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Applications:

Dual 2-to 4-Line Decoder

Dual 1-to 4-Line Demultiplexer

3-to 8-Line Decoder

1-to 8-Line Demultiplexer

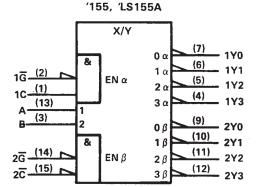
- Individual Strobes Simplify Cascading for Decoding or Demultiplexing Larger Words
- Input Clamping Diodes Simplify System Design
- Choice of Outputs: Totem Pole ('155, 'LS155A)
 Open-Collector ('156, 'LS156)

	TYPICAL AVERAGE	TYPICAL
TYPES	PROPAGATION DELAY	POWER
	3 GATE LEVELS	DISSIPATION
'155, '156	21 ns	125 mW
'LS155A	18 ns	31 mW
'I S156	32 ns	31 mW

description

These monolithic transistor-transistor-logic (TTL) circuits feature dual 1-line-to-4-line demultiplexers with individual strobes and common binary-address inputs in a single 16-pin package. When both sections are enabled by the strobes, the common binary-address inputs sequentially select and route associated input data to the appropriate output of each section. The individual strobes permit activating or inhibiting each of the 4-bit sections as desired. Data applied to input 1C is inverted at its outputs and data applied at 2C is not inverted through its outputs. The inverter following the 1C data input permits use as a 3-to-8-line decoder or 1-to-8-line demultiplexer without external gating. Input clamping diodes are provided on all of these circuits to minimize transmission-line effects and simplify system design.

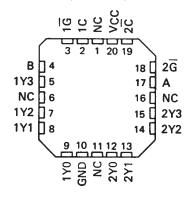
logic symbols (2-line to 4-line decoder)†



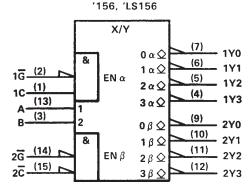
SN54155, SN54156, SN54LS155A, SN54LS156...J OR W PACKAGE SN74155, SN74156...N PACKAGE SN74LS155A, SN74LS156...D OR N PACKAGE (TOP VIEW)

1 <u>C</u>	1	U ₁₆	V <u>c</u> c
1Ğ	2	15	2C
В	3	14	2G
1Y3	4	13	Α
1Y2	5	12	2Y3
1Y1	6	11	2Y2
1Y0	7	10	2Y1
GND	8	9	2Y0

SN54LS155A, SN54LS156 . . . FK PACKAGE (TOP VIEW)



NC - No internal connection



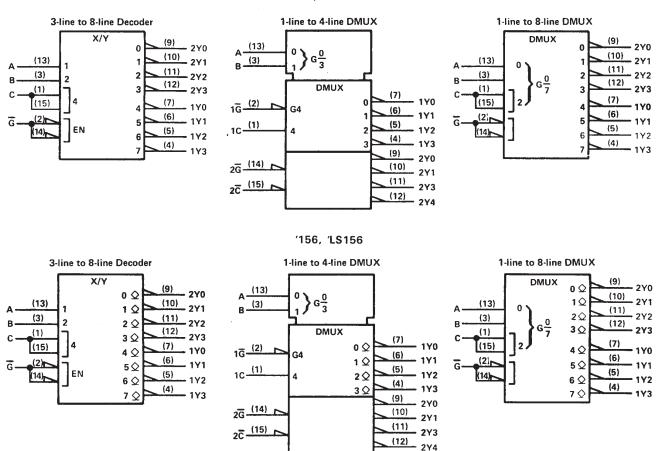
[†]These symbols are in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12. For alternative symbols for other applications, see the following page.

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



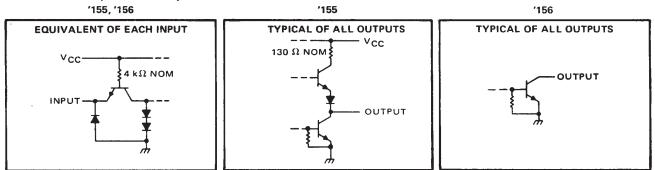
additional logic symbols (alternatives) †

