

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 recreations are done with the approval of the OCM.

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

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
 - 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 OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

TYPES SN5460, SN54H60, SN7460, SN74H60 DUAL 4-INPUT EXPANDERS

REVISED DECEMBER 1983

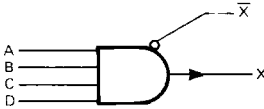
- Package Options Include Plastic and Ceramic DIPs
- Dependable Texas Instruments Quality and Reliability

description

These devices contain two independent 4-input expanders. The '60 perform the Boolean function $X = ABCD$ when connected to X and \bar{X} inputs of SN5423/SN7423, SN5450/SN7450, or SN5453/SN7453. The 'H60 performs the same function when connected to X and \bar{X} inputs of SN54H50/SN74H50, SN54H53/SN74H53, or SN54H55/SN74H55.

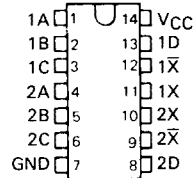
The SN5460 and SN54H60 are characterized for operation over the full military temperature range of -55°C to 125°C . The SN7460 and SN74H60 are characterized for operation from 0°C to 70°C .

logic diagram (each gate)



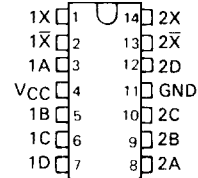
SN5460, SN54H60 ... J PACKAGE
SN7460, SN74H60 ... J OR N PACKAGE

(TOP VIEW)



SN5460, SN54H60 ... W PACKAGE

(TOP VIEW)



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TTL DEVICES

PRODUCTION DATA

This document contains information 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.

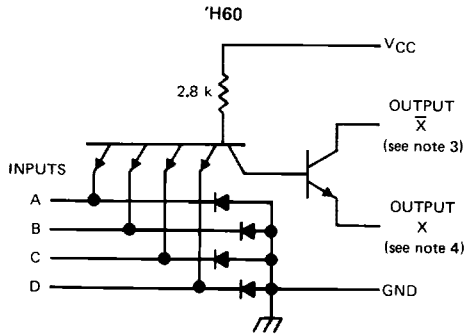
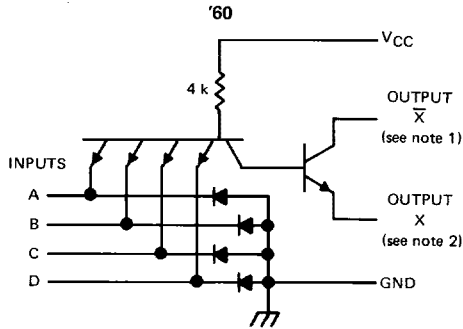
TEXAS
INSTRUMENTS

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3-245

**TYPES SN5460, SN54H60,
SN7460, SN74H60
DUAL 4-INPUT EXPANDERS**

schematics (each gate)



- NOTES: 1. Connect to \bar{X} input of '23, '50, or '53 circuit.
 2. Connect to X input of '23, '50, or '53 circuit.
 3. Connect to \bar{X} input of 'H50, 'H53, or 'H55 circuit.
 4. Connect to X input of 'H50, 'H53, or 'H55 circuit.
 Resistor values shown are nominal.

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

Supply voltage, V_{CC} (see Note 5)	7 V
Input voltage	5.5 V
Operating free-air temperature range: SN54'	-55°C to 125°C
SN74'	0°C to 70°C
Storage temperature range	-65°C to 150°C

NOTE 5: Voltage values are with respect to network ground terminal.

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TYPES SN5460, SN7460 DUAL 4-INPUT EXPANDERS

recommended operating conditions

	SN5460			SN7460			UNIT	
	MIN	NOM	MAX	MIN	NOM	MAX		
V_{CC} Supply voltage	4.5	5	5.5	4.75	5	5.25	V	
V_{IH} High-level input voltage	2			2			V	
V_{IL} Low-level input voltage	0.8			0.8			V	
T_A Operating free-air temperature	-55			125			0	$^{\circ}\text{C}$

The '23, '50, and '53 are designed for use with up to four '60 expanders.

