Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[Texas Instruments](#)
[SN75124N](#)

For any questions, you can email us directly:
sales@integrated-circuit.com

SN75124
TRIPLE LINE RECEIVER

SLLS058B – SEPTEMBER 1973 – REVISED MAY 1995

- **Meets or Exceeds the Requirements of IBM™ System 360 Input/Output Interface Specification**
- **Operates From Single 5-V Supply**
- **TTL Compatible**
- **Built-In Input Threshold Hysteresis**
- **High Speed . . . Typical Propagation Delay Time = 20 ns**
- **Independent Channel Strobes**
- **Input Gating Increases Application Flexibility**
- **Designed for Use With Dual Line Driver SN75123**
- **Designed to Be Interchangeable With Signetics N8T24**

D OR N PACKAGE
(TOP VIEW)

1A	1	16	V_{CC}
1B	2	15	1S
2R	3	14	1R
2S	4	13	1Y
2A	5	12	3A
2B	6	11	3S
2Y	7	10	3R
GND	8	9	3Y
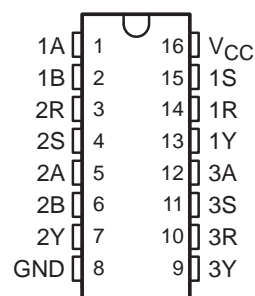
description

The SN75124 triple line receiver is specifically designed to meet the input/output interface specifications for IBM System 360. It is also compatible with standard TTL logic and supply voltage levels.

The SN75124 has receiver inputs with built-in hysteresis to provide increased noise margin for single-ended systems. An open line affects the receiver input as does a low-level input voltage, and the receiver input can withstand a level of −0.15 V with power on or off. The other inputs are in TTL configuration. The S input must be high to enable the receiver input. Two of the line receivers have A and B inputs that, if both are high, hold the output low. The third receiver has only an A input that, if high, holds the output low.

See the SN751730 for new IBM 360/370 interface designs.

The SN75124 is characterized for operation from 0°C to 70°C.

FUNCTION TABLE

INPUTS				OUTPUT
A	B†	R	S	Y
H	H	X	X	L
X	X	L	H	L
L	X	H	X	H
L	X	X	L	H
X	L	H	X	H
X	L	X	L	H

† B input and last two lines of the function table are applicable to receivers 1 and 2 only.

Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

IBM is a trademark of International Business Machines Corp.

