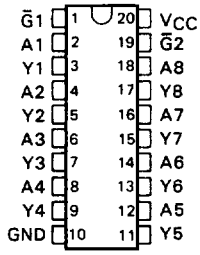
D2661, APRIL 1982—REVISED DECEMBER 1983

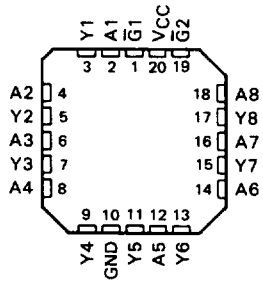
- **Mechanically and Functionally Interchangeable with DM71/81LS97 and DM71/81LS98**
- **P-N-P Inputs Reduce Bus Loading**
- **3-State Outputs Rated at I_{OL} of 12 mA and 24 mA for SN54ALS' and SN74ALS', Respectively**
- **Package Options Include Both Plastic and Ceramic Chip Carriers in Addition to Plastic and Ceramic DIPs**
- **Dependable Texas Instruments Quality and Reliability**

DEVICE	DATA PATH
'ALS465A	True
'ALS466A	Inverting
'ALS467A	True
'ALS468A	Inverting

SN54ALS465A, SN54ALS466A . . .J PACKAGE
SN74ALS465A, SN74ALS466A . . .N PACKAGE
(TOP VIEW)



SN54ALS465A, SN54ALS466A . . .FH PACKAGE
SN74ALS465A, SN74ALS466A . . .FN PACKAGE
(TOP VIEW)

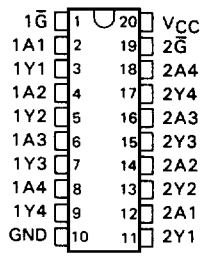


description

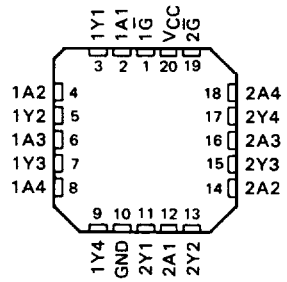
These octal buffers utilize the latest advanced low-power Schottky technology. The 'ALS465A and 'ALS466A have a two-input active-low AND enable gate controlling all eight data buffers. The 'ALS467A and 'ALS468A have two separate active-low enable inputs each controlling four data buffers. In each case, a high level on any $\overline{G}$ places the affected outputs at high impedance.

The SN54ALS465A, SN54ALS466A, SN54ALS467A, and SN54ALS468A are characterized for operation over the full military temperature range of −55°C to 125°C. The SN74ALS465A, SN74ALS466A, SN74ALS467A, and SN74ALS468A are characterized for operation from 0°C to 70°C.

SN54ALS467A, SN54ALS468A . . .J PACKAGE
SN74ALS467A, SN74ALS468A . . .N PACKAGE
(TOP VIEW)



SN54ALS467A, SN54ALS468A . . .FH PACKAGE
SN74ALS467A, SN74ALS468A . . .FN PACKAGE
(TOP VIEW)



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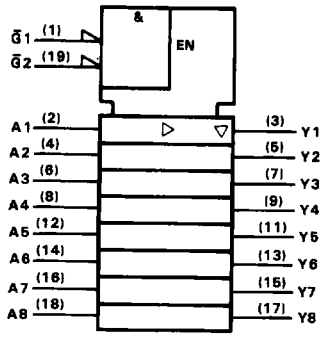
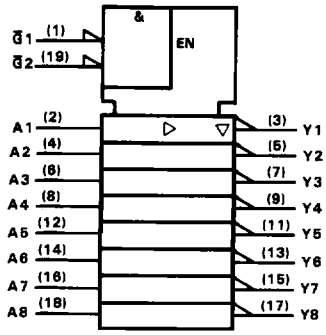
logic symbols

'ALS465A

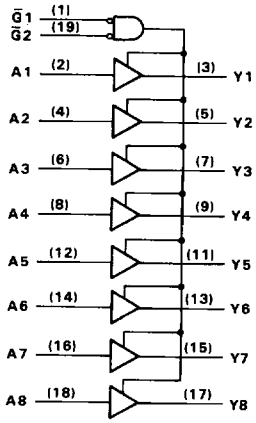


'ALS466A

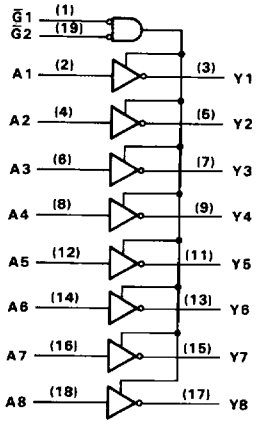


logic diagrams (positive logic)

'ALS465A



'ALS466A



Pin numbers shown are for J and N packages.

