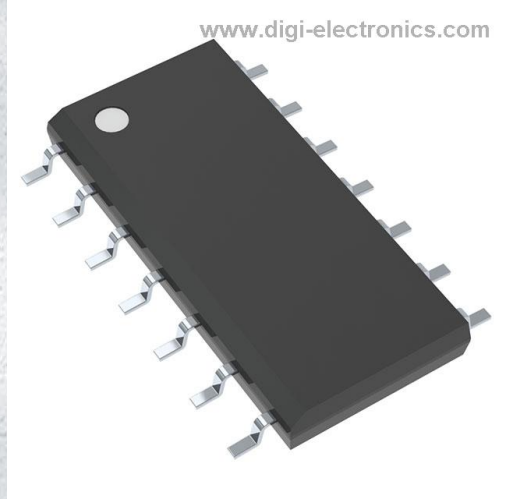
74LVQ32SC Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	74LVQ32SC-DG
Manufacturer	onsemi
Manufacturer Product Number	74LVQ32SC
Description	IC GATE OR 4CH 2-INP 14SOIC
Detailed Description	OR Gate IC 4 Channel 14-SOIC

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
74LVQ32SC	onsemi
Series:	Product Status:
74LVQ	Obsolete
Logic Type:	Number of Circuits:
OR Gate	4
Number of Inputs:	Features:
2	-
Voltage - Supply:	Current - Quiescent (Max):
2V ~ 3.6V	2 µA
Current - Output High, Low:	Input Logic Level - Low:
12mA, 12mA	0.8V
Input Logic Level - High:	Max Propagation Delay @ V, Max CL:
2V	9ns @ 3.3V, 50pF
Operating Temperature:	Mounting Type:
-40°C ~ 85°C	Surface Mount
Supplier Device Package:	Package / Case:
14-SOIC	14-SOIC (0.154", 3.90mm Width)
Base Product Number:	
74LVQ32	

Environmental & Export classification

Moisture Sensitivity Level (MSL):	REACH Status:
1 (Unlimited)	REACH Unaffected
ECCN:	HTSUS:
EAR99	8542.39.0001

February 1992
Revised June 2001

74LVQ32
Low Voltage Quad 2-Input OR Gate

General Description

The LVQ32 contains four 2-input OR gates.

Features

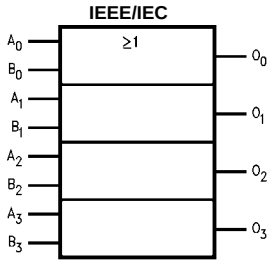
- Ideal for low power/low noise 3.3V applications
- Guaranteed simultaneous switching noise level and dynamic threshold performance
- Guaranteed pin-to-pin skew AC performance
- Guaranteed incident wave switching into 75Ω

Ordering Code:

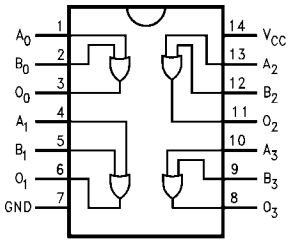
Order Number	Package Number	Package Description
74LVQ32SC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150" Narrow
74LVQ32SJ	M14D	14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Logic Symbol



Connection Diagram



Pin Descriptions

Pin Names	Description
A_n, B_n	Inputs
O_n	Outputs

Absolute Maximum Ratings(Note 1)

Supply Voltage (V_{CC})	−0.5V to +7.0V
DC Input Diode Current (I_{IK})	
V_I = −0.5V	−20 mA
V_I = V_{CC} + 0.5V	+20 mA
DC Input Voltage (V_I)	−0.5V to V_{CC} + 0.5V
DC Output Diode Current (I_{OK})	
V_O = −0.5V	−20 mA
V_O = V_{CC} + 0.5V	+20 mA
DC Output Voltage (V_O)	−0.5V to V_{CC} + 0.5V
DC Output Source or Sink Current (I_O)	±50 mA
DC V_{CC} or Ground Current (I_{CC} or I_{GND})	±200 mA
Storage Temperature (T_{STG})	−65°C to +150°C
DC Latch-Up Source or Sink Current	±100 mA

