

DM74ALS29827

10-Bit Buffers and Bus Drivers with TRI-STATE® Outputs

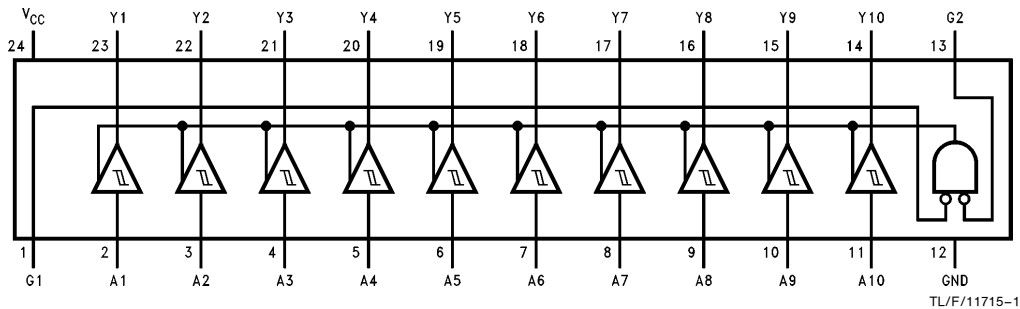
General Description

This 10-bit buffer/bus driver is designed for bus interfacing or busses with parity. The inputs include hysteresis which provides improved noise rejection. The device can be disabled when either controls (G1, G2) is at high; and the buses are effectively isolated.

Features

- Advanced oxide-isolated, ion implanted Schottky TTL process
- Switching specification guaranteed over the full temperature and V_{CC} range
- PNP inputs to reduce input loading
- Input hysteresis to improve noise margin
- Functionally and pin-for-pin compatible with AM29827 and SN74ALS29827

Connection Diagram



Order Number DM74ALS29827WM or DM74ALS29827NT
See NS Package Number M24B or N24C

Function Table

Control Inputs		Operation
G1	G2	
L	L	A Data to Y Bus
H	X	High Impedence
X	H	High Impedence

L = Low Logic Level

H = High Logic Level

X = Don't Care (Either Low or High Logic Level)

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Absolute Maximum Ratings

Supply Voltage	7V
Input Voltage	5.5V
Operating Free-Air Temperature Range	0°C to +75°C
Storage Temperature Range	-65°C to +150°C
Typical θ_{JA}	
N Package	86.4°C/W
M Package	81.4°C/W

Note: The "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the "Electrical Characteristics" table are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operations.

Recommended Operating Conditions

Symbol	Parameter	Min	Nom	Max	Units
V_{CC}	Supply Voltage	4.5	5	5.5	V
V_{IH}	High Level Input Voltage	2			V
V_{IL}	Low Level Input Voltage			0.8	V
I_{OH}	High Level Output Current			-15	mA
I_{OL}	Low Level Output Current			48	mA
T_A	Free Air Operating Temperature Range	0		70	°C

Electrical Characteristics over recommended free air temperature range

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
V_{IK}	Input Clamp Voltage	$V_{CC} = \text{Min}, I_I = -18 \text{ mA}$			-1.2	V
HYS	Hysteresis ($V_{T+} - V_{T-}$)	$V_{CC} = \text{Min}$	0.2	0.4		V
V_{OH}	High Level Output Voltage	$V_{CC} = 4.5\text{V to } 5.5\text{V}$	$I_{OH} = -0.4 \text{ mA}$	$V_{CC} - 2$		V
		$V_{CC} = \text{Min}$	$I_{OH} = -15 \text{ mA}$	2		V
V_{OL}	Low Level Output Voltage	$V_{CC} = \text{Min}, I_{OL} = 48 \text{ mA}$			0.53	V
I_I	Input Current at Maximum Input Voltage	$V_{CC} = \text{Max}, V_I = 5.5\text{V}$			100	μA
I_{IH}	High Level Input Current	$V_{CC} = \text{Max}, V_I = 2.7\text{V}$			20	μA
I_{IL}	Low Level Input Current	$V_{CC} = \text{Max}, V_I = 0.4\text{V}$			-100	μA
I_O	Output Drive Current	$V_{CC} = \text{Max}, V_O = 0\text{V (Note 1)}$	-75		-250	mA
I_{OZH}	High Level TRI-STATE Output Current	$V_{CC} = \text{Max}, V_O = 2.7\text{V}$			20	μA
I_{OZL}	Low Level TRI-STATE Output Current	$V_{CC} = \text{Max}, V_O = 0.4\text{V}$			-20	μA
I_{CC}	Supply Current	$V_{CC} = \text{Max}$			40	mA

Note 1: Not more than one output should be shorted at a time, and the duration should not exceed one second.