TEXAS INSTRUMENTS

POST OFFICE BOX 655303 ● DALLAS, TEXAS 75265

SN75124
TRIPLE LINE RECEIVER
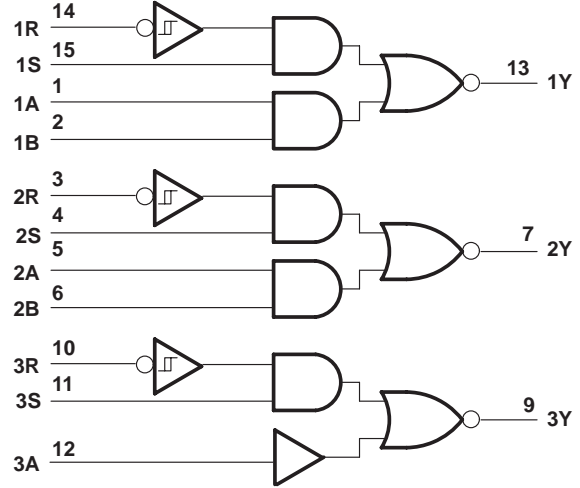
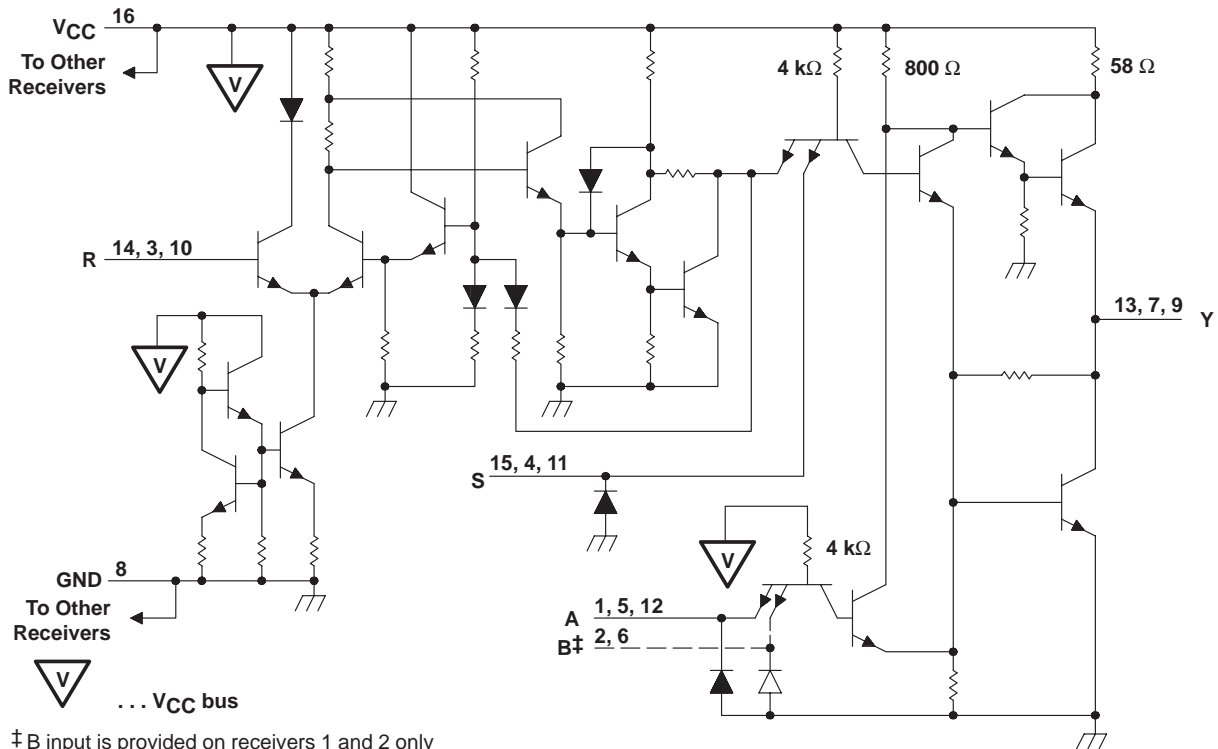SLLS058B – SEPTEMBER 1973 – REVISED MAY 1995

logic symbol†
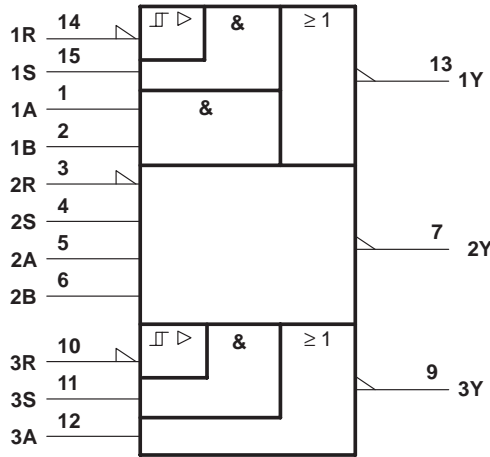
† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagram (positive logic)

schematic (each receiver)

‡ B input is provided on receivers 1 and 2 only
Resistor values shown are nominal.

TEXAS INSTRUMENTS
POST OFFICE BOX 655303 ● DALLAS, TEXAS 75265

SN75124
TRIPLE LINE RECEIVER

SLLS058B – SEPTEMBER 1973 – REVISED MAY 1995

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

Supply voltage, V_{CC} (see Note 1) . . . . 7 V
Input voltage, V_I: R input with V_{CC} applied . . . . 7 V
  R input with V_{CC} not applied . . . . 6 V
  A, B, or S input . . . . 5.5 V
Output voltage, V_O . . . . 7 V
Output current, I_O . . . . ±100 mA
Continuous total dissipation . . . . See Dissipation Rating Table
Operating free-air temperature range, T_A . . . . 0°C to 70°C
Storage temperature range, T_{stg} . . . . −65°C to 150°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds . . . . 260°C

† Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and
  functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not
  implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
NOTE 1: Voltage values are with respect to network ground terminal

DISSIPATION RATING TABLE

PACKAGE	$T_A \leq 25°C$ POWER RATING	DERATING FACTOR ABOVE $T_A = 25°C$	$T_A = 70°C$ POWER RATING
D	950 mW	7.6 mW/°C	608 mW
N	1150 mW	9.2 mW/°C	736 mW

recommended operating conditions

		MIN	NOM	MAX	UNIT
Supply voltage, V_{CC}		4.75	5	5.25	V
High-level input voltage, V_{IH}	A, B, or S	2			V
	R	1.7			
Low-level input voltage, V_{IL}	A, B, or S			0.8	V
	R			0.7	
High-level output current, I_{OH}				−800	µA
Low-level output current, I_{OL}				16	mA
Operating free-air temperature, T_A		0		70	°C

TEXAS
INSTRUMENTS

SN75124
TRIPLE LINE RECEIVER

SLLS058B – SEPTEMBER 1973 – REVISED MAY 1995

electrical characteristics over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted)

	PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
V_{hys}	Hysteresis voltage ($V_{IT+} - V_{IT-}$)	R	$V_{CC} = 5$ V,	$T_A = 25°C$	0.2	0.5		V
V_{IK}	Input clamp voltage	A, B, or S	$V_{CC} = 5$ V,	$I_I - 12$ mA			−1.5	V
$V_{I(BR)}$	Input breakdown voltage	A, B, or S	$V_{CC} = 5$ V,	$I_I = 10$ mA	5.5			V
V_{OH}	High-level output voltage		$V_{IH} = V_{IH}$min, $I_{OH} = -800$ µA,	$V_{IL} = V_{IL}$max, See Note 2	2.6			V
V_{OL}	Low-level output voltage		$V_{IH} = V_{IH}$min, $I_{OL} = 16$ mA,	$V_{IL} = V_{IL}$max, See Note 2			0.4	V
I_I	Input current at maximum input voltage	R	$V_I = 7$ V				5	mA
			$V_I = 6$ V,	$V_{CC} = 0$			5	
I_{IH}	High-level input current	A, B, or S	$V_I = 4.5$ V				40	µA
		R	$V_I = 3.11$ V				170	
I_{IL}	Low-level input current	A, B, or S	$V_I = 0.4$ V,	$V_{IR} = 0.8$ V	−0.1		−1.6	mA
I_{OS}	Short-circuit output current†				−50		−100	mA
I_{CC}	Supply current		All inputs = 0.8 V				72	mA
			All inputs = 2 V				100	

† Not more than one output should be shorted at a time, and duration of the short circuit should not exceed one second.
NOTE 2:   The output voltage and current limits are characterized for any appropriate combination of high and low inputs specified by the function table for the desired output.

switching characteristics, $V_{CC} = 5$ V, $T_A = 25°C$

	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{PLH}	Propagation delay time, low-to-high-level output from R input	See Figure 1		20	30	ns
t_{PHL}	Propagation delay time, high-to-low-level output from R input			20	30	

PARAMETER MEASUREMENT INFORMATION

TEST CIRCUIT
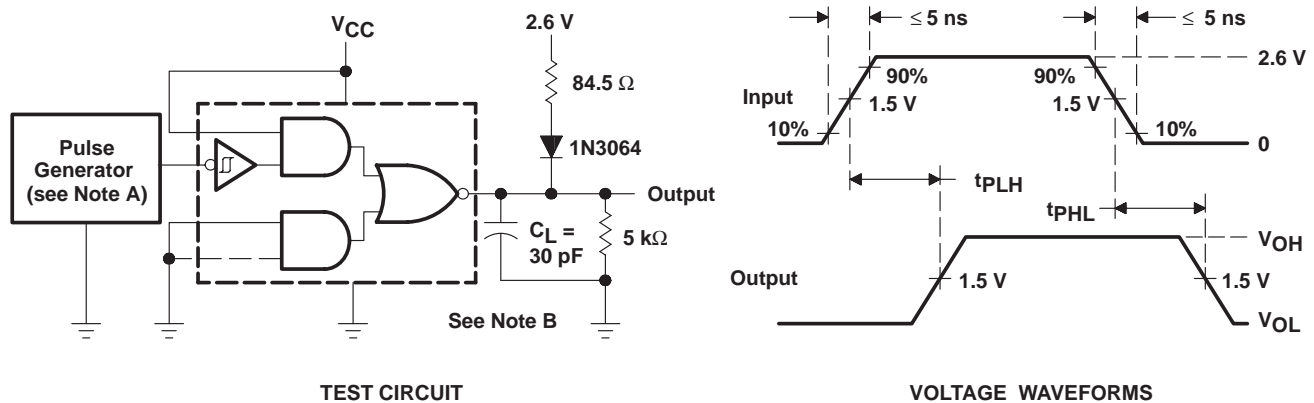
VOLTAGE WAVEFORMS

NOTES: A. The pulse generator has the following characteristics: $Z_O ≈ 50$ Ω, PRR ≤ 5 MHz, duty cycle = 50%.
          B. C_L includes probe and jig capacitance.

Figure 1. Test Circuit and Voltage Waveforms

TEXAS INSTRUMENTS

SN75124
TRIPLE LINE RECEIVER

SLLS058B – SEPTEMBER 1973 – REVISED MAY 1995

TYPICAL CHARACTERISTICS

RECEIVER
OUTPUT VOLTAGE
vs
INPUT VOLTAGE

Figure 2
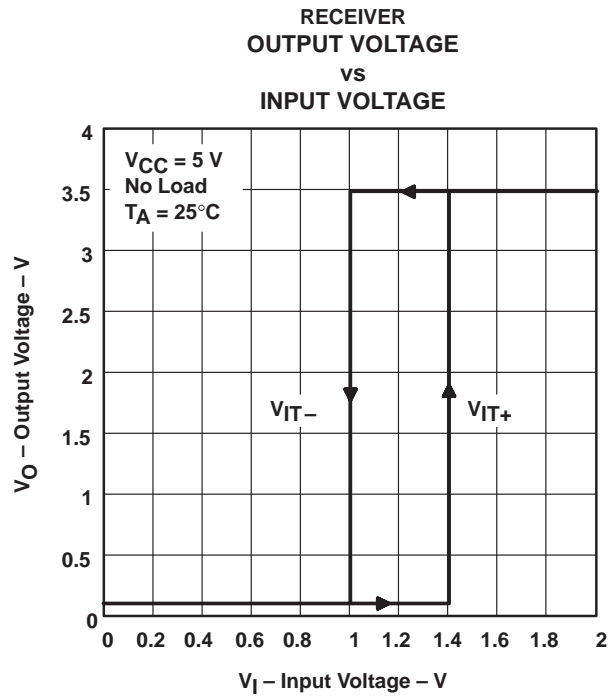
APPLICATION INFORMATION

Figure 3. Unbalanced Line Communication Using SN75123 and SN75124

PACKAGE OPTION ADDENDUM

www.ti.com   10-Jun-2014
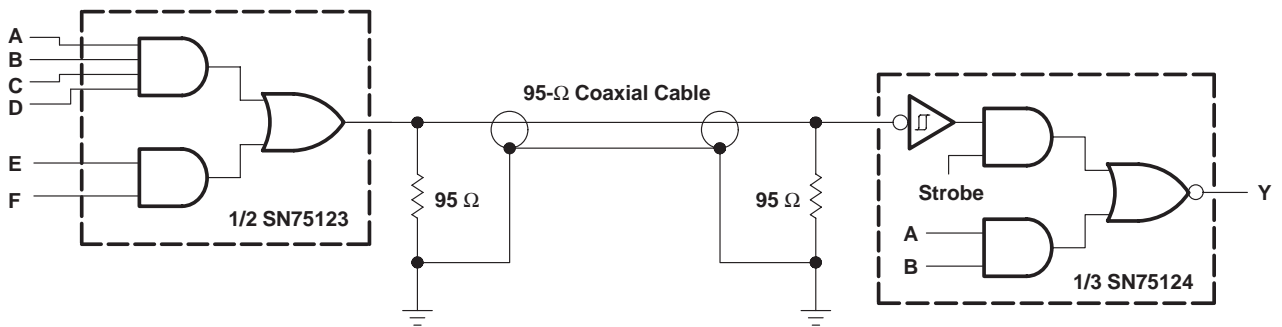
PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
SN75124D	OBSOLETE	SOIC	D	16		TBD	Call TI	Call TI	0 to 70		
SN75124N	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	0 to 70	SN75124N	Samples
SN75124NSR	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	0 to 70	SN75124	Samples