'155, 'LS155A



[†]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

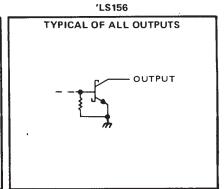




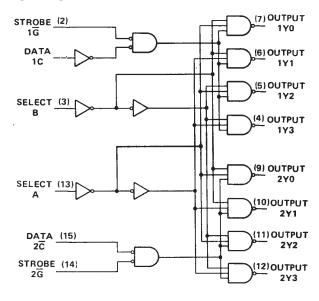
schematics of inputs and outputs (continued)

YCC 20 KΩ NOM

TYPICAL OF ALL OUTPUTS 120 Ω NOM OUTPUT



logic diagram (positive logic)



FUNCTION TABLES 2-LINE-TO-4-LINE DECODER OR 1-LINE-TO-4-LINE DEMULTIPLEXER

		INPUTS		OUTPUTS				
SEL	ECT	STROBE	DATA	110	1Y1	1Y2	1Y3	
В	Α	1Ğ	1C	110	1111	112	113	
Х	Х	Н	х	Н	н	н	Н	
L	L	L	н	Ł	н	н	Н	
L	н	L	Н	н	L	н	Н	
н	L	L	н	Н	н	L	Н	
н	н	L	н	н	н	н	L	
х	х	x	L	н	н	Ħ	н	

		INPUTS		OUTPUTS					
SEL B	ECT A	STROBE 2G	DATA 2C	2Y0	2Y1	2Y2	2Y3		
×	х	Н	×	Н	Н	Н	Н		
L	L	L	L	L	н	н	н		
L	н	L	L	н	L	н	н		
н	Ł	L	L	н	н	L	н		
н	н	L	L	н	н	н	L		
x	Х	х	Н	н	Н	н	Н		

FUNCTION TABLE 3-LINE-TO-8-LINE DECODER OR 1-LINE-TO-8-LINE DEMULTIPLEXER

		INP	UTS				OUTP	UTS			
SELECT		STROBE OR DATA	(0)	(0) (1) (2) (3) (4) (5)				(5)	(6)	(7)	
C†	В	A	G‡	2Y0	2Y1	2Y2	2Y3	1Y0	1Y1	172	1Y3
х	Х	Х	н	н	Н	н	Н	Н	Н	Н	н
L	L	L	Ł	L	Н	Н	Н	н	н	н	н
L	L	н	L	н	L	н	н	н	н	н	н
L	Н	L	L	н	Н	L	Н	н	н	Н	н
L	Н	Н	L	н	н	Н	Ł	Н	н	Н	н
н	L	L	L	н	Н	Н	н	L	н	н	н
н	L	н	L	н	н	Н	Н	н	L	н	н
н	н	L	L	н	н	н	н	н	н	Ł	н
н	Н	Н	L	н	Н	н	Н	н	н	н	L

 $^{^{\}dagger}$ C = inputs 1C and 2 \overline{C} connected together



 $^{{}^{\}mbox{\scriptsize $\frac{1}{G}$}}\mbox{\scriptsize \overline{G}}$ = inputs ${\bf 1}\mbox{\scriptsize \overline{G}}$ and ${\bf 2}\mbox{\scriptsize \overline{G}}$ connected together

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

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

Supply voltage, VCC (see Note 1)	
Input voltage: '155, '156	
'LS155A, 'LS156	
Off-state output voltage: '156	
Operating free-air temperature range: SN54', SN54LS' Circuits	
SN74', SN74LS' Circuits	0°C to 70°C
Storage temperature range	-65°C to 150°C

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

recommended operating conditions

		SN54155			SN74155			
	MIN	NOM	MAX	MIN	NOM	MAX	UNIT	
Supply voltage, V _{CC}	4.5	5	5.5	4.75	5	5.25	٧	
High-level output current, IOH			-800			-800	μΑ	
Low-level output current, IOL			16			16	mA	
Operating free-air temperature, TA	-55		125	0		70	°C	

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

	PARAMETER	TEST CONDITIONS†			SN54155 SN74155			
				MIN	TYP‡	MAX		
v_{IH}	High-level input voltage			2			V	
VIL	Low-level input voltage					8.0	V	
VIK	Input clamp voltage	V _{CC} = MIN, 11	= -8 mA			-1.5	V	
Voн	High-level output voltage	V _{CC} = MIN, V _I		2.4	3.4		V	
V _{OL}	Low-level output voltage	V _{IL} = 0.8 V, I _O V _{CC} = MIN, V _I V _{IL} = 0.8 V, I _O	H = 2 V,		0.2	0.4	v	
lj .	Input current at maximum input voltage	V _{CC} = MAX, V _I				1	mA	
ЧΗ	High-level input current	V _{CC} = MAX, V _I	= 2.4 V			40	μА	
TIL	Low-level input current	V _{CC} = MAX, V _I	= 0.4 V			-1.6	mA	
1	Sti i	V - MAY	SN54155	-20		-55		
los	Short-circuit output current§	V _{CC} = MAX	SN74155	-18		-57	mA	
1	Supply supply	V _{CC} = MAX,	SN54155		25	35		
1CC	Supply current	See Note 2	SN74155		25	40	mA ·	

