Quadruple 2-Line-To-1 Line Multiplexers

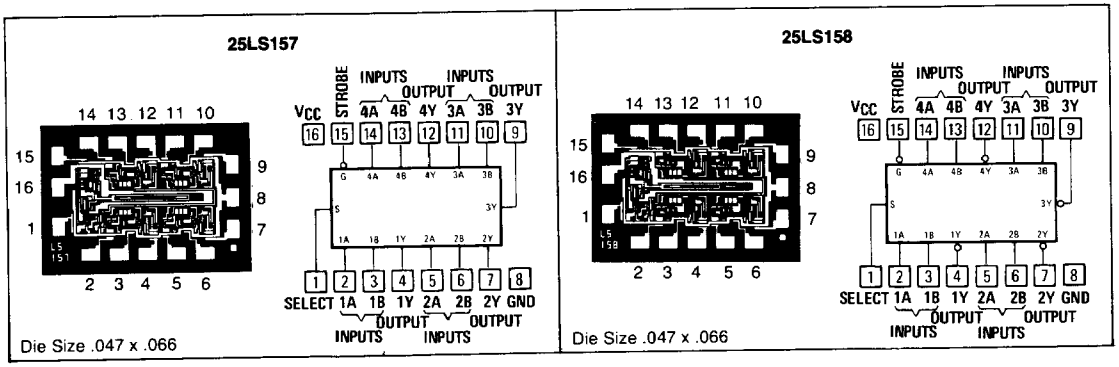
DESCRIPTION

These data selectors/multiplexers select a 4-bit word from one of two sources and present it at the four outputs. The 25LS157 presents true data; the 25LS158 presents inverted data.

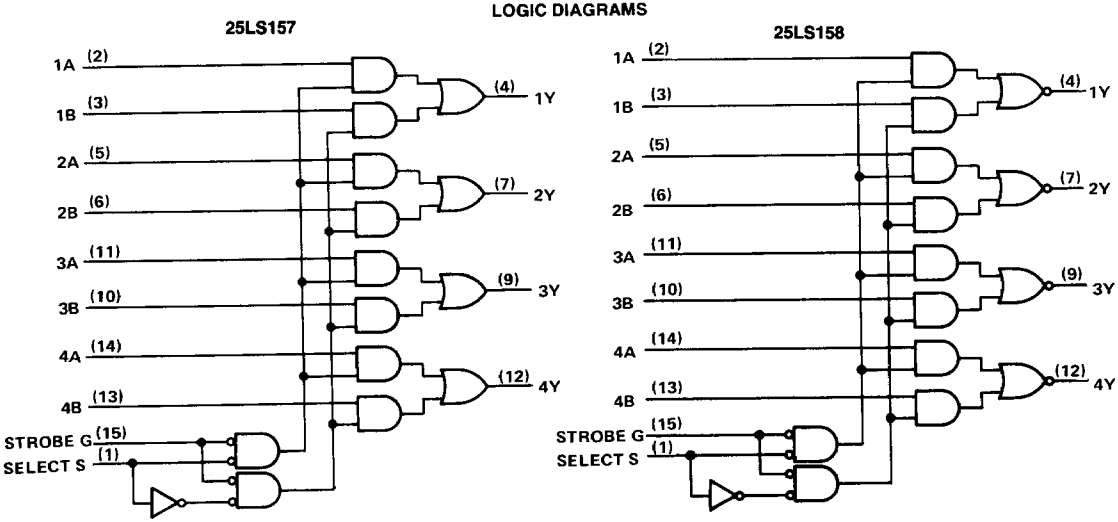
FEATURES

- Higher Speed compared to 9LS/54LS and 9LS/74LS
- 8mA sink current over full military temperature range
- 50mV improved V_{OL} compared to 9LS/74LS
- 440μA source current
- 100% reliability assurance testing in compliance with MIL-STD-883

PIN-OUT DIAGRAMS



LOGIC DIAGRAMS



FUNCTION TABLE

INPUTS				OUTPUT Y	
STROBE	SELECT	A	B	25LS157	25LS158
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 = don't care
Low level at S selects A inputs
High level at S selects B inputs
Strobe is active low

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Recommended Operating Conditions

	Military			Commercial			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}			–440			–440	μA
Low-level output current, I_{OL}	4		8	4		8	mA
Operating free-air temperature, T_A	–55		125	0		70	°C

Electrical Characteristics Over Recommended Free-Air Temperature Range (Unless Otherwise Noted)

Parameter		Test Conditions*		Military			Commercial			Unit
				Min	Typ**	Max	Min	Typ**	Max	
V_{IH}				2			2			V
V_{IL}						0.7			0.8	V
V_I		V_{CC}=MIN, I_I=–18mA				–1.5			–1.5	V
V_{OH}		V_{CC}=MIN, V_{IH}=2V, V_{IL}=MAX, I_{OH}=–440μA		2.5	3.4		2.7	3.4		V
V_{OL}		V_{CC}=MIN, V_{IH}=2V, V_{IL}=MAX	I_{OL}=4mA		0.25	0.40		0.25	0.40	V
			I_{OL}=8mA		0.3	0.45		0.35	0.45	
I_I	S or G input	V_{CC}=MAX, V_I=7V				0.2			0.2	mA
	A or B input					0.1			0.1	
I_{IH}	S or G input	V_{CC}=MAX, V_I=2.7V				40			40	μA
	A or B input					20			20	
I_{IL}	S or G input	V_{CC}=MAX, V_I=0.4V				–0.8			–0.8	mA
	A or B input					–0.4			–0.4	
I_{OS}†		V_{CC}=MAX		–15		–85	–15		–85	mA
I_{CC}††		V_{CC}=MAX	25LS157		9.7	16		9.7	16	mA
			25LS158		4.8	8		4.8	8	

*For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
**All typical values are at V_{CC} = 5V, T_A = 25°C.
†Not more than one output should be shorted at a time.
†† I_{CC} is measured with 4.5V applied to all inputs and all outputs open.

Switching Characteristics, V_{CC} = 5V, T_A = +25°C

Parameter		From (input)	To (output)	+25°C			Unit
				Min	Typ	Max	
Test Conditions: C_L = 15pF, R_L = 2kