

SDLS058

# SN54157, SN54LS157, SN54LS158, SN54S157, SN54S158, SN74157, SN74LS157, SN74LS158, SN74S157, SN74S158 QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS

MARCH 1974 — REVISED MARCH 1988

- Buffered Inputs and Outputs
- Three Speed/Power Ranges Available

TYPES	TYPICAL AVERAGE PROPAGATION TIME	TYPICAL POWER DISSIPATION
'157	9 ns	150 mW
'LS157	9 ns	49 mW
'S157	5 ns	250 mW
'LS158	7 ns	24 mW
'S158	4 ns	195 mW

## applications

- Expand Any Data Input Point
- Multiplex Dual Data Buses
- Generate Four Functions of Two Variables (One Variable Is Common)
- Source Programmable Counters

## description

These monolithic data selectors/multiplexers contain inverters and drivers to supply full on-chip data selection to the four output gates. A separate strobe input is provided. A 4-bit word is selected from one of two sources and is routed to the four outputs. The '157, 'LS157, and 'S157 present true data whereas the 'LS158 and 'S158 present inverted data to minimize propagation delay time.

FUNCTION TABLE

INPUTS				OUTPUT Y	
STROBE $\bar{G}$	SELECT $\bar{A}/B$	A	B	'157, 'LS157, 'S157	'LS158 'S158
H	X	X	X	L	H
L	L	L	X	L	H
L	L	H	X	H	L
L	H	X	L	L	H
L	H	X	H	H	L

H = high level, L = low level, X = irrelevant

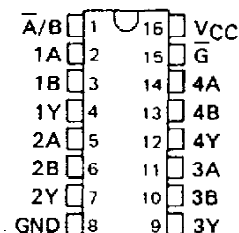
## absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, $V_{CC}$ (See Note 1)	7 V
Input voltage: '157, 'S158	5.5 V
'LS157, 'LS158	7 V
Operating free-air temperature range: SN54'	-55°C to 125°C
SN74'	0°C to 70°C
Storage temperature range	-65°C to 150°C

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

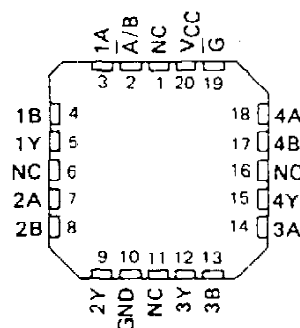
SN54157, SN54LS157, SN54S157,  
SN54LS158, SN54S158 . . . J OR W PACKAGE  
SN74157 . . . N PACKAGE  
SN74LS157, SN74S157,  
SN74LS158, SN74S158 . . . D OR N PACKAGE

(TOP VIEW)



SN54LS157, SN54S157, SN54LS158,  
SN54S158 . . . FK PACKAGE

(TOP VIEW)



NC - No internal connection

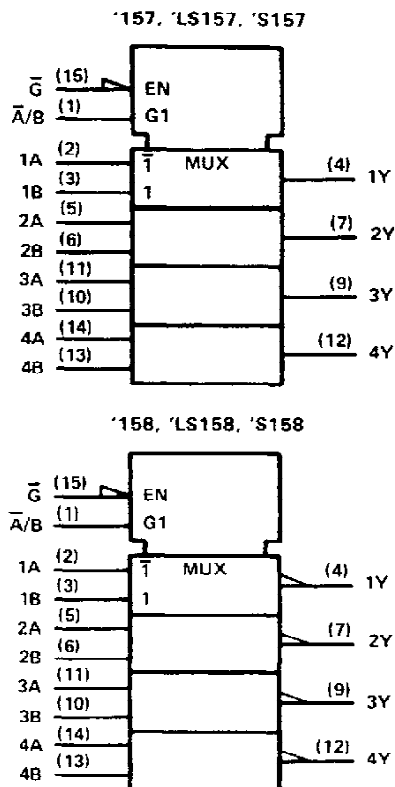
PRODUCTION DATA documents contain information current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

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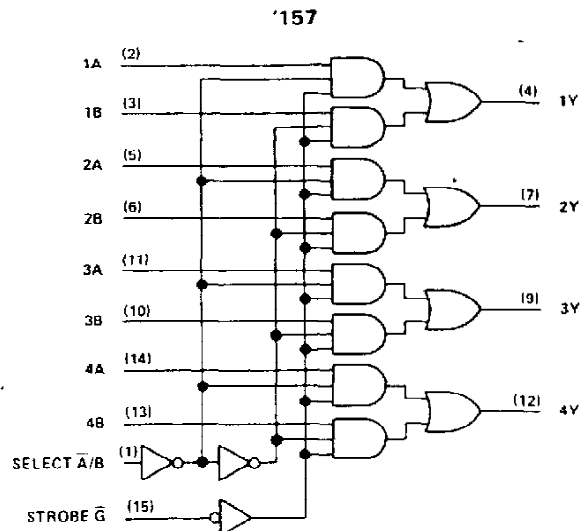
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**SN54157, SN54LS157, SN54LS158, SN54S157, SN54S158,  
SN74157, SN74LS157, SN74LS158, SN74S157, SN74S158  
QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS**