[†]For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

NOTE 2: I_{CC} is measured with outputs open, A, B, and 1C inputs at 4.5 V, and 2C, 1G, and 2G inputs grounded.

switching characteristics, VCC = 5 V, TA = 25 °C

PARAMETER	FROM	то	LEVELS	TEST CONDITIONS	1	SN54155 SN74155		
	(INPUT)	(OUTPUT)	OF LOGIC		MIN	TYP	MAX	
^t PLH	A, B, 2 C , 1 <u>G</u> , or 2 <u>G</u>	Y	2	C _L = 15 pF,		13	20	ns
^t PHL,	A, B, 2 C , 1 G , or 2 G	Υ	. 2			18	27	ns
^t PLH	A or B	У	3	$R_L = 400 \Omega$, See Note 3		21	32	ns
^t PHL	A or B	Y	3	See Note 3		21	32	ns
^t PLH	1C	Y	3			16	24	ns
. tPHL	1C	Y	3			20	30	ns

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



[‡]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.

recommended operating conditions

		SN5415	6	9			
	MIN	NOM	MAX	MIN	NOM	MAX	UNIT
Supply voltage, V _{CC}	4.5	5	5.5	4.75	5	5.25	V
High-level output voltage, VOH			5.5			5.5	٧
Low-level output current, IOL			16			16	mA
Operating free-air temperature, TA	-55		125	0		70	°c

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

		TEST CONDUCTIONS!	1	6	LINIT	
	PARAMETER	TEST CONDITIONS [†]	MIN	SN74150 TYP‡	MAX	UNIT
VIH	High-level input voltage		2			V
VIL	Low-level input voltage				0.8	٧
VIK	Input clamp voltage	V _{CC} = MIN, I ₁ = -8 mA			-1.5	V
ЮН	High-level output current	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = 0.8 V, V _{OH} = 5.5 V			250	μА
VOL	Low-level output voltage	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = 0.8 V, I _{OL} = 16 mA		0.2	0.4	٧
T _I	Input current at maximum input voltage	V _{CC} = MAX, V ₁ = 5.5 V			1	mA
ΊΗ	High-level input current	V _{CC} = MAX, V _I = 2.4 V			40	μА
IIL	Low-level input current	V _{CC} = MAX, V ₁ = 0.4 V	1		-1.6	mA
Icc	Supply current	V _{CC} = MAX, SN54156 See Note 2 SN74156		25 25	35 40	mA

 $^{^{\}dagger}_{\cdot}$ For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

 \ddagger All typical values are at V_{CC} = 5 V, T_A = 25°C. NOTE 2: I_{CC} is measured with outputs open, A, B, and 1C inputs at 4.5 V, and 2C, 1G, and 2G inputs grounded.

switching characteristics, VCC = 5 V, TA = 25 °C

PARAMETER§	FROM	то	LEVELS	TEST CONDITIONS	1	·		SN54156 SN74156		UNIT
	(INPUT)	(OUTPUT)	OF LOGIC		MIN	TYP	MAX	1		
^t PLH	A, B, 2 C , 1 G , or 2 G	Y	2	C _L = 15 pF,		15	23	ns		
[†] PHL	A, B, 2 C , 1 G , or 2 G	Υ	2			20	30	ns		
tPLH	A or B	У	3	$R_L = 400 \Omega$, See Note 3		23	34	ns		
^t PHL	A or B	Y	3	See Note 3		23	34	ns		
t _{PLH}	1C	Υ	3			18	27	ns		
tPHL	1C	Υ	3			22	33	ns		

 $[\]S_{tPLH}$ = propagation delay time, low-to-high-level output

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



tpHL = propagation delay time, high-to-low-level output

SN54LS155A, SN74LS155A DUAL 2-LINE TO 4-LINE DECODERS/DEMULTIPLEXERS

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recommended operating conditions