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

PARAMETER	TEST CONDITIONS†			SN5460			SN7460			UNIT
				MIN	TYP‡	MAX	MIN	TYP‡	MAX	
$V_{\bar{X}X(\text{on})}$	$V_{CC} = \text{MIN}$, $I_{\bar{X}} = 3.5 \text{ mA}$	$V_{IH} = 2 \text{ V}$, $T_A = -55^{\circ}\text{C}$	$V_X = 1.1 \text{ V}$	0.4						V
	$V_{CC} = \text{MIN}$, $I_{\bar{X}} = 3.8 \text{ mA}$	$V_{IH} = 2 \text{ V}$, $T_A = 0^{\circ}\text{C}$	$V_X = 1 \text{ V}$				0.4			
$I_{X(\text{on})}$	$V_{CC} = \text{MIN}$, $I_{\bar{X}} = 0$	$V_{IH} = 2 \text{ V}$, $T_A = -55^{\circ}\text{C}$	$V_X = 1.1 \text{ V}$	-0.3						mA
	$V_{CC} = \text{MIN}$, $I_{\bar{X}} = 0$	$V_{IH} = 2 \text{ V}$, $T_A = 0^{\circ}\text{C}$	$V_X = 1 \text{ V}$				-0.43			
$I_{\bar{X}(\text{off})}$	$V_{CC} = \text{MIN}$, $R_X = 1.2 \text{ k}\Omega$	$V_{IL} = 0.8 \text{ V}$, $T_A = -55^{\circ}\text{C}$	$V_{\bar{X}} = 4.5 \text{ V}$	0.15						mA
	$V_{CC} = \text{MIN}$, $R_X = 1.2 \text{ k}\Omega$	$V_{IL} = 0.8 \text{ V}$, $T_A = 0^{\circ}\text{C}$	$V_{\bar{X}} = 4.5 \text{ V}$				0.27			
I_I	$V_{CC} = \text{MAX}$	$V_I = 5.5 \text{ V}$		1			1			mA
I_{IH}	$V_{CC} = \text{MAX}$	$V_I = 2.4 \text{ V}$		40			40			μA
I_{IL}	$V_{CC} = \text{MAX}$	$V_I = 0.4 \text{ V}$		-1.6			-1.6			mA
$I_{CC(\text{on})}$	$V_{CC} = \text{MAX}$, $V_X = 0.85 \text{ V}$	$V_I = 4.5 \text{ V}$, $I_{\bar{X}} = 0$		1.2 2.5			1.2 2.5			mA
$I_{CC(\text{off})}$	$V_{CC} = \text{MAX}$, $V_X = 0.85 \text{ V}$	$V_I = 0$, $I_{\bar{X}} = 0$		2 4			2 4			mA

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

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

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TTL DEVICES

TYPES SN54H60, SN74H60 DUAL 4-INPUT EXPANDERS

recommended operating conditions

	SN54H60			SN74H60			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC} Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V_{IH} High-level input voltage	2			2			V
V_{IL} Low-level input voltage	0.8			0.8			V
T_A Operating free-air temperature	-55			125			$^{\circ}$ C

The 'H50, 'H53, and 'H55 are designed for use with up to four 'H60 expanders.

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

PARAMETER	TEST CONDITIONS†			SN54H60			SN74H60			UNIT
				MIN	TYP‡	MAX	MIN	TYP‡	MAX	
$V_{XX(on)}$	$V_{CC} = \text{MIN}$, $I_{\bar{X}} = 5.85 \text{ mA}$	$V_{IH} = 2 \text{ V}$, $T_A = -55^{\circ}\text{C}$	$V_X = 1.1 \text{ V}$	0.4						V
	$V_{CC} = \text{MIN}$, $I_{\bar{X}} = 6.3 \text{ mA}$	$V_{IH} = 2 \text{ V}$, $T_A = 0^{\circ}\text{C}$	$V_X = 1 \text{ V}$				0.4			
	$V_{CC} = \text{MAX}$, $I_{\bar{X}} = 7.85 \text{ mA}$	$V_{IH} = 2 \text{ V}$, $T_A = 125^{\circ}\text{C}$	$V_X = 1 \text{ V}$	0.4						
	$V_{CC} = \text{MAX}$, $I_{\bar{X}} = 7.4 \text{ mA}$	$V_{IH} = 2 \text{ V}$, $T_A = 70^{\circ}\text{C}$	$V_X = 1 \text{ V}$				0.4			
$I_X(on)$	$V_{CC} = \text{MIN}$, $I_{\bar{X}} = 0$	$V_{IH} = 2 \text{ V}$, $T_A = -55^{\circ}\text{C}$	$V_X = 1.1 \text{ V}$	-0.47						mA
	$V_{CC} = \text{MIN}$, $I_{\bar{X}} = 0$	$V_{IH} = 2 \text{ V}$, $T_A = 0^{\circ}\text{C}$	$V_X = 1 \text{ V}$				-0.6			
$I_{\bar{X}(off)}$	$V_{CC} = \text{MIN}$, $R_X = 575 \Omega$	$V_{IL} = 0.8 \text{ V}$, $T_A = -55^{\circ}\text{C}$	$V_{\bar{X}} = 4.5 \text{ V}$	0.32						mA
	$V_{CC} = \text{MIN}$, $R_X = 575 \Omega$	$V_{IL} = 0.8 \text{ V}$, $T_A = 0^{\circ}\text{C}$	$V_{\bar{X}} = 4.5 \text{ V}$				0.57			
I_I	$V_{CC} = \text{MAX}$	$V_I = 5.5 \text{ V}$		1			1			mA
I_{IH}	$V_{CC} = \text{MAX}$	$V_I = 2.4 \text{ V}$		50			50			mA
I_{IL}	$V_{CC} = \text{MAX}$	$V_I = 0.4 \text{ V}$		-2			-2			mA
$I_{CC(on)}$	$V_{CC} = \text{MAX}$, $V_X = 0.85 \text{ V}$	$V_I = 4.5 \text{ V}$, $I_{\bar{X}} = 0$		1.9 3.5				1.9 3.5		mA
$I_{CC(off)}$	$V_{CC} = \text{MAX}$, $V_X = 0.85 \text{ V}$	$V_I = 0$, $I_{\bar{X}} = 0$		3 4.5				3 4.5		mA
$C_{\bar{X}}$	V_{CC} , inputs, and X open, $f = 1 \text{ MHz}$			5.4			5.4			pF

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

‡ All typical values are at $V_{CC} = 5 \text{ V}$ (except C_X), $T_A = 25^{\circ}\text{C}$.