

**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.

SN54LS465 THRU SN54LS468, SN74LS465 THRU SN74LS468 OCTAL BUFFERS WITH 3-STATE OUTPUTS

D2631, JANUARY 1981 — REVISED MARCH 1988

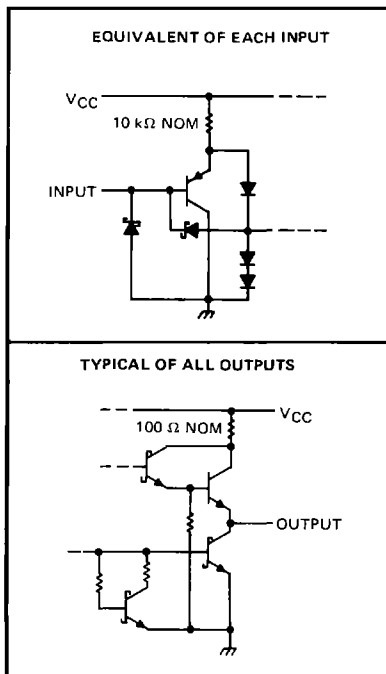
- Mechanically and Functionally Interchangeable With DM71/81LS95 thru DM71/81LS98
- P-N-P Inputs Reduce Bus Loading
- 3-State Outputs Rated at I_{OL} of 12 mA and 24 mA for 54LS and 74LS, Respectively

DEVICE	DATA PATH
'LS465	True
'LS466	Inverting
'LS467	True
'LS468	Inverting

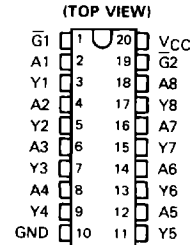
description

These octal buffers utilize the latest low-power Schottky technology. The 'LS465 and 'LS466 have a two-input active-low AND enable gate controlling all eight data buffers. The 'LS467 and 'LS468 have two separate active-low enable inputs each controlling four data buffers. In either case, a high level on any $\bar{G}$ places the affected outputs at high impedance.

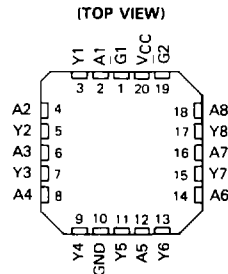
schematics of inputs and outputs



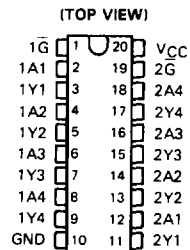
SN54LS465 AND SN54LS466 . . . J PACKAGE SN74LS465 AND SN74LS466 . . . DW OR N PACKAGE



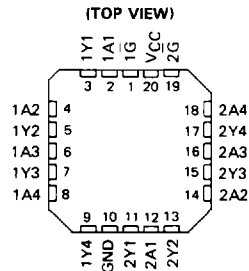
SN54LS465 AND SN54LS466 . . . FK PACKAGE



SN54LS467 AND SN54LS468 . . . J PACKAGE SN74LS467 AND SN74LS468 . . . DW OR N PACKAGE



SN54LS467 AND SN54LS468 . . . FK PACKAGE



PRODUCTION DATA documents contain 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

POST OFFICE BOX 655012 • DALLAS, TEXAS 75265

2-963

2

TTL Devices

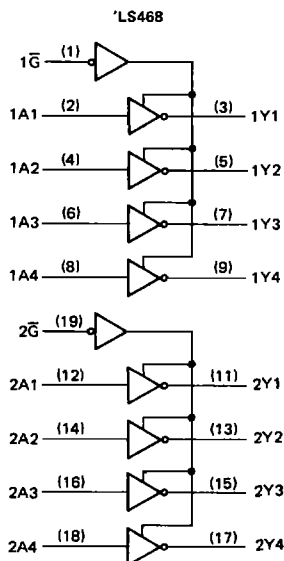
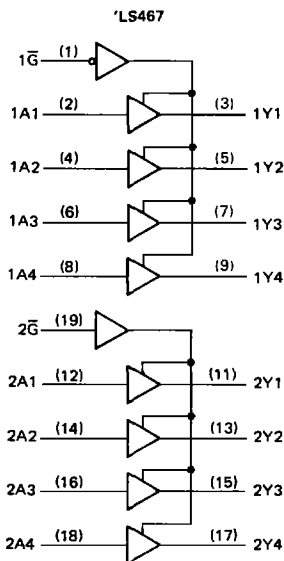
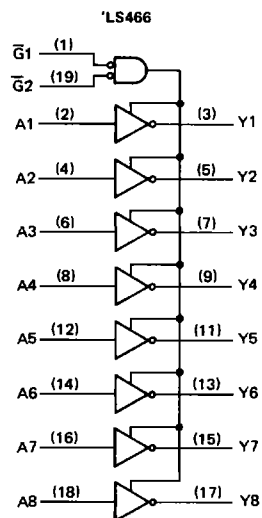
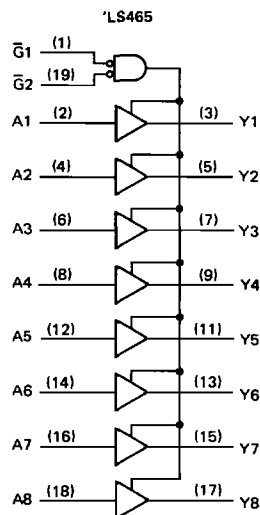
SN54LS465 THRU SN54LS468, SN74LS465 THRU SN74LS468

