
PART NUMBER**54LS348BEA-ROCV**

**Rochester Electronics
Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer. (OCM)

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-38535
 - Class Q Military
 - Class V Space Level

Qualified Suppliers List of Distributors (QSLD)

- Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

SN54LS348, SN74LS348 (TIM9908) 8-LINE TO 3-LINE PRIORITY ENCODERS WITH 3-STATE OUTPUTS

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- 3-State Outputs Drive Bus Lines Directly
- Encodes 8 Data Lines to 3-Line Binary (Octal)
- Applications Include:
N-Bit Encoding
Code Converters and Generators
- Typical Data Delay . . . 15 ns
- Typical Power Dissipation . . . 60 mW

description

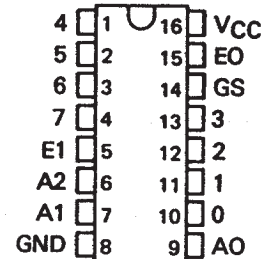
These TTL encoders feature priority decoding of the inputs to ensure that only the highest-order data line is encoded. The 'LS348 circuits encode eight data lines to three-line (4-2-1) binary (octal). Cascading circuitry (enable input E1 and enable output EO) has been provided to allow octal expansion. Outputs A0, A1, and A2 are implemented in three-state logic for easy expansion up to 64 lines without the need for external circuitry. See Typical Application Data.

FUNCTION TABLE

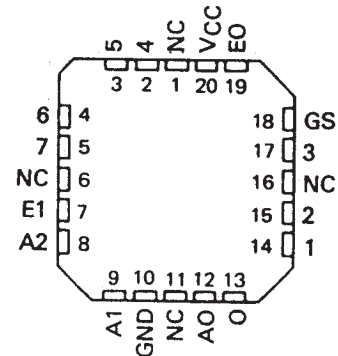
EI	INPUTS								OUTPUTS				
	0	1	2	3	4	5	6	7	A2	A1	A0	GS	EO
H	X	X	X	X	X	X	X	X	Z	Z	Z	H	H
L	H	H	H	H	H	H	H	H	Z	Z	Z	H	L
L	X	X	X	X	X	X	X	L	L	L	L	L	H
L	X	X	X	X	X	L	H	H	L	H	L	L	H
L	X	X	X	X	L	H	H	H	L	H	H	L	H
L	X	X	X	L	H	H	H	H	H	L	L	L	H
L	X	X	L	H	H	H	H	H	H	L	H	L	H
L	X	L	H	H	H	H	H	H	H	H	L	L	H
L	L	H	H	H	H	H	H	H	H	H	H	L	H

H = high logic level, L = low logic level, X = irrelevant
Z = high-impedance state

SN54LS348 . . . J OR W PACKAGE
SN74LS348 . . . D OR N PACKAGE
(TOP VIEW)

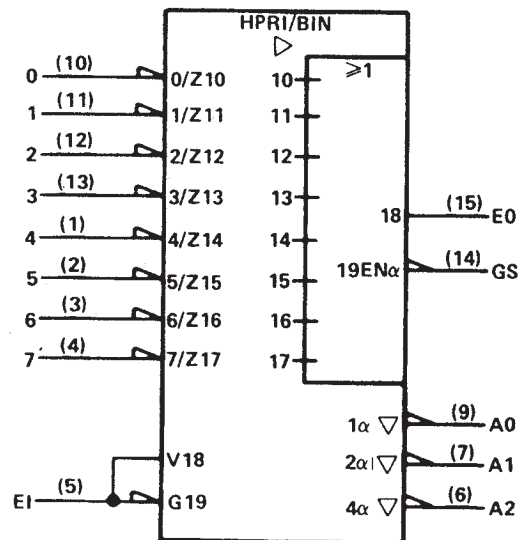


SN54LS348 . . . FK PACKAGE
(TOP VIEW)



NC - No internal connection

logic symbol†



†This symbol is in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12.