(1) The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.
TBD: The Pb-Free/Green conversion plan has not been defined.
Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.
Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and

Distributor of Texas Instruments: Excellent Integrated System Limited
Datasheet of SN75124N - IC TRIPLE LINE RECEIVER 16DIP
Contact us: sales@integrated-circuit.com Website: www.integrated-circuit.com

PACKAGE OPTION ADDENDUM

www.ti.com

10-Jun-2014

MECHANICAL DATA

N (R−PDIP−T**)   PLASTIC DUAL−IN−LINE PACKAGE

16 PINS SHOWN

DIM \ PINS **	14	16	18	20
A MAX	0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN	0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS−001 VARIATION	AA	BB	AC	AD

0.260 (6,60) / 0.240 (6,10)

0.070 (1,78) / 0.045 (1,14) /D\

0.045 (1,14) / 0.030 (0,76) /D\

0.020 (0,51) MIN

0.200 (5,08) MAX

Seating Plane

0.125 (3,18) MIN

0.100 (2,54)

0.021 (0,53) / 0.015 (0,38)

⊕ 0.010 (0,25) Ⓜ

14/18 Pin Only
20 Pin vendor option /D\

0.325 (8,26) / 0.300 (7,62)

0.015 (0,38)

Gauge Plane

0.010 (0,25) NOM

0.430 (10,92) MAX

4040049/E 12/2002

NOTES: A. All linear dimensions are in inches (millimeters).
         B. This drawing is subject to change without notice.
     /C\ Falls within JEDEC MS−001, except 18 and 20 pin minimum body length (Dim A).
     /D\ The 20 pin end lead shoulder width is a vendor option, either half or full width.