OCTAL BUFFERS WITH 3-STATE OUTPUTS

logic diagrams (positive logic)

2

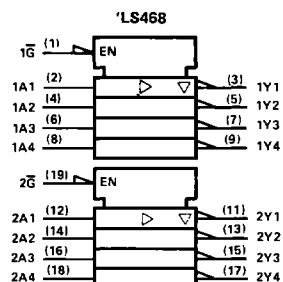
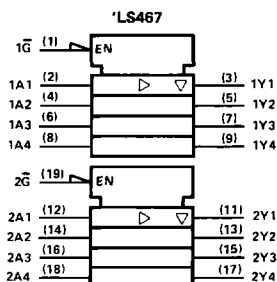
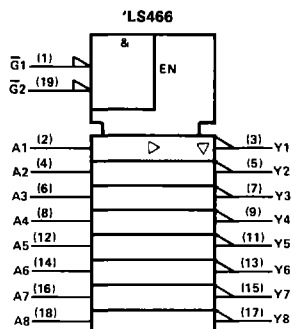
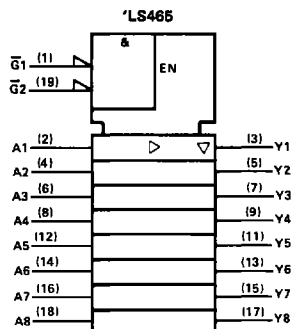
TTL Devices



Pin numbers shown are for DW, J, and N packages.

SN54LS465 THRU SN54LS468, SN74LS465 THRU SN74LS468 OCTAL BUFFERS WITH 3-STATE OUTPUTS

logic symbols†



†These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

Pin numbers shown are for DW, J, and N packages.

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
Off-state output voltage	5.5 V
Operating free-air temperature range: SN54LS465 thru SN54LS468	-55°C to 125°C
SN74LS465 thru SN74LS468	0°C to 70°C
Storage temperature range	-65°C to 150°C

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

recommended operating conditions

	SN54LS'			SN74LS'			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}			-1			-2.6	mA
Low-level output current, I_{OL}			12			24	mA
Operating free-air temperature, T_A	-55		125	0		70	°C

2

TTL Devices

SN54LS465 THRU SN54LS468, SN74LS465 THRU SN74LS468 **OCTAL BUFFERS WITH 3-STATE OUTPUTS**

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

PARAMETER	TEST CONDITIONS†	SN54LS*			SN74LS*			UNIT
		MIN	TYP‡	MAX	MIN	TYP‡	MAX	
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	$V_{CC} = \text{MIN}$, $V_{IH} = 2 \text{ V}$, $V_{IL} = V_{IL \text{ max}}$	$I_{OH} = -1 \text{ mA}$						V
		$I_{OH} = -2.6 \text{ mA}$			2.4 3.1			
V_{OL} Low-level output voltage	$V_{CC} = \text{MIN}$, $V_{IH} = 2 \text{ V}$, $V_{IL} = V_{IL \text{ max}}$	$I_{OL} = 12 \text{ mA}$		0.25 0.4	0.25 0.4			V
		$I_{OL} = 24 \text{ mA}$			0.35 0.5			
I_{OZH} Off-state output current, high-level voltage applied	$V_{CC} = \text{MAX}$, $V_{IH} = 2 \text{ V}$, $V_O = 2.7 \text{ V}$			20			20	μA
I_{OZL} Off-state output current, low-level voltage applied	$V_{CC} = \text{MAX}$, $V_{IH} = 2 \text{ V}$, $V_O = 0.4 \text{ V}$			-20			-20	μA
I_I Input current at maximum input voltage	$V_{CC} = \text{MAX}$, $V_I = 7 \text{ V}$			0.1			0.1	mA
I_{IH} High-level input current	$V_{CC} = \text{MAX}$, $V_I = 2.7 \text{ V}$			20			20	μA
I_{IL} Low-level input current	$V_{CC} = \text{MAX}$, $V_I = 0.4 \text{ V}$			-0.2			-0.2	mA
I_{QS} Short-circuit output current§	$V_{CC} = \text{MAX}$, $V_O = 0 \text{ V}$	-30		-130	-30		-130	mA
I_{CC} Supply current	$V_{CC} = \text{MAX}$							mA
				Outputs low			19 32	
				Outputs high			13 22	
				Output Hi-Z			22 37	
				Outputs low			14 23	
				Outputs high			6 10	
				Outputs Hi-Z			17 28	

† 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, and duration of the short-circuit should not exceed one second.

switching characteristics, $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$, see note 2

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	'LS465, 'LS467			'LS466, 'LS468			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
t_{PLH}	A_i	Y_i	$R_L = 667 \Omega$, $C_L = 45 \text{ pF}$		9	15		7	12	ns
t_{PHL}	A_i	Y_i			12	18		9	15	ns
t_{PZH}	$\bar{G}_i$	Y			25	40		25	40	ns
t_{PZL}	$\bar{G}_i$	Y			29	45		29	45	ns
t_{PHZ}	$\bar{G}_i$	Y	$R_L = 667 \Omega$, $C_L = 5 \text{ pF}$		25	40		25	40	ns
t_{PLZ}	$\bar{G}_i$	Y			30	45		30	45	ns

NOTE 2. Load circuits and voltage waveforms are shown in Section 1.

2

TTL Devices