Switching Characteristics over recommended operating free air temperature range (Note 4)

Symbol	Parameter	Conditions (Note 2) $V_{CC} = 4.5V$ to $5.5V$	From (Input) To (Output)	Min	Typ (Note 3)	Max	Units
t_{PLH}	Propagation Delay Time Low to High Level Output	$C_L = 50$ pF	A to Y		4.5	8	ns
		$C_L = 300$ pF			8.5		ns
t_{PHL}	Propagation Delay Time High to Low Level Output	$C_L = 50$ pF	A to Y		5.5	10	ns
		$C_L = 300$ pF			10.0		ns
t_{PZH}	Output Enable Time to High Level Output	$C_L = 50$ pF	G1 or G2 to Y		7.5	15	ns
		$C_L = 300$ pF			10.5		ns
t_{PZL}	Output Enable Time to Low Level Output	$C_L = 50$ pF	G1 or G2 to Y		10.0	15	ns
		$C_L = 300$ pF			15.5		ns
t_{PHZ}	Output Disable Time from High Level Output	$C_L = 50$ pF	G1 or G2 to Y		4.0	17	ns
		$C_L = 300$ pF			16.0		ns
t_{PLZ}	Output Disable Time from Low Level Output	$C_L = 50$ pF	G1 or G2 to Y		7.5	12	ns
		$C_L = 300$ pF			11.0		ns

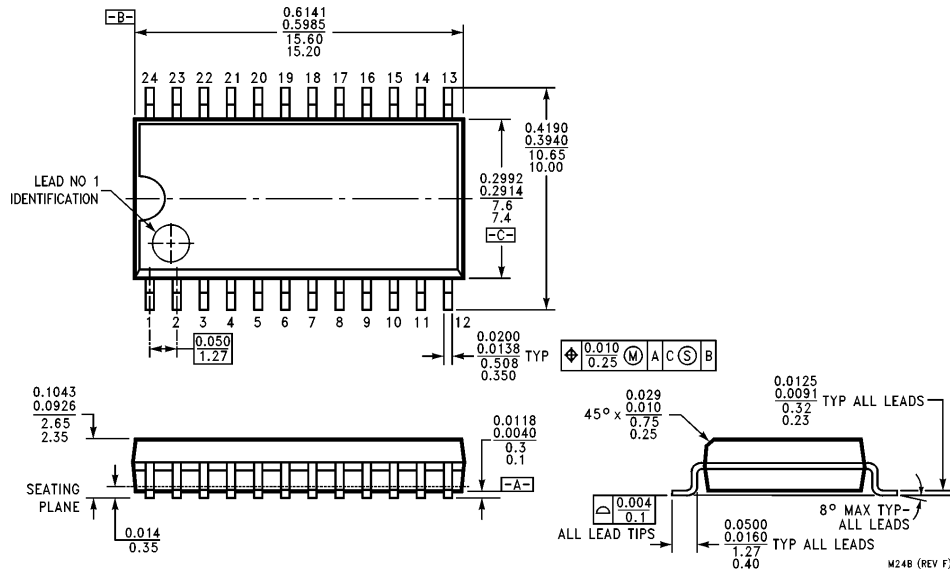
Note 2: Standard ALS/AS test and loading conditions.

Note 3: All typicals are at $V_{CC} = 5V$ $T_A = 25^\circ C$.

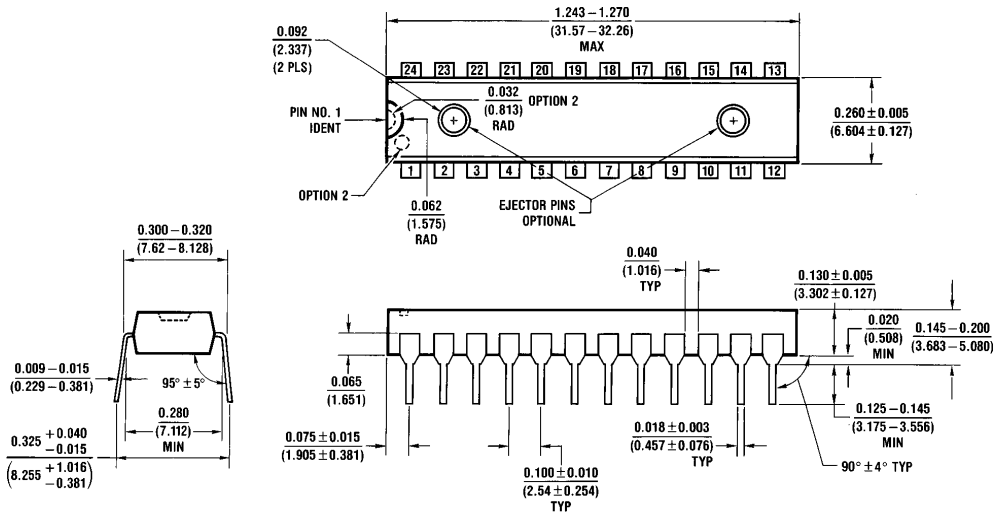
Note 4: See Section 5 for test waveforms and output load.



Physical Dimensions inches (millimeters)



Physical Dimensions inches (millimeters) (Continued)



Order Number DM74ALS29827NT
NS Package Number N24C

N24C (REV F)

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