	SN	SN54LS155A			SN74LS155A		
	MIN	NOM	MAX	MIN	NOM	MAX	UNIT
Supply voltage, VCC	4.5	5	5.5	4.75	5	5.25	٧
High-level output current, IOH			400			-400	μА
Low-level output current, IOL			4			8	mA
Operating free-air temperature, TA	-55		125	0		70	°C

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

			+	SN	154LS19	55A	SN	174LS1	55A	UNIT
PARAMETER	TES	ST CONDITIONS	5'	MIN	TYP‡	MAX	MIN	TYP‡	MAX	OIVII
VIH High-level input voltage				2			2			٧
VIL Low-level input voltage						0.7			0.8	٧
VIK Input clamp voltage	V _{CC} = MIN,	I _I = -18 mA				-1.5			-1.5	٧
VOH High-level output voltage	V _{CC} = MIN, V _{IL} = V _{IL} max	V _{IH} = 2 V, , I _{OH} = -400 μ/	4	2.5	3.4		2.7	3.4		V
		V _{IH} = 2 V,	IOL = 4 mA		0.25	0.4		0.25	0.4	V
VOL Low-level output voltage	VIL = VIL max	:	IOL = 8 mA					0.35	0.5	
Input current at maximum input voltage	V _{CC} = MAX,	V ₁ = 7 V				0.1			0.1	mA
IIH High-level input current	V _{CC} = MAX,	V _I = 2.7 V				20			20	μΑ
IL Low-level input current	V _{CC} = MAX,	V ₁ = 0.4 V				-0.4			-0.4	mA
IOS Short-circuit output current §	V _{CC} = MAX			- 20		- 100	- 20		- 100	mA
ICC Supply current	V _{CC} = MAX,	See Note 2			6.1	10		6.1	10	mA

[†] For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

NOTE 2: ICC is measured with outputs open, A, B, and 1C inputs at 4.5 V, and 2C, 1G, and 2G inputs grounded.

switching characteristics, VCC = 5 V, TA = 25°C

PARAMETER¶	FROM	1	LEVELS	TEST CONDITIONS	SNS SN		UNIT	
	(INPUT) (OUTPUT) OF LOGIC				MIN	TYP	MAX	
^t PLH	A, B, 2 C , 1 <u>G</u> , or 2 <u>G</u>	Y	2			10	15	กร
^t PHL	A, B, 2C̄, 1Ḡ, or 2Ḡ	Y	2	C _L = 15 pF, R _L = 2 kΩ,		19	30	ns
^t PLH	A or B	Υ	3	See Note 3		17	26	ns
tPHL	A or B	Y	3	See Note 5		19	30	ns
tPLH	1C	Y	3			18	27	
tPHL	1C	Y	3			18	27	ns

 $[\]mathbf{f}_{tpLH}$ = propagation delay time, low-to-high-level output



 $[\]ddagger$ All typical values are at $V_{CC} = 5 \text{ V}$, $T_A = 25^{\circ}\text{C}$.

 $[\]S$ Not more than one output should be shorted at a time.

tpHL = propagation delay time, high-to-low-level output

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

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recommended operating conditions

	SI	V54LS1	56	SN74LS156			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	UNIT
Supply voltage, VCC	4.5	5	5.5	4.75	5	5.25	V
High-level output voltage, VOH			5.5			5.5	V
Low-level output current, IOL			4			8	mA
Operating free-air temperature, TA	-55		125	0		70	°C

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

				+	SI	N54LS1	56	SI	V74LS1	56	UNIT
	PARAMETER	TEST	CONDITIONS	51	MIN	TYP [‡]	MAX	MIN	TYP‡	MAX	UNIT
VIH	High-level input voltage				2			2			V
VIL	Low-level input voltage						0.7			0.8	V
VIK	Input clamp voltage	V _{CC} = MIN,	I _I = -18 mA				-1.5			-1.5	V
ЮН	High-level output current	V _{CC} = MIN, V _{IL} = V _{IL} max,	V _{IH} = 2 V, V _{OH} = 5.5 V				100			100	μА
VOL	Low-level output voltage	V _{CC} = MIN, V _{IL} = V _{IL} max	V _{1H} = 2 V,	I _{OL} = 4 mA		0.25	0.4		0.25	0.4	1 V
l _l	Input current at maximum input voltage	V _{CC} = MAX,	V ₁ = 7 V	TIOE - OIIIA			0.1		0.00	0.1	mA
ΊΗ	High-level input current	V _{CC} = MAX,	V ₁ = 2.7 V				20		_	20	μА
IIL.	Low-level input current	V _{CC} = MAX,	V ₁ = 0.4 V				-0.4			-0.4	mA
Icc	Supply current	V _{CC} = MAX,	See Note 2			6.1	10		6.1	10	mA

