

Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
 - Class Q Military
 - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
 - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

SN54F151A, SN74F151A 1 OF 8 DATA SELECTORS/MULTIPLEXERS

D2932, MARCH 1987—REVISED JANUARY 1989

- 8-Line to 1-Line Multiplexers can Perform as:
 - Boolean Function Generators
 - Parallel-to-Serial Converters
 - Data Source Selectors
- Package Options Include Plastic "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality Reliability

description

These monolithic data selectors/multiplexers provide full binary decoding to select one of eight data sources. The strobe input (\bar{G}) must be at a low logic level to enable the inputs. A high level at the strobe terminal forces the W output high and the Y output low.

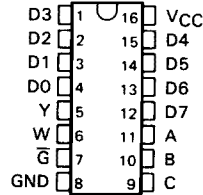
The SN54F151A is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74F151A is characterized for operation from 0°C to 70°C .

FUNCTION TABLE

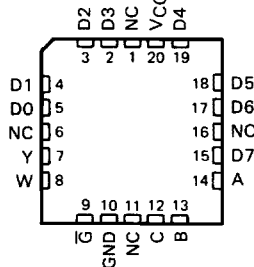
INPUTS			STROBE \bar{G}	OUTPUTS	
C	B	A		Y	W
X	X	X	H	L	H
L	L	L	L	D0	$\bar{D}0$
L	L	H	L	D1	$\bar{D}1$
L	H	L	L	D2	$\bar{D}2$
L	H	H	L	D3	$\bar{D}3$
H	L	L	L	D4	$\bar{D}4$
H	L	H	L	D5	$\bar{D}5$
H	H	L	L	D6	$\bar{D}6$
H	H	H	L	D7	$\bar{D}7$

H = high level, L = low level,
X = irrelevant
D0, D1 . . . D7 = the level of the
D respective input

SN54F151A . . . J PACKAGE
SN74F151A . . . D OR N PACKAGE
(TOP VIEW)

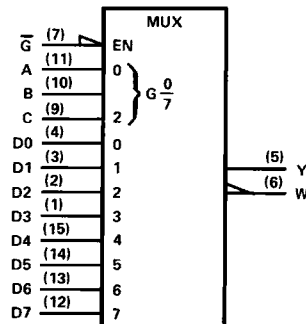


SN54F151A . . . FK PACKAGE
(TOP VIEW)



NC—No internal connection

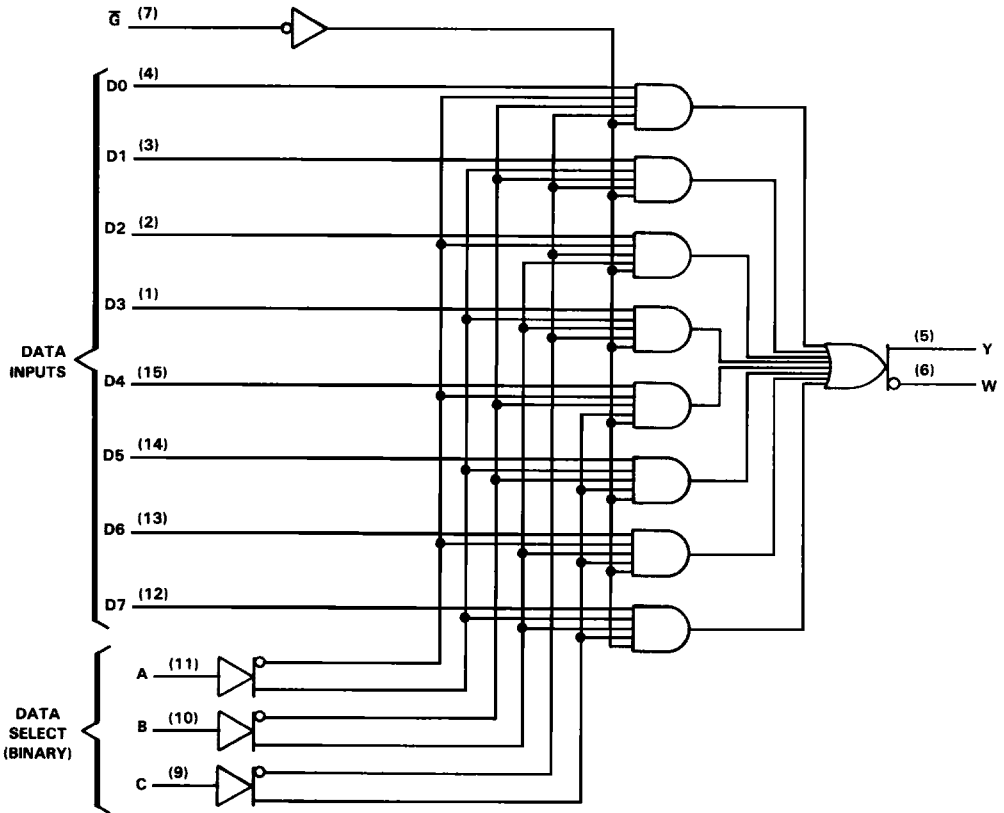
logic symbol†



† This symbol is in accordance with ANSI/IEEE Standard 91-1984 and IEC Publication 617-12. Pin numbers shown are for D, J, and N packages.

