

DM74LS151

1-of-8 Line Data Selector/Multiplexer

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The DM74LS151 features complementary W and Y outputs.

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 re-creations are done with the approval of the Original Component Manufacturer (OCM).

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds 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 OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

FOR REFERENCE ONLY

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General Description

This data selector/multiplexer contains full on-chip decoding to select the desired data source. The DM74LS151 selects one-of-eight data sources. The DM74LS151 has a strobe input which must be at a low logic level to enable these devices. A high level at the strobe forces the W output HIGH, and the Y output LOW.

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Features

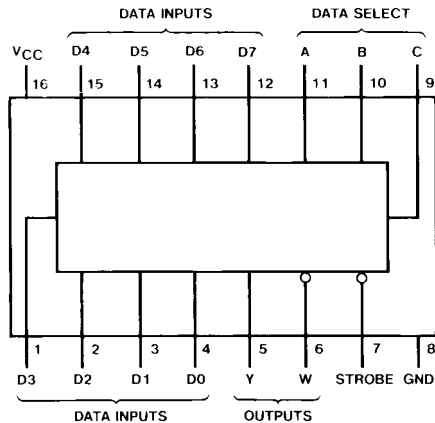
- Select one-of-eight data lines
- Performs parallel-to-serial conversion
- Permits multiplexing from N lines to one line
- Also for use as Boolean function generator
- Typical average propagation delay time data input to W output 12.5 ns
- Typical power dissipation 30 mW

Ordering Code:

Order Number	Package Number	Package Description
DM74LS151M	M16A	16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
DM74LS151SJ	M16D	16-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
DM74LS151N	N16E	16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide

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

Connection Diagram



Truth Table

Inputs				Outputs	
Select			Strobe S	Y	W
C	B	A			
X	X	X	H	L	H
L	L	L	L	D0	D0
L	L	H	L	D1	D1
L	H	L	L	D2	D2
L	H	H	L	D3	D3
H	L	L	L	D4	D4
H	L	H	L	D5	D5
H	H	L	L	D6	D6
H	H	H	L	D7	D7

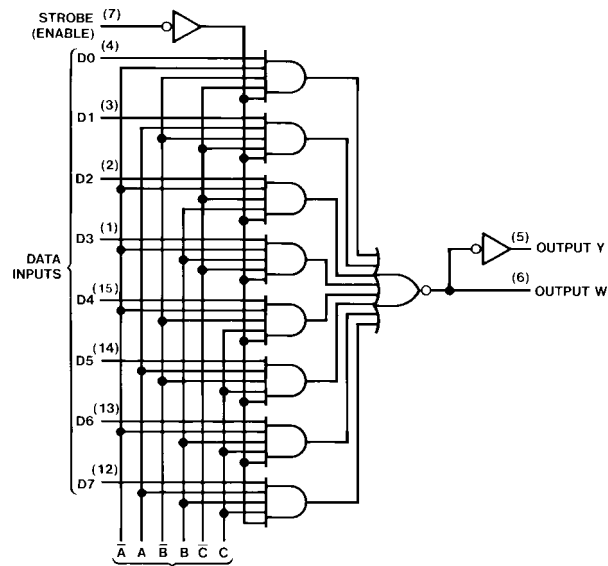
H = HIGH Level

L = LOW Level

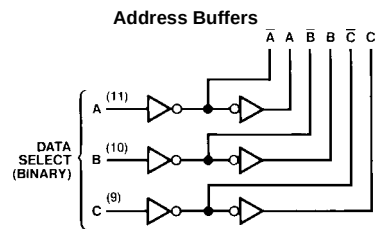
X = Don't Care

D0, D1...D7 = the level of the respective D input

Logic Diagrams



See Address Buffers



Absolute Maximum Ratings(Note 1)

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature Range	0°C to +70°C
Storage Temperature Range	–65°C to +150°C

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.

Recommended Operating Conditions

Symbol	Parameter	Min	Nom	Max	Units
V _{CC}	Supply Voltage	4.75	5	5.25	V
V _{IH}	HIGH Level Input Voltage	2			V
V _{IL}	LOW Level Input Voltage			0.8	V
I _{OH}	HIGH Level Output Current			–0.4	mA
I _{OL}	LOW Level Output Current			8	mA
T _A	Free Air Operating Temperature	0		70	°C