logic symbols†



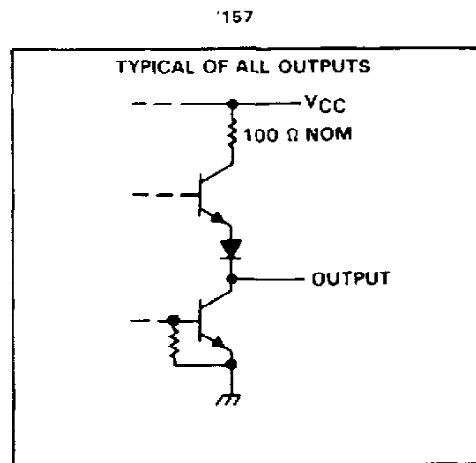
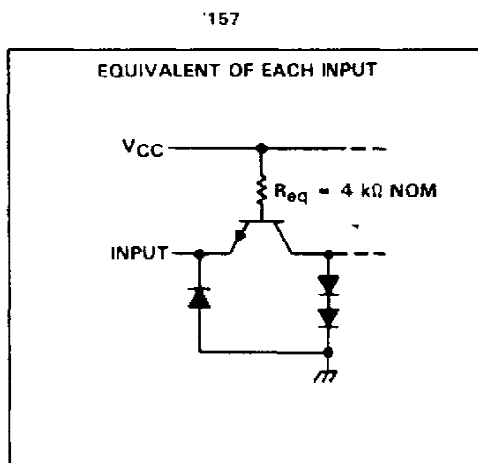
logic diagram (positive logic)



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

Pin numbers shown are for D, J, N, and W packages.

schematics of inputs and outputs



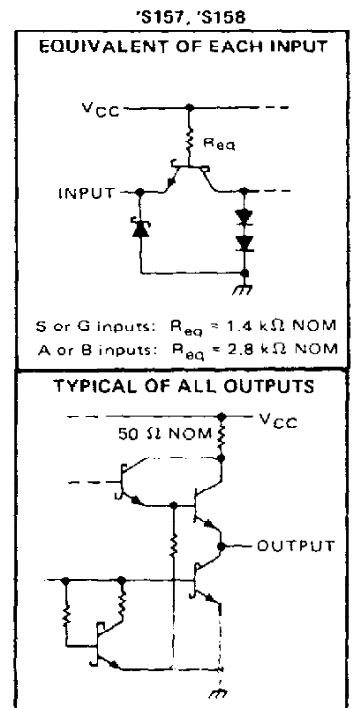
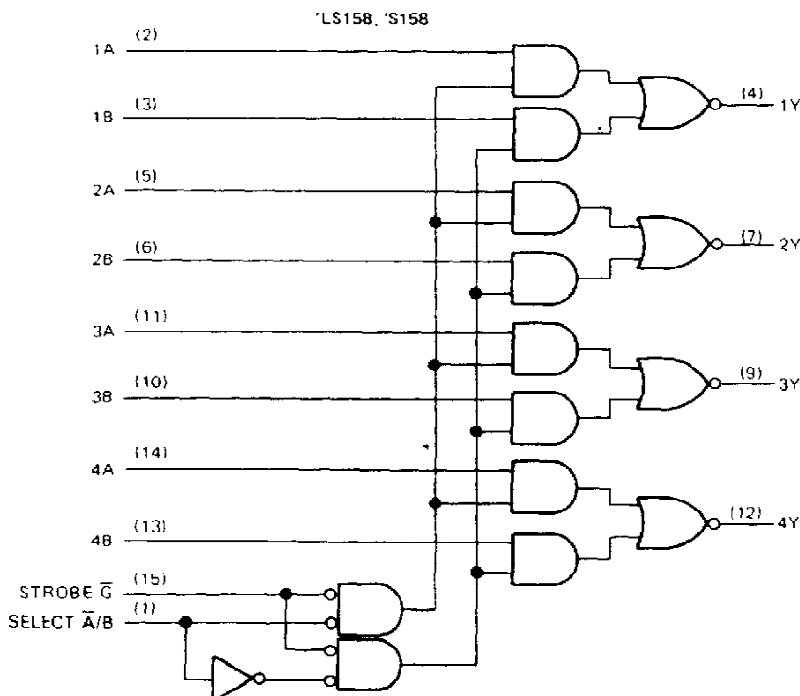
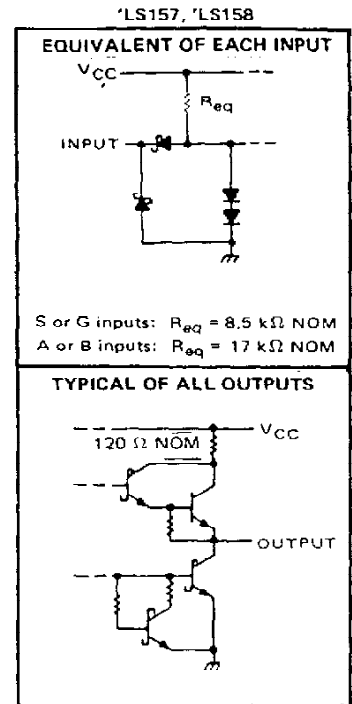
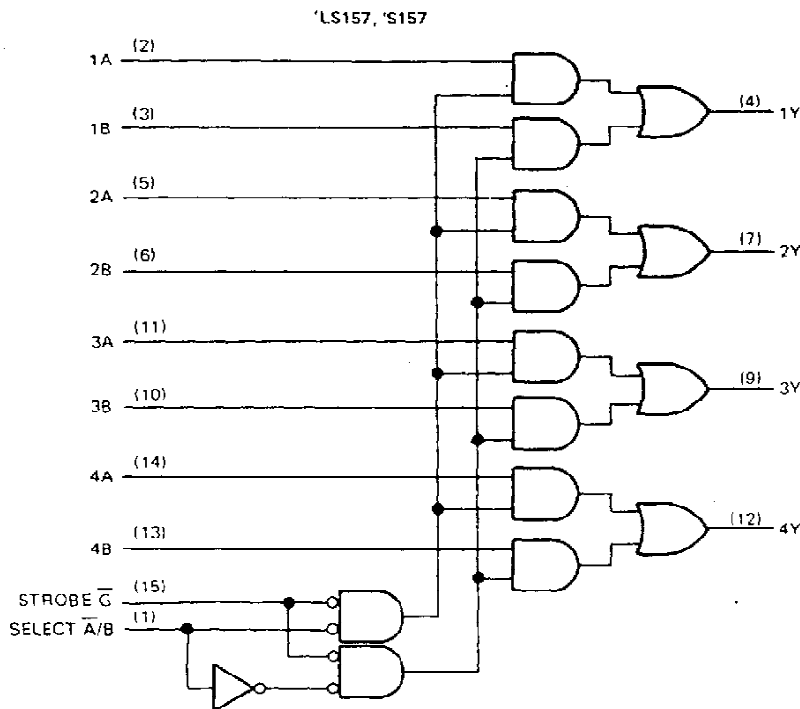
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**SN54LS157, SN54LS158, SN54S157, SN54S158,  
SN74LS157, SN74LS158, SN74S157, SN74S158  
QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS**