Recommended Operating Conditions (Note 2)

Supply Voltage (V_{CC})	
LVQ	2.0V to 3.6V
Input Voltage (V_I)	0V to V_{CC}
Output Voltage (V_O)	0V to V_{CC}
Operating Temperature (T_A)	
74LVQ	−40°C to +85°C
Minimum Input Edge Rate ($\Delta V/\Delta t$)	
V_{IN} from 0.8V to 2.0V	
V_{CC} @ 3.0V	125 mV/ns

Note 1: 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 tables are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

Note 2: Unused inputs must be held HIGH or LOW. They may not float.

DC Electrical Characteristics

Symbol	Parameter	V_{CC} (V)	T_A = +25°C		T_A = −40°C to +85°C	Units	Conditions
			Typ	Guaranteed Limits			
V_{IH}	Minimum High Level Input Voltage	3.0	1.5	2.0	2.0	V	V_{OUT} = 0.1V or V_{CC} − 0.1V
V_{IL}	Maximum Low Level Input Voltage	3.0	1.5	0.8	0.8	V	V_{OUT} = 0.1V or V_{CC} − 0.1V
V_{OH}	Minimum High Level Output Voltage	3.0	2.99	2.9	2.9	V	I_{OUT} = −50 µA
		3.0		2.58	2.48	V	V_{IN} = V_{IL} or V_{IH} (Note 3) I_{OH} = −12 mA
V_{OL}	Maximum Low Level Output Voltage	3.0	0.002	0.1	0.1	V	I_{OUT} = 50 µA
		3.0		0.36	0.44	V	V_{IN} = V_{IL} or V_{IH} (Note 3) I_{OL} = 12 mA
I_{IN}	Maximum Input Leakage Current	3.6		±0.1	±1.0	µA	V_I = V_{CC}, GND
I_{OLD}	Minimum Dynamic	3.6			36	mA	V_{OLD} = 0.8V Max (Note 5)
I_{OHD}	Output Current (Note 4)	3.6			−25	mA	V_{OHD} = 2.0V Min (Note 5)
I_{CC}	Maximum Quiescent Supply Current	3.6		2.0	20.0	µA	V_{IN} = V_{CC} or GND
V_{OLP}	Quiet Output Maximum Dynamic V_{OL}	3.3	0.5	0.8		V	(Note 6)(Note 7)
V_{OLV}	Quiet Output Minimum Dynamic V_{OL}	3.3	−0.5	−0.8		V	(Note 6)(Note 7)
V_{IHD}	Maximum High Level Dynamic Input Voltage	3.3	1.9	2.0		V	(Note 6)(Note 8)
V_{ILD}	Maximum Low Level Dynamic Input Voltage	3.3	1.8	0.8		V	(Note 6)(Note 8)

Note 3: All outputs loaded; thresholds on input associated with output under test.

Note 4: Maximum test duration 2.0 ms, one output loaded at a time.

Note 5: Incident wave switching on transmission lines with impedances as low as 75Ω for commercial temperature range is guaranteed for 74LVQ.

Note 6: Worst case package.

Note 7: Max number of outputs defined as (n). Data inputs are driven 0V to 3.3V; one output at GND.

Note 8: Max number of Data Inputs (n) switching. (n − 1) inputs switching 0V to 3.3V. Input-under-test switching: 3.3V to threshold (V_{ILD}), 0V to threshold (V_{IHD}), f = 1 MHz.