Electrical Characteristics

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

Symbol	Parameter	Conditions	Min	Typ (Note 2)	Max	Units
V _I	Input Clamp Voltage	V _{CC} = Min, I _I = –18 mA			–1.5	V
V _{OH}	HIGH Level Output Voltage	V _{CC} = Min, I _{OH} = Max V _{IL} = Max, V _{IH} = Min	2.7	3.4		V
V _{OL}	LOW Level Output Voltage	V _{CC} = Min, I _{OL} = Max V _{IL} = Max, V _{IH} = Min I _{OL} = 4 mA, V _{CC} = Min		0.35 0.25	0.5 0.4	V
I _I	Input Current @ Max Input Voltage	V _{CC} = Max, V _I = 7V			0.1	mA
I _{IH}	HIGH Level Input Current	V _{CC} = Max, V _I = 2.7V			20	μA
I _{IL}	LOW Level Input Current	V _{CC} = Max, V _I = 0.4V			–0.4	mA
I _{OS}	Short Circuit Output Current	V _{CC} = Max (Note 3)	–20		–100	mA
I _{CC}	Supply Current	V _{CC} = Max (Note 4)		6	10	mA

Note 2: All typicals are at V_{CC} = 5V, T_A = 25°C.

Note 3: Not more than one output should be shorted at a time, and the duration should not exceed one second.

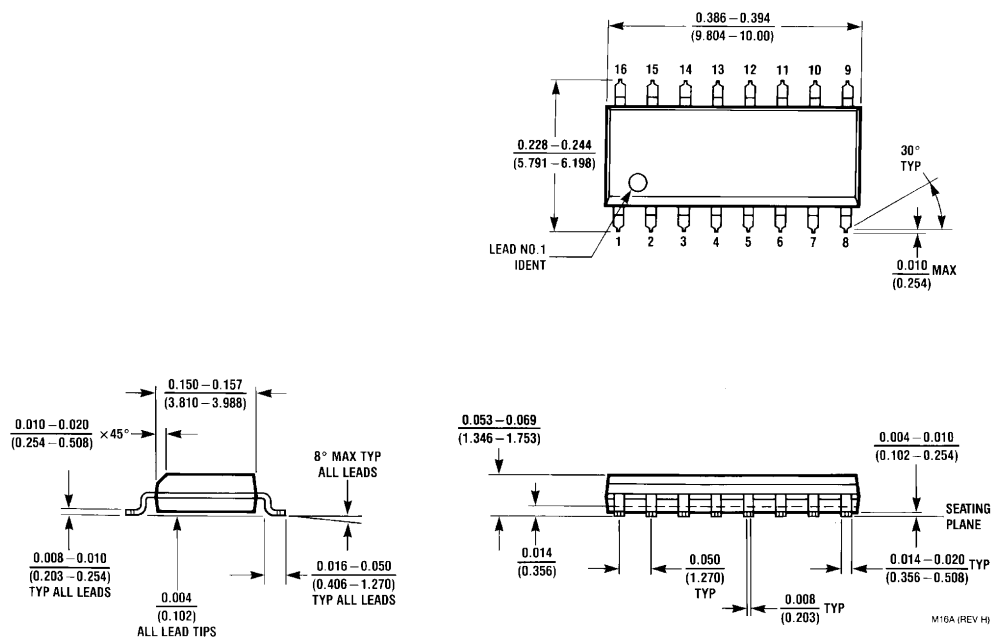
Note 4: I_{CC} is measured with all outputs OPEN, strobe and data select inputs at 4.5V, and all other inputs OPEN.