Pin numbers shown are for D, J, N, and W packages.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS
INSTRUMENTS**

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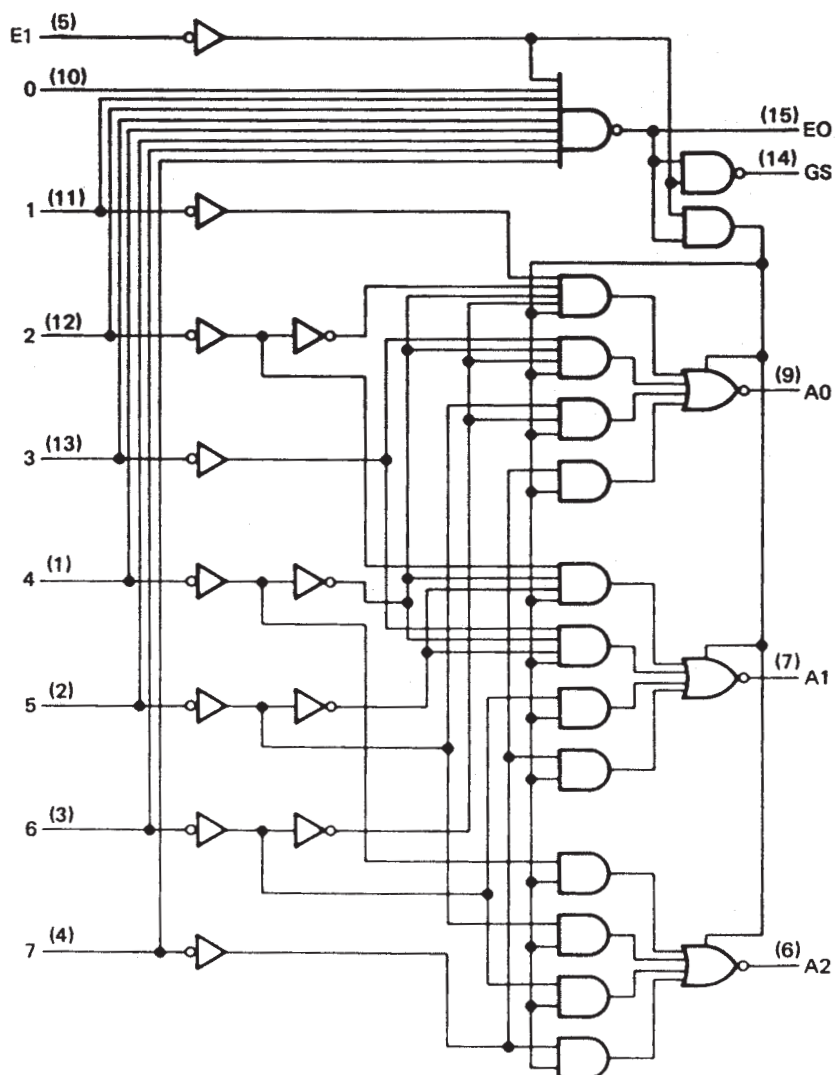
SN54LS348, SN74LS348 (TIM9908)

8-LINE TO 3-LINE PRIORITY ENCODERS

WITH 3-STATE OUTPUTS

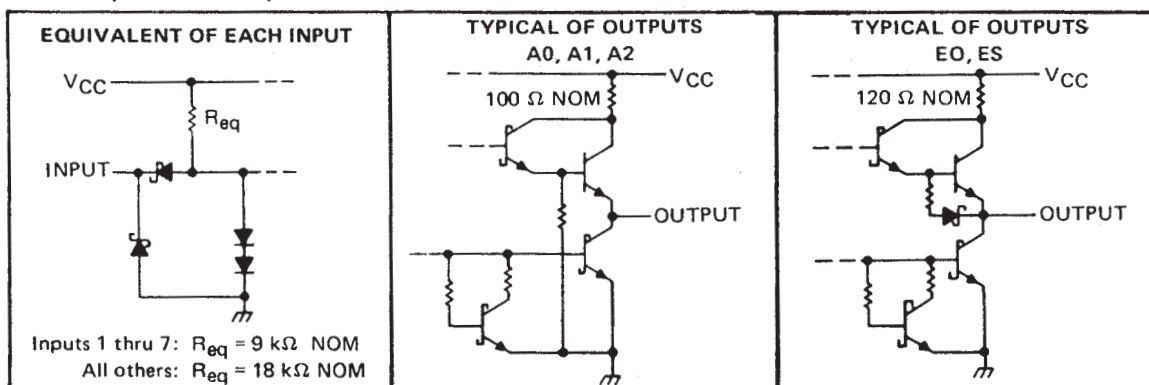
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logic diagram (positive logic)



Pin numbers shown are for D, J, N, and W packages.