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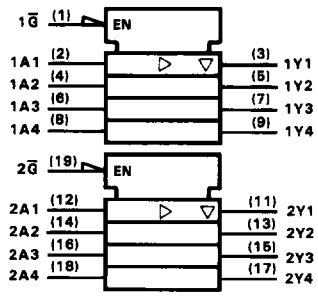
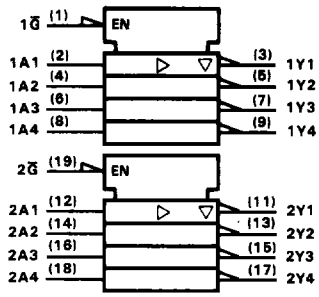
logic symbols

'ALS467A

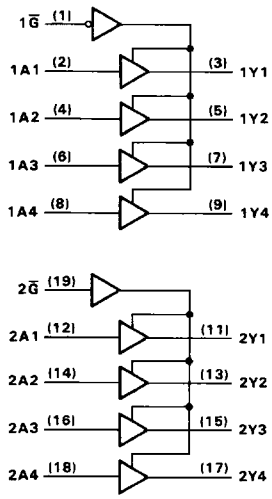


'ALS468A

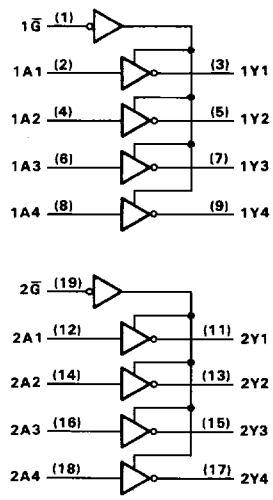


logic diagrams (positive logic)

'ALS467A



'ALS468A



Pin numbers shown are for J and N packages.

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

Supply voltage, V_{CC} . . . . . 7 V
Input voltage . . . . . 7 V
Voltage applied to a disabled 3-state output . . . . . 5.5 V
Operating free-air temperature range: SN54ALS465A THRU SN54ALS468A . . . . . −55°C to 125°C
SN74ALS465A THRU SN74ALS468A . . . . . 0°C to 70°C
Storage temperature range . . . . . −65°C to 150°C

recommended operating conditions

		SN54ALS465A THRU SN54ALS468A			SN74ALS465A THRU SN74ALS468A			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V_{IH}	High-level input voltage	2			2			V
V_{IL}	Low-level input voltage			0.8			0.8	V
I_{OH}	High-level output current			−12			−15	mA
I_{OL}	Low-level output current			12			24	mA
							48†	
T_A	Operating free-air temperature	−55		125	0		70	°C

†The extended limit applies only if V_{CC} is maintained between 4.75 V and 5.25 V.
The 48 mA limit applies for SN74ALS465A-1, SN74ALS466A-1, SN74ALS467A-1, and SN74ALS468A-1 only.

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

PARAMETER		TEST CONDITIONS		SN54ALS465A THRU SN54ALS468A			SN74ALS465A THRU SN74ALS468A			UNIT
				MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}		V_{CC} = 4.5 V,	I_I = −18 mA			−1.5			−1.5	V
V_{OH}		V_{CC} = 4.5 V to 5.5 V,	I_{OH} = −0.4 mA	V_{CC} − 2			V_{CC} − 2			V
		V_{CC} = 4.5 V,	I_{OH} = −3 mA	2.4	3.2		2.4	3.2		
		V_{CC} = 4.5 V,	I_{OH} = −12 mA	2						
		V_{CC} = 4.5 V,	I_{OH} = −15 mA				2			
V_{OL}		V_{CC} = 4.5 V,	I_{OL} = 12 mA		0.25	0.4		0.25	0.4	V
		V_{CC} = 4.5 V, (I_{OL} = 48 mA for −1 versions)	I_{OL} = 24 mA					0.35	0.5	
I_{OZH}		V_{CC} = 5.5 V,	V_O = 2.7 V			20			20	μA
I_{OZL}		V_{CC} = 5.5 V,	V_O = 0.4 V			−20			−20	μA
I_I		V_{CC} = 5.5 V,	V_I = 7 V			0.1			0.1	mA
I_{IH}		V_{CC} = 5.5 V,	V_I = 2.7 V			20			20	μA
I_{IL}		V_{CC} = 5.5 V,	V_I = 0.4 V			−0.1			−0.1	mA
I_O§		V_{CC} = 5.5 V,	V_O = 2.25 V	−30		−112	−30		−112	mA
I_{CC}	'ALS465A 'ALS467A	V_{CC} = 5.5 V	Outputs high		11	21		11	16	mA
			Outputs low		19	33		19	28	
			Outputs disabled		23	38		23	33	
	'ALS466A 'ALS468A	V_{CC} = 5.5 V	Outputs high		7	15		7	10	mA
			Outputs low		16	29		16	24	
			Outputs disabled		19	32		19	27	

‡All typical values are at V_{CC} = 5 V, T_A = 25°C.
§The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS}.

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'ALS465A, 'ALS467A switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R1 = 500 Ω, R2 = 500 Ω, T_A = MIN to MAX				UNIT
			SN54ALS465A SN54ALS467A		SN74ALS465A SN74ALS467A		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	2	16	2	13	ns
t_{PHL}			4	15	4	12	
t_{PZH}	$\overline{G}$	Any Y	4	27	4	23	ns
t_{PZL}			5	30	5	25	
t_{PHZ}	$\overline{G}$	Any Y	2	12	2	10	ns
t_{PLZ}			3	21	3	18	

'ALS466A, 'ALS468A switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R1 = 500 Ω, R2 = 500 Ω, T_A = MIN to MAX				UNIT
			SN54ALS466A SN54ALS468A		SN74ALS466A SN74ALS468A		
			MIN	MAX	MIN	MAX	
t_{PLH}	A	Y	3	14	3	12	ns
t_{PHL}			2	11	2	9	
t_{PZH}	$\overline{G}$	Any Y	4	21	4	16	ns
t_{PZL}			7	25	7	23	
t_{PHZ}	$\overline{G}$	Any Y	2	12	2	10	ns
t_{PLZ}			2	20	2	17	

NOTE 1: For load circuit and voltage waveforms, see page 1-12.