logic diagrams (positive logic)

schematics of inputs and outputs



Pin numbers shown are for D, J, N, and W packages.

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# SN54157, SN74157

## QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS

### recommended operating conditions

	SN54157			SN74157			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, $I_{OH}$			-800			-800	$\mu$ A
Low-level output current, $I_{OL}$			16			16	mA
Operating free-air temperature, $T_A$	-55		125	0		70	$^{\circ}$ C

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

PARAMETER	TEST CONDITIONS†	SN54157			SN74157			UNIT
		MIN	TYP‡	MAX	MIN	TYP‡	MAX	
$V_{IH}$ High-level input voltage		2			2			V
$V_{IL}$ Low-level input voltage				0.8			0.8	V
$V_{IK}$ Input clamp voltage	$V_{CC} = \text{MIN}$ , $I_I = -12 \text{ mA}$			-1.5			-1.5	V
$V_{OH}$ High-level output voltage	$V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ , $V_{IL} = 0.8 \text{ V}$ , $I_{OH} = -800 \mu\text{A}$	2.4	3.4		2.4	3.4		V
$V_{OL}$ Low-level output voltage	$V_{CC} = \text{MIN}$ , $V_{IH} = 2 \text{ V}$ , $V_{IL} = 0.8 \text{ V}$ , $I_{OL} = 16 \text{ mA}$		0.2	0.4		0.2	0.4	V
$I_I$ Input current at maximum input voltage	$V_{CC} = \text{MAX}$ , $V_I = 5.5 \text{ V}$			1			1	mA
$I_{IH}$ High-level input current	$V_{CC} = \text{MAX}$ , $V_I = 2.4 \text{ V}$			40			40	$\mu$ A
$I_{IL}$ Low-level input current	$V_{CC} = \text{MAX}$ , $V_I = 0.4 \text{ V}$			-1.6			-1.6	mA
$I_{OS}$ Short-circuit output current§	$V_{CC} = \text{MAX}$	-20		-55	-18		-55	mA
$I_{CC}$ Supply current	$V_{CC} = \text{MAX}$ , See Note 2		30	48		30	48	mA

†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 short-circuit should not exceed one second.

NOTE 2:  $I_{CC}$  is measured with 4.5 V applied to all inputs and all outputs open.

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

PARAMETER <sup>¶</sup>	FROM (INPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{PLH}$	Data	$C_L = 15 \text{ pF}$ , $R_L = 400 \Omega$ , See Note 3		9	14	ns
$t_{PHL}$				9	14	
$t_{PLH}$	Strobe $\overline{G}$			13	20	ns
$t_{PHL}$				14	21	
$t_{PLH}$	Select $\overline{A/B}$			15	23	ns
$t_{PHL}$				18	27	

¶ $t_{PLH}$  = propagation delay time, low-to-high-level output

$t_{PHL}$  = propagation delay time, high-to-low-level output

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.