[†] For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

 \ddagger All typical values are at V_{CC} = 5 V, T_A = 25°C. NOTE 2: I_{CC} is measured with outputs open, A, B, and 1C inputs at 4.5 V, and 2C, 1G, and 2G inputs grounded.

switching characteristics, VCC = 5 V, TA = 25°C

PARAMETER§	FROM	то	LEVELS	TEST CONDITIONS	1	56 56	UNIT	
PARAMETER*	(INPUT) (OUTPUT) OF LOGIC		MIN	TYP	MAX	<u> </u>		
^t PLH	A, B, 2Ĉ 1Ĝ, or 2Ĝ	Υ	2			25	40	ns
^t PHL	A, B, 2C, 1G, or 2G	Υ	2	$C_L = 15 \mathrm{pF},$ $R_L = 2 \mathrm{k}\Omega,$		34	51	ns
tPLH	A or B	Y	3	See Note 3		31	46	ns
tPHL	A or B	Y	3	See Note 3		34	51	ns
tPLH	1C	Y	3			32	48	ns
[†] PHL	1C	Y	3			32	48	ns

 $^{{}^{\}S}tPLH$ = propagation delay time, low-to-high-level output



tpHL = 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	Material type	Package Pins	Package qty Carrier	RoHS (3)	Lead finish/ Ball material	MSL rating/ Peak reflow	Op temp (°C)	Part marking (6)
5962-9750801QEA	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801QE A SNJ54LS155AJ
5962-9750801QFA	Active	Production	CFP (W) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801QF A SNJ54LS155AW
5962-9750801QFA	Active	Production	CFP (W) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801QF A SNJ54LS155AW
SN54LS155AJ	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS155AJ
SN54LS155AJ	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS155AJ
SN54LS155AJ.A	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS155AJ
SN54LS155AJ.A	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS155AJ
SN54LS156J	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS156J
SN54LS156J	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS156J
SN54LS156J.A	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS156J
SN54LS156J.A	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54LS156J
SN74LS155AD	Obsolete	Production	SOIC (D) 16	-	-	Call TI	Call TI	0 to 70	LS155A
SN74LS155AD	Obsolete	Production	SOIC (D) 16	-	-	Call TI	Call TI	0 to 70	LS155A
SN74LS155ADR	Active	Production	SOIC (D) 16	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS155A
SN74LS155ADR	Active	Production	SOIC (D) 16	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS155A
SN74LS155ADR.A	Active	Production	SOIC (D) 16	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS155A
SN74LS155ADR.A	Active	Production	SOIC (D) 16	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS155A
SN74LS155AN	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS155AN
SN74LS155AN	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS155AN
SN74LS155AN.A	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS155AN
SN74LS155AN.A	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS155AN
SN74LS155ANE4	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS155AN
SN74LS155ANE4	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS155AN
SN74LS155ANSR	Active	Production	SOP (NS) 16	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS155A
SN74LS155ANSR	Active	Production	SOP (NS) 16	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS155A





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Orderable part number	Status (1)	Material type	Package Pins	Package qty Carrier	RoHS (3)	Lead finish/ Ball material	MSL rating/ Peak reflow	Op temp (°C)	Part marking (6)
SN74LS155ANSR.A	Active	Production	SOP (NS) 16	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS155A
SN74LS155ANSR.A	Active	Production	SOP (NS) 16	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS155A
SN74LS156D	Obsolete	Production	SOIC (D) 16	-	-	Call TI	Call TI	0 to 70	LS156
SN74LS156D	Obsolete	Production	SOIC (D) 16	-	-	Call TI	Call TI	0 to 70	LS156
SN74LS156DR	Active	Production	SOIC (D) 16	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS156
SN74LS156DR	Active	Production	SOIC (D) 16	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS156
SN74LS156DR.A	Active	Production	SOIC (D) 16	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS156
SN74LS156DR.A	Active	Production	SOIC (D) 16	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	LS156
SN74LS156N	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS156N
SN74LS156N	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS156N
SN74LS156N.A	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS156N
SN74LS156N.A	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS156N
SN74LS156NE4	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS156N
SN74LS156NE4	Active	Production	PDIP (N) 16	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	0 to 70	SN74LS156N
SN74LS156NSR	Active	Production	SOP (NS) 16	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS156
SN74LS156NSR	Active	Production	SOP (NS) 16	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS156
SN74LS156NSR.A	Active	Production	SOP (NS) 16	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS156
SN74LS156NSR.A	Active	Production	SOP (NS) 16	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	0 to 70	74LS156
SNJ54LS155AJ	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801Q A SNJ54LS155A.
SNJ54LS155AJ	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801Q A SNJ54LS155A
SNJ54LS155AJ.A	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801C A SNJ54LS155A
SNJ54LS155AJ.A	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801C A SNJ54LS155A
SNJ54LS155AW	Active	Production	CFP (W) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801C A SNJ54LS155A\