schematic of inputs and outputs



SN54LS348, SN74LS348 (TIM9908) 8-LINE TO 3-LINE PRIORITY ENCODERS WITH 3-STATE OUTPUTS

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

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage	7 V
Operating free-air temperature range: SN54LS348	–55°C to 125°C
SN74LS348	0°C to 70°C
Storage temperature range	–65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

recommended operating conditions

		SN54LS348			SN74LS348			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}	A0, A1, A2			–1			–2.6	mA
	EO, GS			–400			–400	μA
Low-level output current, I_{OL}	A0, A1, A2			12			24	mA
	EO, GS			4			8	mA
Operating free-air temperature, T_A		–55		125	0		70	°C

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

PARAMETER		TEST CONDITIONS†		SN54LS348		SN74LS348		UNIT	
				MIN	TYP‡	MAX	MIN		TYP‡
V_{IH}	High-level input voltage			2		2		V	
V_{IL}	Low-level input voltage			0.7		0.8		V	
V_{IK}	Input clamp voltage	$V_{CC} = \text{MIN}, I_I = -18 \text{ mA}$		-1.5		-1.5		V	
V_{OH}	High-level output voltage	A0, A1, A2	$V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V},$	$I_{OH} = -1 \text{ mA}$	2.4	3.1		V	
				$I_{OH} = -2.6 \text{ mA}$			2.4		3.1
		EO, GS	$V_{IL} = V_{IL\text{max}}$	$I_{OH} = -400 \mu\text{A}$	2.5	3.4	2.7		3.4
V_{OL}	Low-level Output voltage	A0, A1, A2	$V_{CC} = \text{MIN}, V_{IH} = 2 \text{ V},$	$I_{OL} = 12 \text{ mA}$	0.25	0.4	0.25	0.4	V
				$I_{OL} = 24 \text{ mA}$			0.35	0.5	
				$I_{OL} = 4 \text{ mA}$	0.25	0.4	0.25	0.4	
		EO, GS	$V_{IL} = V_{IL\text{max}}$	$I_{OL} = 8 \text{ mA}$			0.35	0.5	
I_{OZ}	Off-State (high-impedance state) output current	A0, A1, A2	$V_{CC} = \text{MAX}, V_{IH} = 2 \text{ V}$	$V_O = 2.7 \text{ V}$	20		20	μA	
				$V_O = 0.4 \text{ V}$	-20		-20		
I_I	Input current at maximum input voltage	Inputs 1 thru 7	$V_{CC} = \text{MAX}, V_I = 7 \text{ V}$		0.2		0.2	mA	
		All other inputs			0.1		0.1		
I_{IH}	High-level input current	Inputs 1 thru 7	$V_{CC} = \text{MAX}, V_I = 2.7 \text{ V}$		40		40	μA	
		All other inputs			20		20		
I_{IL}	Low-level input current	Inputs 1 thru 7	$V_{CC} = \text{MAX}, V_I = 0.4 \text{ V}$		-0.8		-0.8	mA	
		All other inputs			-0.4		-0.4		
I_{OS}	Short-circuit output current§	Outputs A0, A1, A2	$V_{CC} = \text{MAX}$		-30	-130	-30	-130	mA
		Outputs EO, GS			-20	-100	-20	-100	
I_{CC}	Supply current		$V_{CC} = \text{MAX},$	Condition 1	13	25	13	25	mA
			See Note 2	Condition 2	12	23	12	23	

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

‡ 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.

NOTE 2: I_{CC} (condition 1) is measured with inputs 7 and EI grounded, other inputs and outputs open. I_{CC} (condition 2) is measured with all inputs and outputs open.



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PARAMETER†	FROM (INPUT)	TO (OUTPUT)	WAVEFORM	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
tPLH	1 thru 7	A0, A1, or A2	In-phase output	C _L = 45 pF, R _L = 667 Ω, See Note 3		11	17	ns	
tPHL						20	30		
tPLH	1 thru 7	A0, A1, or A2	Out-of-phase output			23	35	ns	
tPHL						23	35		
tPZH	EI	A0, A1, or A2				25	39	ns	
tPZL						24	41		
tPLH	0 thru 7	EO	Out-of-phase output	C _L = 15 pF R _L = 2 kΩ, See Note 3		11	18	ns	
tPHL						26	40		
tPLH	0 thru 7	GS	In-phase output			38	55	ns	
tPHL						9	21		
tPLH	EI	GS	In-phase output			11	17	ns	
tPHL						14	36		
tPLH	EI	EO	In-phase output			17	26	ns	
tPHL						25	40		
tPHZ	EI	A0, A1, or A2		C _L = 5 pF R _L = 667 Ω		18	27	ns	
tPLZ						23	35		

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

FIGURE 1—PRIORITY ENCODER WITH UP TO 64 INPUTS.