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# **SN54LS157, SN54LS158, SN74LS157, SN74LS158** **QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS**

## **recommended operating conditions**

		SN54LS <sup>1</sup>			SN74LS <sup>1</sup>			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V <sub>CC</sub>	Supply voltage	4.5	5	5.5	4.75	5	5.25	V
I <sub>OH</sub>	High-level output current			-400			-400	μA
I <sub>OL</sub>	Low-level output current			4			8	mA
T <sub>A</sub>	Operating free-air temperature	-55		125	0		70	°C

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

PARAMETER		TEST CONDITIONS <sup>†</sup>		SN54LS <sup>1</sup>			SN74LS <sup>1</sup>			UNIT
				MIN	TYP <sup>‡</sup>	MAX	MIN	TYP <sup>‡</sup>	MAX	
V <sub>IH</sub>	High-level input voltage			2			2			V
V <sub>IL</sub>	Low-level input voltage					0.7			0.8	V
V <sub>IK</sub>	Input clamp voltage	V <sub>CC</sub> = MIN, I <sub>I</sub> = -18 mA				-1.5			-1.5	V
V <sub>OH</sub>	High-level output voltage	V <sub>CC</sub> = MIN, V <sub>IH</sub> = 2 V, V <sub>IL</sub> = MAX, I <sub>OH</sub> = -400 μA		2.5	3.4		2.7	3.4		V
V <sub>OL</sub>	Low-level output voltage	V <sub>CC</sub> = MIN, V <sub>IH</sub> = 2 V, V <sub>IL</sub> = MAX	I <sub>OL</sub> = 4 mA	0.25	0.4		0.25	0.4		V
			I <sub>OL</sub> = 8 mA				0.35	0.5		
I <sub>I</sub>	Input current at maximum input voltage	A/B or $\bar{G}$ A or B	V <sub>CC</sub> = MAX, V <sub>I</sub> = 7 V			0.2			0.2	mA
						0.1			0.1	
I <sub>IH</sub>	High-level input current	A/B or $\bar{G}$ A or B	V <sub>CC</sub> = MAX, V <sub>I</sub> = 2.7 V			40			40	μA
						20			20	
I <sub>IL</sub>	Low-level input current	A/B or $\bar{G}$ A or B	V <sub>CC</sub> = MAX, V <sub>I</sub> = 0.4 V			-0.8			-0.8	mA
						-0.4			-0.4	
I <sub>OS</sub>	Short-circuit output current <sup>§</sup>	V <sub>CC</sub> = MAX		-20		-100	-20		-100	mA
I <sub>CC</sub>	Supply current	V <sub>CC</sub> = MAX, See Note 2	'LS157		9.7	16		9.7	16	mA
			'LS158		4.8	8		4.8	8	
		V <sub>CC</sub> = MAX, All A inputs at 4.5 V, All other inputs at 0 V	'LS158		6.5	11		6.5	11	

<sup>†</sup> For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

<sup>‡</sup> All typical values are at V<sub>CC</sub> = 5 V, T<sub>A</sub> = 25°C.

<sup>§</sup> Not more than one output should be shorted at a time and duration of short circuit should not exceed one second.

NOTE 2: I<sub>CC</sub> is measured with 4.5 V applied to all inputs and all outputs open.

## **switching characteristics, V<sub>CC</sub> = 5 V, T<sub>A</sub> = 25°C**

PARAMETER <sup>†</sup>	FROM (INPUT)	TEST CONDITIONS	'LS157			'LS158			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
t <sub>PLH</sub>	Data	C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ, See Note 3		9	14		7	12	ns
t <sub>PHL</sub>				9	14		10	15	
t <sub>PLH</sub>	Strobe $\overline{G}$			13	20		11	17	ns
t <sub>PHL</sub>				14	21		18	24	
t <sub>PLH</sub>	Select $\overline{A/B}$			15	23		13	20	ns
t <sub>PHL</sub>				18	27		16	24	

<sup>†</sup> t<sub>PLH</sub> = propagation delay time, low-to-high-level output

t<sub>PHL</sub> = propagation delay time, high-to-low-level output

NOTE 3: Load circuits and voltage diagrams are shown in Section 1.



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# **SN54S157, SN54S158, SN74S157, SN74S158** **QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS**

recommended operating conditions

	SN54S157 SN54S158			SN74S157 SN74S158			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			-1	mA
Low-level output current, $I_{OL}$			20			20	mA
Operating free-air temperature, $T_A$	-55		125	0		70	°C

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

PARAMETER		TEST CONDITIONS†	SN54S157 SN74S157			SN54S158 SN74S158			UNIT	
			MIN	TYP‡	MAX	MIN	TYP‡	MAX		
V <sub>IH</sub>	High-level input voltage		2			2			V	
V <sub>IL</sub>	Low-level input voltage				0.8			0.8	V	
V <sub>IK</sub>	Input clamp voltage	V <sub>CC</sub> = MIN, I <sub>I</sub> = -18 mA			-1.2			-1.2	V	
V <sub>OH</sub>	High-level output voltage	V <sub>CC</sub> = MIN, V <sub>IH</sub> = 2 V, Series 54S	2.5	3.4		2.5	3.4		V	
		V <sub>IL</sub> = 0.8 V, I <sub>OH</sub> = -1 mA, Series 74S	2.7	3.4		2.7	3.4			
V <sub>OL</sub>	Low-level output voltage	V <sub>CC</sub> = MIN, V <sub>IH</sub> = 2 V, V <sub>IL</sub> = 0.8 V, I <sub>OL</sub> = 20 mA			0.5			0.5	V	
I <sub>I</sub>	Input current at maximum input voltage	V <sub>CC</sub> = MAX, V <sub>I</sub> = 5.5 V			1			1	mA	
I <sub>IH</sub>	High-level input current	$\overline{A/B}$ or $\overline{G}$ A or B V <sub>CC</sub> = MAX, V <sub>I</sub> = 2.7 V				100	100			μA
						50	50			
I <sub>IL</sub>	Low-level input current	$\overline{A/B}$ or $\overline{G}$ A or B V <sub>CC</sub> = MAX, V <sub>I</sub> = 0.5 V				-4	-4			mA
						-2	-2			
I <sub>OS</sub>	Short-circuit output current §	V <sub>CC</sub> = MAX	-40		-100	-40		-100	mA	
I <sub>CC</sub>	Supply current	V <sub>CC</sub> = MAX, All inputs at 4.5 V, See Note 2	50	78		39	61		mA	
		V <sub>CC</sub> = MAX, A inputs at 4.5 V, B, G, S, inputs at 0 V, See Note 2						81		