AC Electrical Characteristics

Symbol	Parameter	V_{CC} (V)	$T_A = +25°C$, $C_L = 50$ pF			$T_A = -40°C$ to $+85°C$, $C_L = 50$ pF		Units
			Min	Typ	Max	Min	Max	
t_{PLH}	Propagation Delay	2.7	1.5	8.4	12.7	1.5	14.0	ns
		3.3 ± 0.3	1.5	7.0	9.0	1.5	10.0	
t_{PHL}	Propagation Delay	2.7	1.5	8.4	12.0	1.0	13.0	ns
		3.3 ± 0.3	1.5	7.0	8.5	1.5	9.0	
t_{OSHL},	Output to Output Skew	2.7		1.0	1.5		1.5	ns
t_{OSLH}	(Note 9)	3.3 ± 0.3		1.0	1.5		1.5	

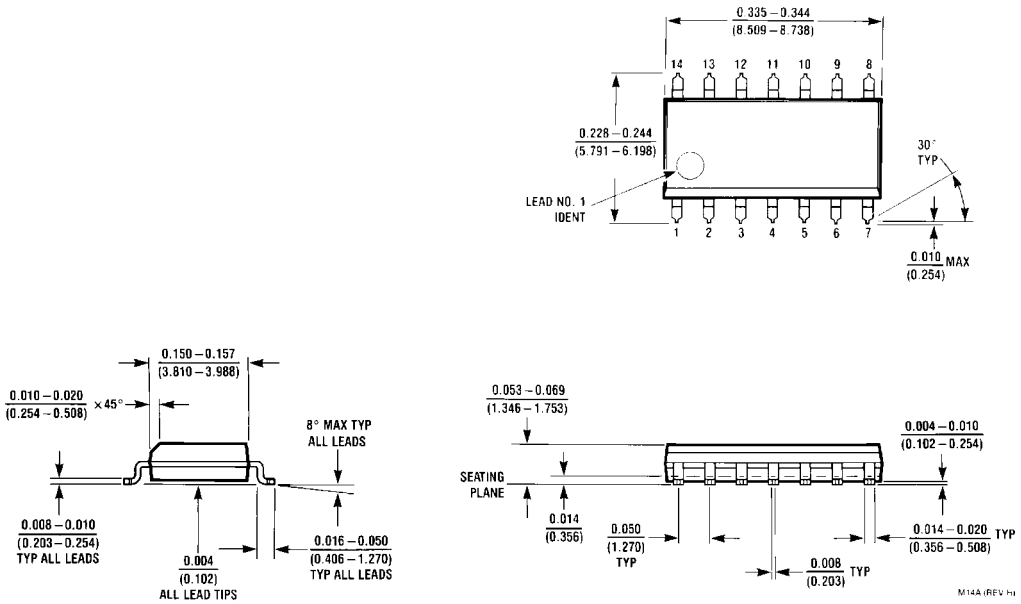
Note 9: Skew is defined as the absolute value of the difference between the actual propagation delay for any two separate outputs of the same device. The specification applies to any outputs switching in the same direction, either HIGH-to-LOW (t_{OSHL}) or LOW-to-HIGH (t_{OSLH}). Parameter guaranteed by design.

Capacitance

Symbol	Parameter	Typ	Units	Conditions
C_{IN}	Input Capacitance	4.5	pF	V_{CC} = Open
C_{PD} (Note 10)	Power Dissipation Capacitance	17	pF	V_{CC} = 3.3V