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PRODUCT SUPPORT: [TRAINING](#)

SN74LS348, 8-Line To 3-Line Priority Encoder

DEVICE STATUS: **ACTIVE**

PARAMETER NAME	SN74LS348
Voltage Nodes (V)	5
Vcc range (V)	4.75 to 5.25
Input Level	TTL
Output Level	TTL
Output	3S
From	8
To	3

FEATURES

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- 3-State Outputs Drive Bus Lines Directly
- Encodes 8 Data Lines to 3-Line Binary (Octal)
- Applications Include:
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 - Code Converters and Generators
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DESCRIPTION

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These TTL encoders feature priority decoding of the inputs to ensure that only the highest-order data line is encoded. The 'LS348 circuits encode eight data lines to three-line (4-2-1) binary (octal). Cascading circuitry (enable input EI and enable output EO) has been provided to allow octal expansion. Outputs A0, A1, and A2 are implemented in three-state logic for easy expansion up to 64 lines without the need for external circuitry. See Typical Application Data.

TECHNICAL DOCUMENTS

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DATASHEET

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Full datasheet in Acrobat PDF: [sn74ls348.pdf](#) (192 KB) (Updated: 03/01/1988)

APPLICATION NOTES

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- [Designing With Logic \(Rev. C\)](#) (SDYA009C - Updated: 06/01/1997)
- [Designing with the SN54/74LS123 \(Rev. A\)](#) (SDLA006A - Updated: 03/01/1997)
- [Evaluation of Nickel/Palladium/Gold-Finished Surface-Mount Integrated Circuits](#) (SZZA026 - Updated: 06/20/2001)
- [Input and Output Characteristics of Digital Integrated Circuits](#) (SDYA010 - Updated: 10/01/1996)
- [Live Insertion](#) (SDYA012 - Updated: 10/01/1996)

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- [Logic Reference Guide](#) (SCYB004, 1032 KB - Updated: 10/23/2001)
- [Logic Selection Guide Second Half 2002 \(Rev. R\)](#) (SDYU001R, 4274 KB - Updated: 07/19/2002)
- [Military Semiconductors Selection Guide 2002 \(Rev. B\)](#) (SGYC003B, 1648 KB - Updated: 04/22/2002)

PRICING/AVAILABILITY/PKG

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DEVICE INFORMATION

ORDERABLE DEVICE	STATUS	PACKAGE TYPE PINS	TEMP (°C)	PRODUCT CONTENT	BUDGETARY PRICING QTY \$US	STD PACK QTY
SN74LS348D	ACTIVE	SOP (D) 16	0 TO 70	View Contents	1KU 1.64	40
SN74LS348DR	ACTIVE	SOP (D) 16	0 TO 70	View Contents	1KU 1.67	2500
SN74LS348N	ACTIVE	PDIP (N) 16	0 TO 70	View Contents	1KU 1.64	25
SN74LS348N3	OBSOLETE	PDIP (N) 16	0 TO 70	View Contents	1KU	
SN74LS348NSR	ACTIVE	SOP (NS) 16		View Contents	1KU 1.64	2000

**TI INVENTORY STATUS
AS OF 3:00 PM GMT, 26 Sep 2002**

IN STOCK	IN PROGRESS QTY DATE	LEAD TIME
N/A*	1114 03 Oct	4 WKS
	>10k 10 Oct	
N/A*	1114 03 Oct	4 WKS
	>10k 10 Oct	
N/A*	1325 30 Sep	4 WKS
	9839 02 Oct	
	375 03 Oct	
	>10k 07 Oct	
	>10k 14 Oct	
N/A*		Not Available
N/A*	>10k 07 Oct	4 WKS
	>10k 14 Oct	

**REPORTED DISTRIBUTOR INVENTORY
AS OF 3:00 PM GMT, 26 Sep 2002**

DISTRIBUTOR COMPANY REGION	IN STOCK	PURCHASE

Table Data Updated on: 9/26/2002