† 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.

Note 2:  $I_{CC}$  is measured with all outputs open.

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

PARAMETER <sup>1</sup>	FROM (INPUT)	TEST CONDITIONS	SN54S157 SN74S157			SN54S158 SN74S158			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
t <sub>PLH</sub>	Data	C <sub>L</sub> = 15 pF, R <sub>L</sub> = 280 Ω, See Note 3	5	7.5		4	6		ns
t <sub>PHL</sub>			4.5	6.5		4	6		
t <sub>PLH</sub>	Strobe $\overline{G}$		8.5	12.5		6.5	11.5		ns
t <sub>PHL</sub>			7.5	12		7	12		
t <sub>PLH</sub>	Select $\overline{A/B}$		9.5	15		8	12		ns
t <sub>PHL</sub>			9.5	15		8	12		

¶  $t_{PLH}$  = propagation delay time, low-to-high-level output

$t_{PHL}$  = propagation delay time, high-to-low-level output

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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## PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package   Pins	Package qty   Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
<a href="#">76002012A</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	76002012A SNJ54LS 157FK
<a href="#">7600201EA</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7600201EA SNJ54LS157J
<a href="#">7600201FA</a>	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7600201FA SNJ54LS157W
<a href="#">76033012A</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	76033012A SNJ54LS 158FK
<a href="#">7603301EA</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7603301EA SNJ54LS158J
<a href="#">JM38510/07903BEA</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 07903BEA
JM38510/07903BEA.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 07903BEA
<a href="#">JM38510/07903BFA</a>	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 07903BFA
JM38510/07903BFA.A	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 07903BFA
<a href="#">JM38510/30903B2A</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903B2A
JM38510/30903B2A.A	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903B2A
<a href="#">JM38510/30903BEA</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903BEA
JM38510/30903BEA.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903BEA
<a href="#">JM38510/30903BFA</a>	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903BFA
JM38510/30903BFA.A	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903BFA
<a href="#">M38510/07903BEA</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 07903BEA

Orderable part number	Status (1)	Material type (2)	Package   Pins	Package qty   Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
<a href="#">M38510/07903BFA</a>	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 07903BFA
<a href="#">M38510/30903B2A</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903B2A
<a href="#">M38510/30903BEA</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903BEA
<a href="#">M38510/30903BFA</a>	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	JM38510/ 30903BFA
<a href="#">SN54157J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54157J
SN54157J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54157J
<a href="#">SN54LS157J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS157J
SN54LS157J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS157J
<a href="#">SN54LS158J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS158J
SN54LS158J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS158J
<a href="#">SN54S157J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54S157J
SN54S157J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54S157J
<a href="#">SN74LS157D</a>	Obsolete	Production	SOIC (D)   16	-	-	Call TI	Call TI	0 to 70	LS157
<a href="#">SN74LS157DR</a>	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS157
SN74LS157DR.A	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS157
SN74LS157DRE4	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS157
<a href="#">SN74LS157N</a>	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS157N
SN74LS157N.A	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS157N
SN74LS157NE4	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS157N
<a href="#">SN74LS157NSR</a>	Active	Production	SOP (NS)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS157
SN74LS157NSR.A	Active	Production	SOP (NS)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS157
<a href="#">SN74LS158D</a>	Obsolete	Production	SOIC (D)   16	-	-	Call TI	Call TI	0 to 70	LS158
<a href="#">SN74LS158DR</a>	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS158
SN74LS158DR.A	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS158
<a href="#">SN74LS158N</a>	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS158N
SN74LS158N.A	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS158N
<a href="#">SN74LS158NSR</a>	Active	Production	SOP (NS)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS158
SN74LS158NSR.A	Active	Production	SOP (NS)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS158