SN54F151A, SN74F151A
1 OF 8 DATA SELECTORS/MULTIPLEXERS

logic diagram (positive logic)



2

Data Sheets

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

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

Supply voltage, V_{CC}	-0.5 V to 7 V
Input voltage [†]	-1.2 V to 7 V
Input current	-30 mA to 5 mA
Voltage applied to any output in the high state	-0.5 V to V_{CC}
Current into any output in the low state	40 mA
Operating free-air temperature range: SN54F151A	-55°C to 125°C
SN74F151A	0°C to 70°C
Storage temperature range	-65°C to 150°C

[†]The input voltage ratings may be exceeded provided the input current ratings are observed.

SN54F151A, SN74F151A

1 OF 8 DATA SELECTORS/MULTIPLEXERS

recommended operating conditions

		SN54F151A			SN74F151A			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V _{CC}	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V _{IH}	High-level input voltage	2			2			V
V _{IL}	Low-level input voltage			0.8			0.8	V
I _{IK}	Input clamp current			-18			-18	mA
I _{OH}	High-level output current			-1			-1	mA
I _{OL}	Low-level output current			20			20	mA
T _A	Operating free-air temperature	-55	125		0	70		°C

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

PARAMETER	TEST CONDITIONS	SN54F151A			SN74F151A			UNIT
		MIN	TYP [†]	MAX	MIN	TYP [†]	MAX	
V _{IK}	V _{CC} = 4.5 V, I _I = -18 mA			-1.2			-1.2	V
V _{OH}	V _{CC} = 4.5 V, I _{OH} = -1 mA	2.5	3.4		2.5	3.4		V
	V _{CC} = 4.75 V, I _{OH} = -1 mA				2.7			
V _{OL}	V _{CC} = 4.5 V, I _{OL} = 20 mA		0.5		0.3	0.5		V
I _I	V _{CC} = 5.5 V, V _I = 7 V		0.1			0.1		mA
I _{IH}	V _{CC} = 5.5 V, V _I = 2.7 V		20			20		μA
I _{IL}	V _{CC} = 5.5 V, V _I = 0.5 V		-0.6			-0.6		mA
I _{OS} [‡]	V _{CC} = 5.5 V, V _O = 0	-60		-150	-60		-150	mA
I _{CC}	V _{CC} = 5.5 V, V _I = 4.5 V		13.5	21		13.5	21	mA

switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC} = 5 V, C _L = 50 pF, R _L = 500 Ω, T _A = 25°C			V _{CC} = 4.5 V to 5.5 V, C _L = 50 pF, R _L = 500 Ω, T _A = MIN to MAX [‡]				UNIT
			'F151A			SN54F151A		SN74F151A		
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t _{PLH}	A, B, or C	W	3.2	5.8	9	2.7	11.5	2.7	9.5	ns
t _{PHL}			2.4	4.8	7.5	2.2	8	2.4	7.5	
t _{PLH}	A, B, or C	Y	3.7	7.1	10.5	3.7	13.5	3.7	12	ns
t _{PHL}			3.2	5.8	9	3.2	9.5	3.2	9	
t _{PLH}	C	W	2.2	4.3	6.1	2.2	7.5	2.2	7	ns
t _{PHL}			2.2	4	6	1.7	6.5	1.7	6	
t _{PLH}	C	Y	4.2	6.6	9.5	3.2	12	3.2	10.5	ns
t _{PHL}			2.7	4.9	7	2.2	8	2.2	7.5	
t _{PLH}	D	W	2.2	4.4	6.5	1.7	7.5	2.2	7	ns
t _{PHL}			1	2.1	4	1	6	1	5	
t _{PLH}	D	Y	2.2	4.4	6.5	1.7	8.5	1.7	7.5	ns
t _{PHL}			2.9	5.1	7	2.7	9	2.9	7.5	

[†] All typical values are at V_{CC} = 5 V, T_A = 25°C.

[‡] Not more than one output should be shorted at a time and the duration of the short circuit should not exceed one second.

[§] For conditions shown as MIN or MAX, use the appropriate value specified under Recommended Operating Conditions.

NOTE 1: See General Information for load circuits and waveforms.

2

Data Sheets

2

Data Sheets