Switching Characteristics

at $V_{CC} = 5V$ and $T_A = 25^\circ C$

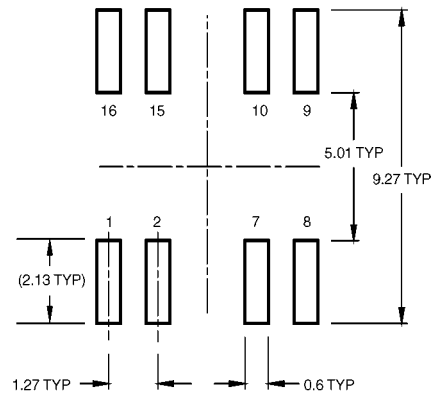
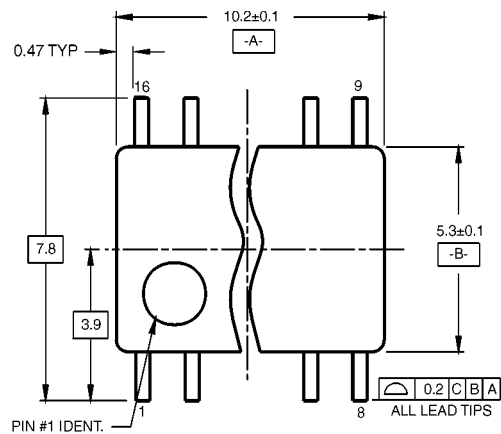
Symbol	Parameter	From (Input) To (output)	R _L = 2 kΩ				Units
			C _L = 15 pF		C _L = 50 pF		
			Min	Max	Min	Max	
t _{PLH}	Propagation Delay Time LOW-to-HIGH Level Output	Select (4 Levels) to Y		43		46	ns
t _{PHL}	Propagation Delay Time HIGH-to-LOW Level Output	Select (4 Levels) to Y		30		36	ns
t _{PLH}	Propagation Delay Time LOW-to-HIGH Level Output	Select (3 Levels) to W		23		25	ns
t _{PHL}	Propagation Delay Time HIGH-to-LOW Level Output	Select (3 Levels) to W		32		40	ns
t _{PLH}	Propagation Delay Time LOW-to-HIGH Level Output	Strobe to Y		42		44	ns
t _{PHL}	Propagation Delay Time HIGH-to-LOW Level Output	Strobe to Y		32		40	ns
t _{PLH}	Propagation Delay Time LOW-to-HIGH Level Output	Strobe to W		24		27	ns
t _{PHL}	Propagation Delay Time HIGH-to-LOW Level Output	Strobe to W		30		36	ns
t _{PLH}	Propagation Delay Time LOW-to-HIGH Level Output	D0 thru D7 to Y		32		35	ns
t _{PHL}	Propagation Delay Time HIGH-to-LOW Level Output	D0 thru D7 to Y		26		33	ns
t _{PLH}	Propagation Delay Time LOW-to-HIGH Level Output	D0 thru D7 to W		21		25	ns
t _{PHL}	Propagation Delay Time HIGH-to-LOW Level Output	D0 thru D7 to W		20		27	ns

Physical Dimensions inches (millimeters) unless otherwise noted

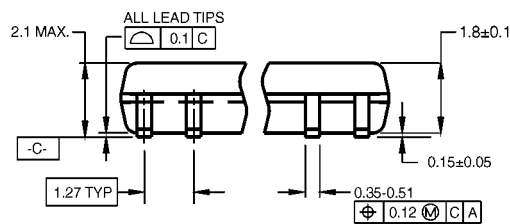


**16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
Package Number M16A**

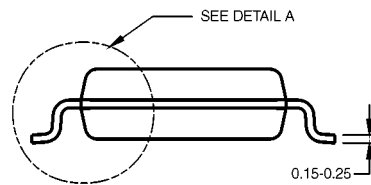
Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



LAND PATTERN RECOMMENDATION



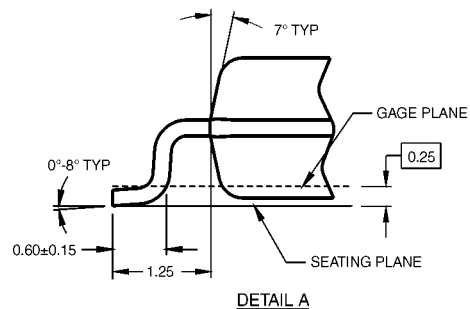
DIMENSIONS ARE IN MILLIMETERS



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.

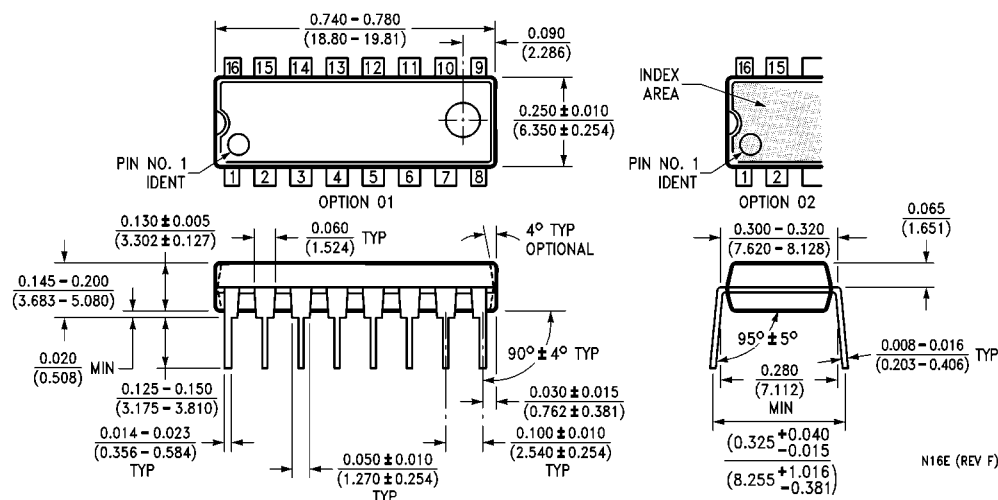
M16DRevB1



DETAIL A

**16-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
Package Number M16D**

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



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