Orderable part number	Status (1)	Material type (2)	Package   Pins	Package qty   Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
<a href="#">SNJ54157J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54157J
SNJ54157J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54157J
<a href="#">SNJ54157W</a>	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54157W
SNJ54157W.A	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54157W
<a href="#">SNJ54LS157FK</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	76002012A SNJ54LS 157FK
SNJ54LS157FK.A	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	76002012A SNJ54LS 157FK
<a href="#">SNJ54LS157J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7600201EA SNJ54LS157J
SNJ54LS157J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7600201EA SNJ54LS157J
<a href="#">SNJ54LS157W</a>	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7600201FA SNJ54LS157W
SNJ54LS157W.A	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7600201FA SNJ54LS157W
<a href="#">SNJ54LS158FK</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	76033012A SNJ54LS 158FK
SNJ54LS158FK.A	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	76033012A SNJ54LS 158FK
<a href="#">SNJ54LS158J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7603301EA SNJ54LS158J
SNJ54LS158J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	7603301EA SNJ54LS158J
<a href="#">SNJ54S157FK</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54S 157FK
SNJ54S157FK.A	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54S 157FK
<a href="#">SNJ54S157J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54S157J
SNJ54S157J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54S157J
<a href="#">SNJ54S157W</a>	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54S157W

Orderable part number	Status (1)	Material type (2)	Package   Pins	Package qty   Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
SNJ54S157W.A	Active	Production	CFP (W)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54S157W

<sup>(1)</sup> **Status:** For more details on status, see our [product life cycle](#).

<sup>(2)</sup> **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

<sup>(3)</sup> **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

<sup>(4)</sup> **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

<sup>(5)</sup> **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

<sup>(6)</sup> **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

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## OTHER QUALIFIED VERSIONS OF SN54LS157, SN54LS158, SN74LS157, SN74LS158 :

- Catalog : [SN74LS157](#), [SN74LS158](#)
- Military : [SN54LS157](#), [SN54LS158](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

## TAPE AND REEL INFORMATION



\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74LS157DR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74LS157NSR	SOP	NS	16	2000	330.0	16.4	8.45	10.55	2.5	12.0	16.2	Q1
SN74LS157NSR	SOP	NS	16	2000	330.0	16.4	8.1	10.4	2.5	12.0	16.0	Q1
SN74LS158DR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74LS158NSR	SOP	NS	16	2000	330.0	16.4	8.1	10.4	2.5	12.0	16.0	Q1

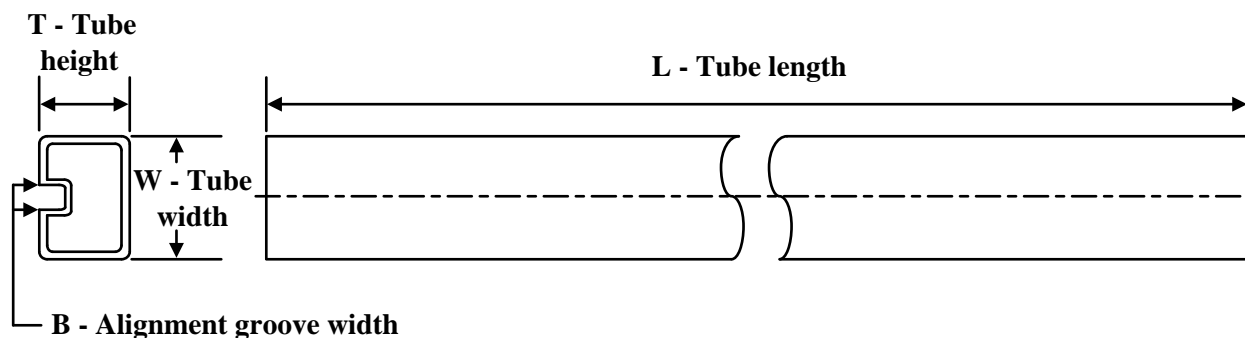
## TAPE AND REEL BOX DIMENSIONS



\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74LS157DR	SOIC	D	16	2500	340.5	336.1	32.0
SN74LS157NSR	SOP	NS	16	2000	353.0	353.0	32.0
SN74LS157NSR	SOP	NS	16	2000	353.0	353.0	32.0
SN74LS158DR	SOIC	D	16	2500	353.0	353.0	32.0
SN74LS158NSR	SOP	NS	16	2000	353.0	353.0	32.0

## TUBE



\*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
76002012A	FK	LCCC	20	55	506.98	12.06	2030	NA
7600201FA	W	CFP	16	25	506.98	26.16	6220	NA
76033012A	FK	LCCC	20	55	506.98	12.06	2030	NA
JM38510/07903BFA	W	CFP	16	25	506.98	26.16	6220	NA
JM38510/07903BFA.A	W	CFP	16	25	506.98	26.16	6220	NA
JM38510/30903B2A	FK	LCCC	20	55	506.98	12.06	2030	NA
JM38510/30903B2A.A	FK	LCCC	20	55	506.98	12.06	2030	NA
JM38510/30903BFA	W	CFP	16	25	506.98	26.16	6220	NA
JM38510/30903BFA.A	W	CFP	16	25	506.98	26.16	6220	NA
M38510/07903BFA	W	CFP	16	25	506.98	26.16	6220	NA
M38510/30903B2A	FK	LCCC	20	55	506.98	12.06	2030	NA
M38510/30903BFA	W	CFP	16	25	506.98	26.16	6220	NA
SN74LS157N	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS157N	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS157N.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS157N.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS157NE4	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS157NE4	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS158N	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS158N	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS158N.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS158N.A	N	PDIP	16	25	506	13.97	11230	4.32
SNJ54157W	W	CFP	16	25	506.98	26.16	6220	NA
SNJ54157W.A	W	CFP	16	25	506.98	26.16	6220	NA
SNJ54LS157FK	FK	LCCC	20	55	506.98	12.06	2030	NA
SNJ54LS157FK.A	FK	LCCC	20	55	506.98	12.06	2030	NA
SNJ54LS157W	W	CFP	16	25	506.98	26.16	6220	NA
SNJ54LS157W.A	W	CFP	16	25	506.98	26.16	6220	NA
SNJ54LS158FK	FK	LCCC	20	55	506.98	12.06	2030	NA

