ELEMENTS	TMS 9900	669 mW			SN74LS362 (TIM9904)*	J, N	7-460
	8080A	719 mW			SN74LS424 (TIM8224)	J, N	7-507
LOGIC ELEMENTS	TMS 9900	190 mW	SN54148	J, W	SN74148 (TIM9907)	J, N	7-151
	TMS 9900	35 mW	SN54LS251	J, W	SN74LS251 (TIM9905)	J, N	7-362
	TMS 9900	63 mW	SN54LS348*	J, W	SN74LS348 (TIM9908)*	J, N	7-448

*New product in development as of October 1976.

†See Bipolar Microcomputer Components Data Book, LCC4270.