-55 to 125

-55 to 125

-55 to 125

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SNJ54LS156J

SNJ54LS156J

SNJ54LS156J



SNJ54LS156J

SNJ54LS156J.A

SNJ54LS156J.A

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Orderable part number	Status	Material type	Package Pins	Package qty Carrier	RoHS (3)	Lead finish/ Ball material	MSL rating/ Peak reflow	Op temp (°C)	Part marking (6)
						(4)	(5)		
SNJ54LS155AW	Active	Production	CFP (W) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801QF A SNJ54LS155AW
SNJ54LS155AW.A	Active	Production	CFP (W) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801QF A SNJ54LS155AW
SNJ54LS155AW.A	Active	Production	CFP (W) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9750801QF A SNJ54LS155AW
SNJ54LS156J	Active	Production	CDIP (J) 16	25 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SNJ54LS156J

No

No

No

SNPB

SNPB

SNPB

N/A for Pkg Type

N/A for Pkg Type

N/A for Pkg Type

Active

Active

Active

25 | TUBE

25 | TUBE

25 | TUBE

Production

Production

Production

CDIP (J) | 16

CDIP (J) | 16

CDIP (J) | 16

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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⁽¹⁾ Status: For more details on status, see our product life cycle.

⁽²⁾ 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.

⁽³⁾ RoHS values: Yes, No, RoHS Exempt. See the TI RoHS Statement for additional information and value definition.

⁽⁴⁾ 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.

⁽⁵⁾ 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.

⁽⁶⁾ 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.

PACKAGE OPTION ADDENDUM

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and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

OTHER QUALIFIED VERSIONS OF SN54LS155A, SN54LS156, SN74LS155A, SN74LS156:

Catalog: SN74LS155A, SN74LS156

Military: SN54LS155A, SN54LS156

NOTE: Qualified Version Definitions:

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

PACKAGE MATERIALS INFORMATION

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TAPE AND REEL INFORMATION





A0	Dimension designed to accommodate the component width
В0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

Device	Package Type	Package Drawing		SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74LS155ADR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74LS155ANSR	SOP	NS	16	2000	330.0	16.4	8.1	10.4	2.5	12.0	16.0	Q1
SN74LS156DR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74LS156NSR	SOP	NS	16	2000	330.0	16.4	8.1	10.4	2.5	12.0	16.0	Q1



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*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74LS155ADR	SOIC	D	16	2500	353.0	353.0	32.0
SN74LS155ANSR	SOP	NS	16	2000	353.0	353.0	32.0
SN74LS156DR	SOIC	D	16	2500	340.5	336.1	32.0
SN74LS156NSR	SOP	NS	16	2000	353.0	353.0	32.0



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TUBE



*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (µm)	B (mm)
5962-9750801QFA	W	CFP	16	25	506.98	26.16	6220	NA
SN74LS155AN	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS155AN	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS155AN.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS155AN.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS155ANE4	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS155ANE4	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS156N	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS156N	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS156N.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS156N.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS156NE4	N	PDIP	16	25	506	13.97	11230	4.32
SN74LS156NE4	N	PDIP	16	25	506	13.97	11230	4.32
SNJ54LS155AW	W	CFP	16	25	506.98	26.16	6220	NA
SNJ54LS155AW.A	W	CFP	16	25	506.98	26.16	6220	NA



SOP



- 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.



SOF



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.



SOF



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.



D (R-PDS0-G16)

PLASTIC SMALL OUTLINE



- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- 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.
- 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



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



14 LEADS SHOWN



- 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**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



- 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.



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