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Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
SNJ54LS158FK.A	FK	LCCC	20	55	506.98	12.06	2030	NA
SNJ54S157FK	FK	LCCC	20	55	506.98	12.06	2030	NA
SNJ54S157FK.A	FK	LCCC	20	55	506.98	12.06	2030	NA

D (R-PDSO-G16)

PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - $\triangle C$  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.
  - $\triangle D$  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.



W (R-GDFP-F16)

CERAMIC DUAL FLATPACK



- NOTES:
- All linear dimensions are in inches (millimeters).
  - This drawing is subject to change without notice.
  - This package can be hermetically sealed with a ceramic lid using glass frit.
  - Index point is provided on cap for terminal identification only.
  - Falls within MIL STD 1835 GDFP2-F16

## GENERIC PACKAGE VIEW

**FK 20**

**LCCC - 2.03 mm max height**

8.89 x 8.89, 1.27 mm pitch

LEADLESS CERAMIC CHIP CARRIER

This image is a representation of the package family, actual package may vary.  
Refer to the product data sheet for package details.



4229370VA\

J (R-GDIP-T\*\*)

14 LEADS SHOWN

# CERAMIC DUAL IN-LINE PACKAGE



PINS ** DIM	14	16	18	20
A	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC
B MAX	0.785 (19,94)	.840 (21,34)	0.960 (24,38)	1.060 (26,92)
B MIN	—	—	—	—
C MAX	0.300 (7,62)	0.300 (7,62)	0.310 (7,87)	0.300 (7,62)
C MIN	0.245 (6,22)	0.245 (6,22)	0.220 (5,59)	0.245 (6,22)



4040083/F 03/03

- NOTES:
- A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - C. This package is hermetically sealed with a ceramic lid using glass frit.
  - D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
  - E. Falls within MIL STD 1835 GDIP1-T14, GDIP1-T16, GDIP1-T18 and GDIP1-T20.

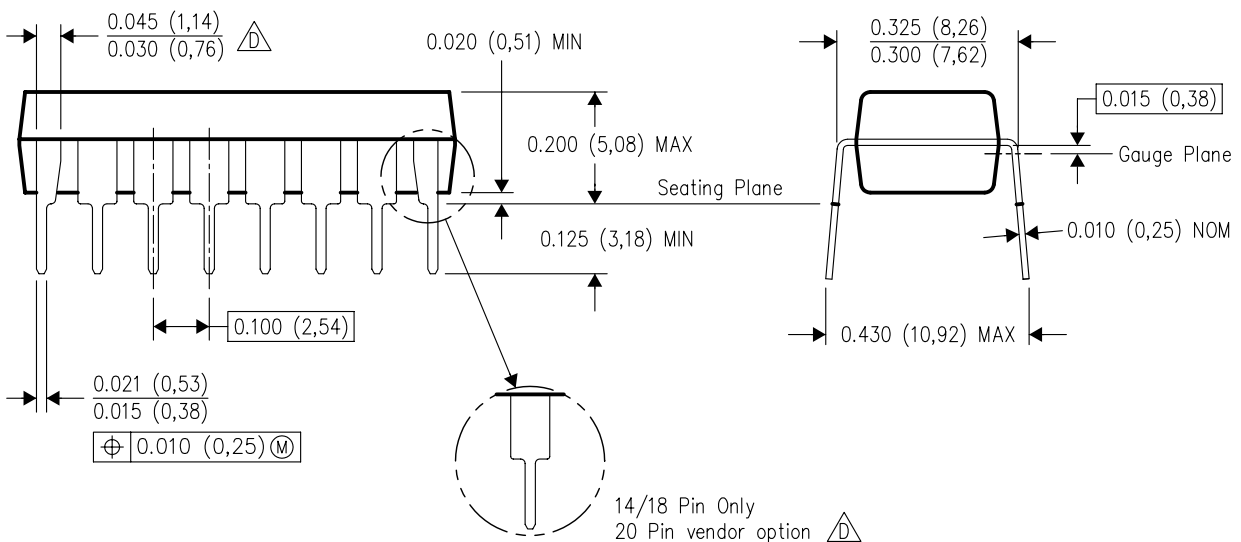
## N (R-PDIP-T\*\*)

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



PINS **	14	16	18	20
DIM				
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