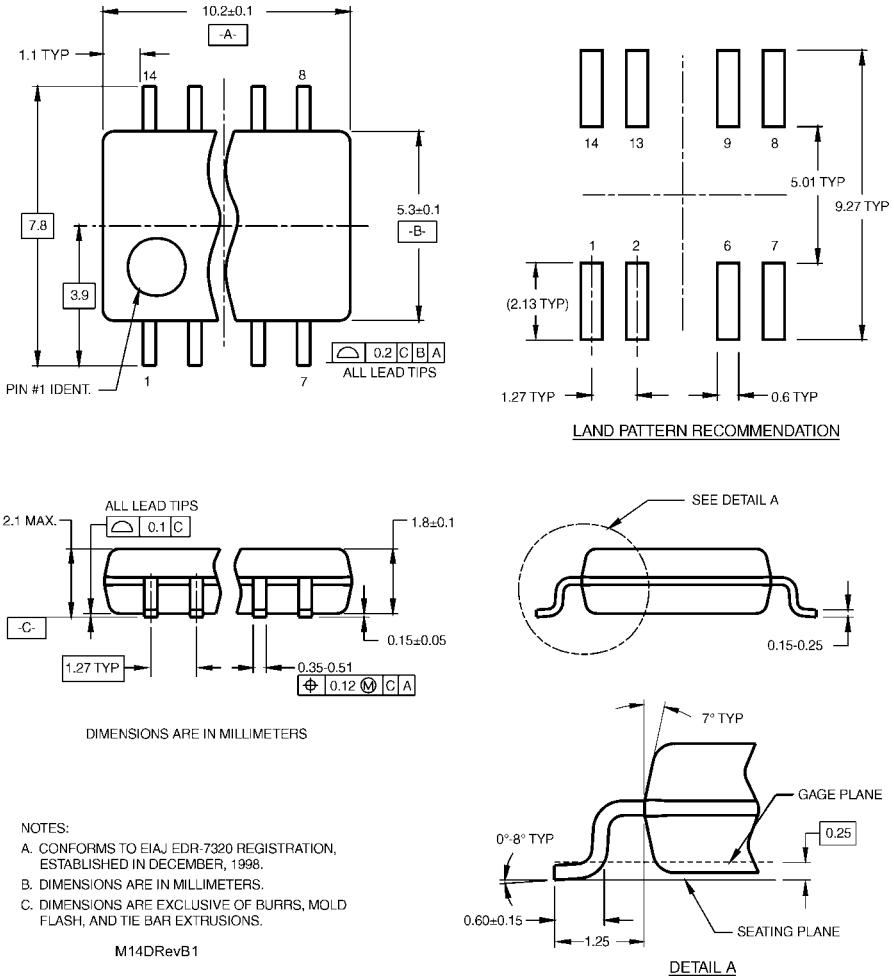
Note 10: C_{PD} is measured at 10 MHz.

Physical Dimensions inches (millimeters) unless otherwise noted



14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150" Narrow
Package Number M14A

Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



NOTES:

A. CONFORMS TO EIAJ EDR-7320 REGISTRATION, ESTABLISHED IN DECEMBER, 1998.

B. DIMENSIONS ARE IN MILLIMETERS.

C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.

M14DRevB1

14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
Package Number M14D

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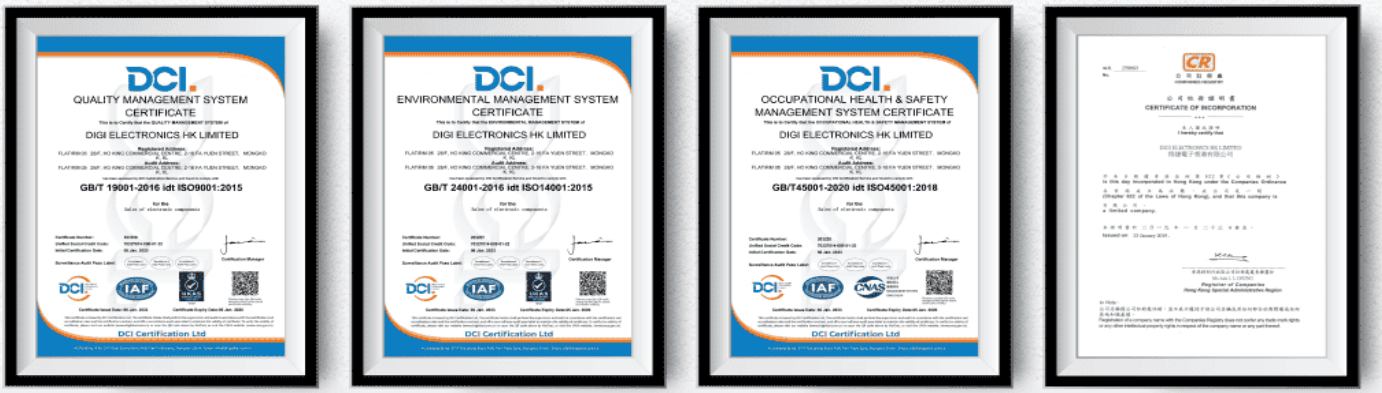

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