TEXAS
INSTRUMENTS
www.ti.com

MECHANICAL DATA

D (R–PDSO–G16)   PLASTIC SMALL OUTLINE
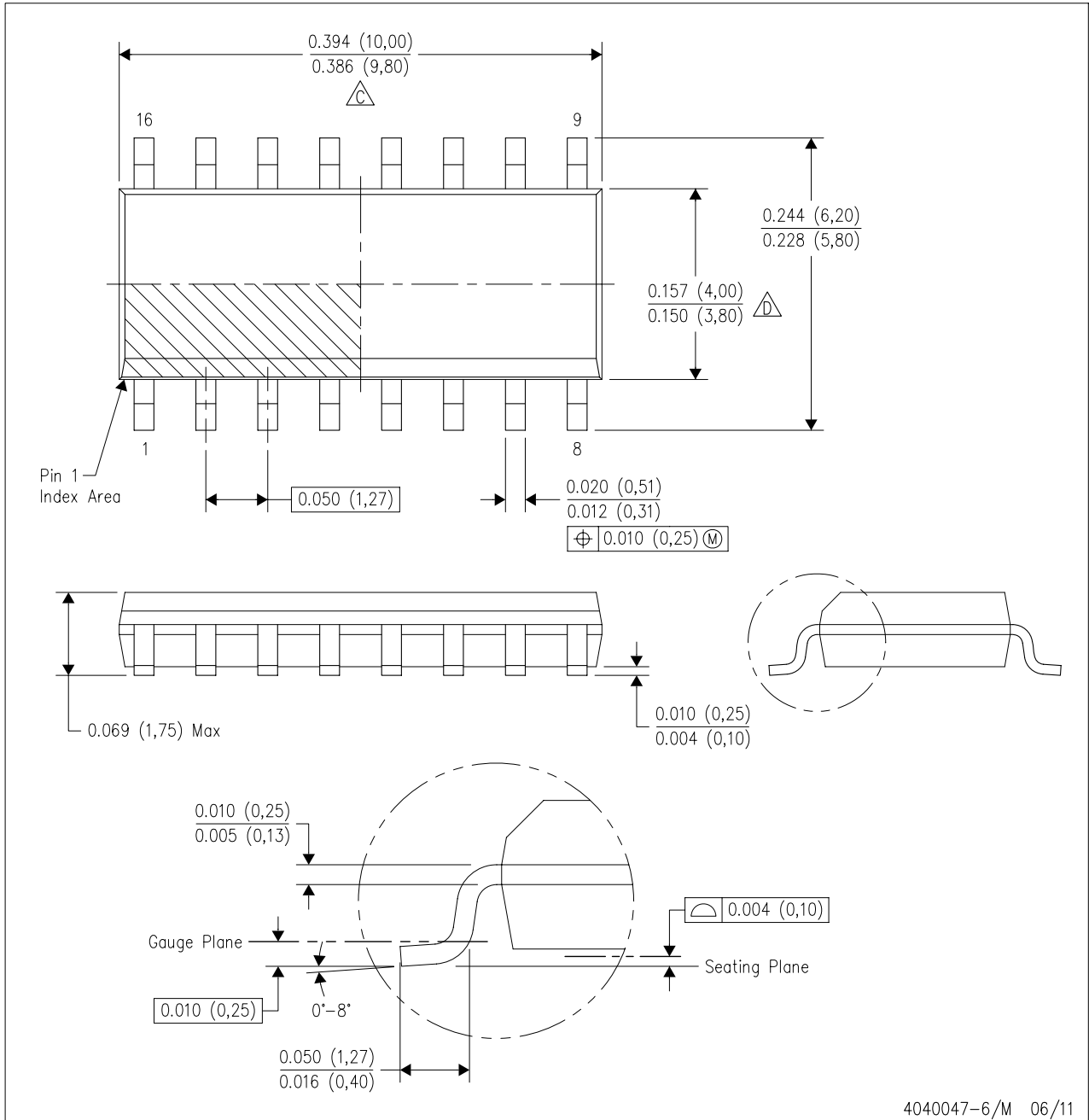
4040047–6/M 06/11

NOTES: A.   All linear dimensions are in inches (millimeters).
         B.   This drawing is subject to change without notice.
    C.   Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall
         not exceed 0.006 (0,15) each side.
    D.   Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.
         E.   Reference JEDEC MS–012 variation AC.

![Texas Instruments logo]
TEXAS INSTRUMENTS
www.ti.com

MECHANICAL DATA

NS (R-PDSO-G)**   PLASTIC SMALL-OUTLINE PACKAGE

14-PINS SHOWN

PINS ** DIM	14	16	20	24
A MAX	10,50	10,50	12,90	15,30
A MIN	9,90	9,90	12,30	14,70

4040062/C 03/03
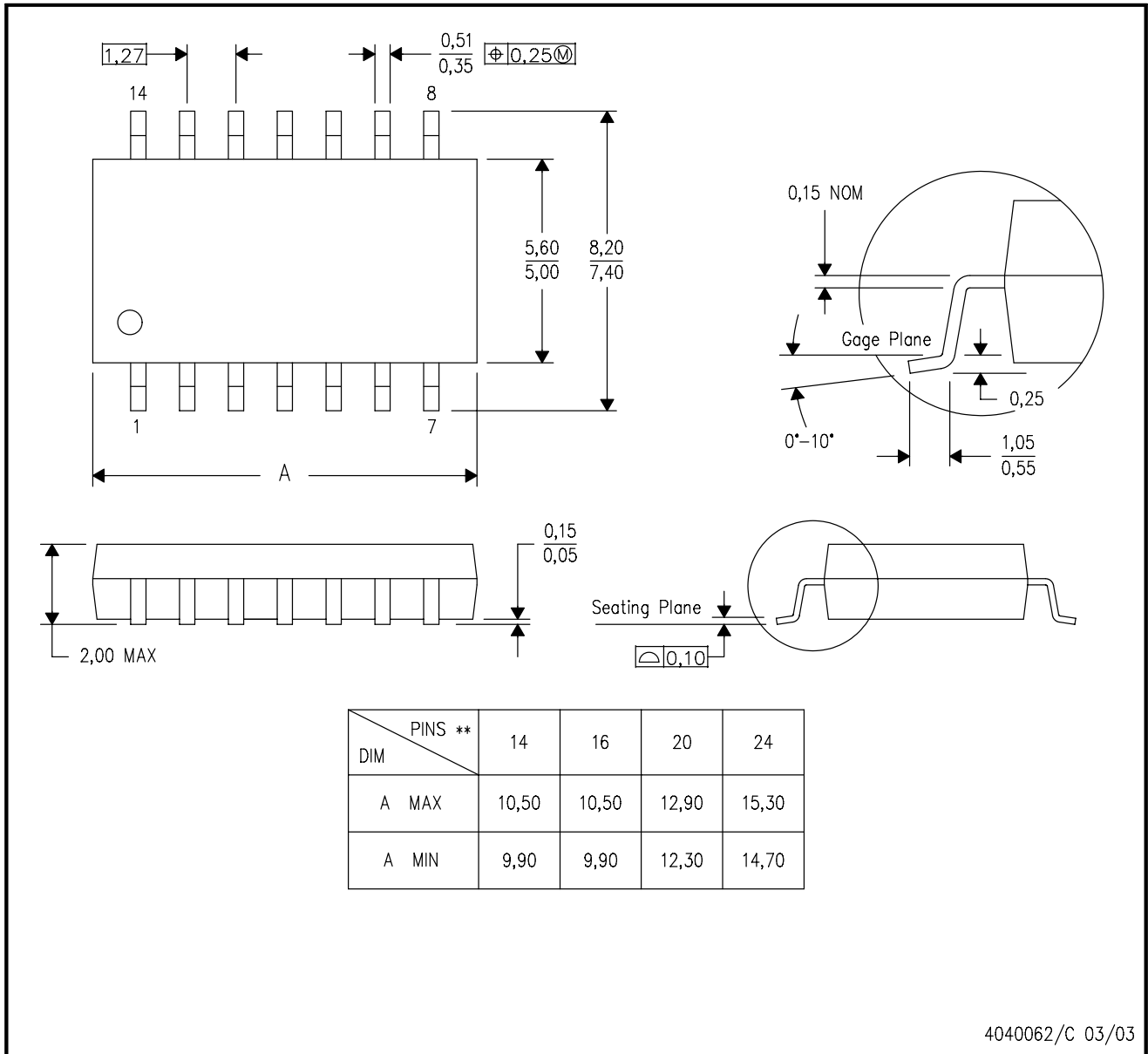
NOTES: A.   All linear dimensions are in millimeters.
         B.   This drawing is subject to change without notice.
         C.   Body dimensions do not include mold flash or protrusion, not to exceed 0,15.

TEXAS
INSTRUMENTS
www.ti.com

IMPORTANT NOTICE

Products		Applications	
Audio	www.ti.com/audio	Automotive and Transportation	www.ti.com/automotive
Amplifiers	amplifier.ti.com	Communications and Telecom	www.ti.com/communications
Data Converters	dataconverter.ti.com	Computers and Peripherals	www.ti.com/computers
DLP® Products	www.dlp.com	Consumer Electronics	www.ti.com/consumer-apps
DSP	dsp.ti.com	Energy and Lighting	www.ti.com/energy
Clocks and Timers	www.ti.com/clocks	Industrial	www.ti.com/industrial
Interface	interface.ti.com	Medical	www.ti.com/medical
Logic	logic.ti.com	Security	www.ti.com/security
Power Mgmt	power.ti.com	Space, Avionics and Defense	www.ti.com/space-avionics-defense
Microcontrollers	microcontroller.ti.com	Video and Imaging	www.ti.com/video
RFID	www.ti-rfid.com		
OMAP Applications Processors	www.ti.com/omap	**TI E2E Community**	e2e.ti.com
Wireless Connectivity	www.ti.com/wirelessconnectivity		