14/18 Pin Only  
20 Pin vendor option

4040049/E 12/2002

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

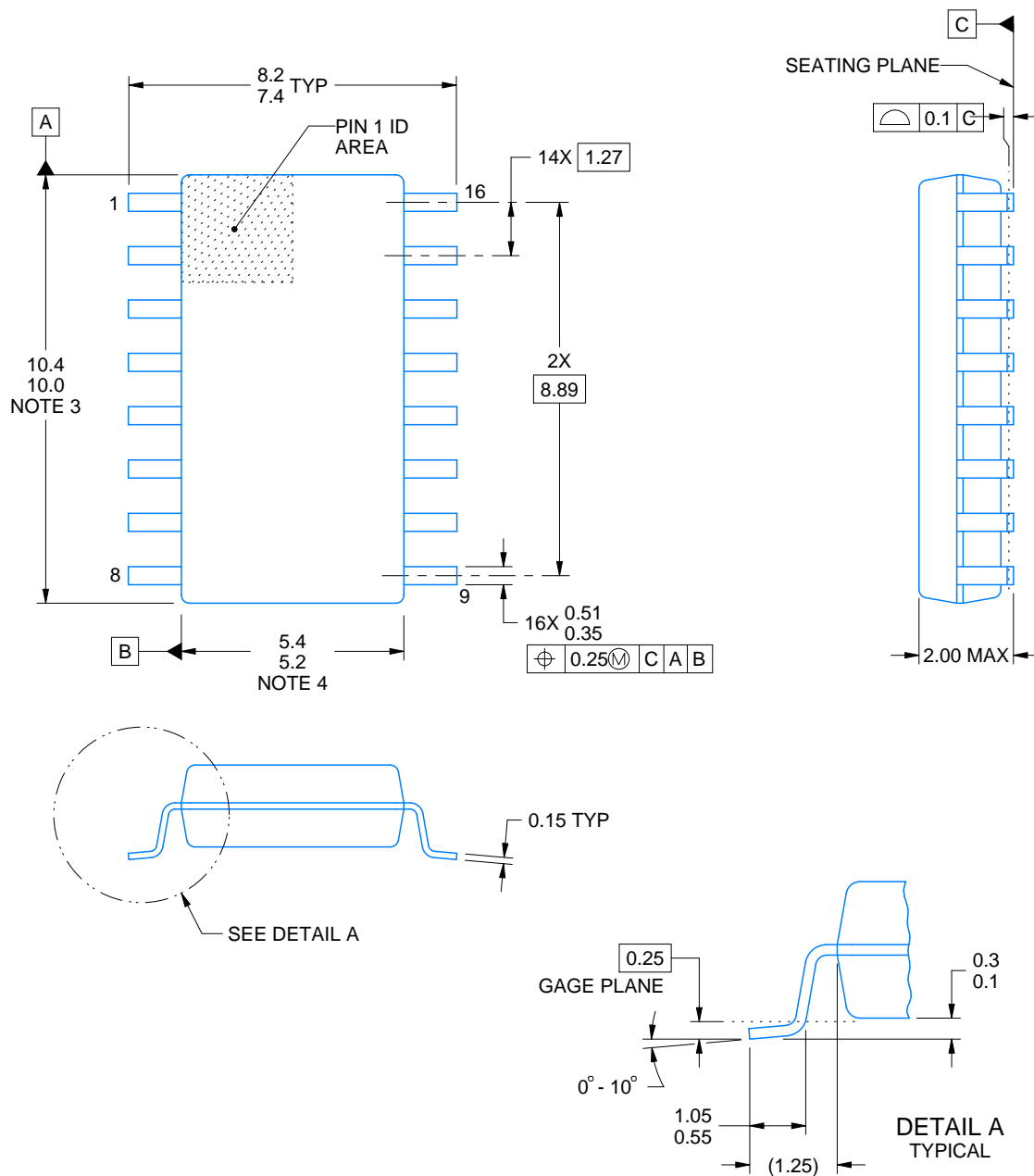


NS0016A

# PACKAGE OUTLINE

SOP - 2.00 mm max height

SOP



4220735/A 12/2021

## NOTES:

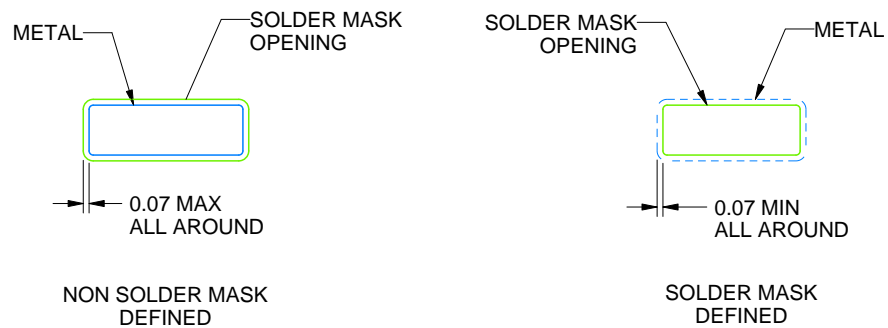
1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm, per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm, per side.

# EXAMPLE BOARD LAYOUT

NS0016A

SOP - 2.00 mm max height

SOP



SOLDER MASK DETAILS

4220735/A 12/2021

NOTES: (continued)

5. Publication IPC-7351 may have alternate designs.

6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# EXAMPLE STENCIL DESIGN

NS0016A

SOP - 2.00 mm max height

SOP



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE:7X

4220735/A 12/2021

NOTES: (continued)

7. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
8. Board assembly site may have different recommendations for stencil design.

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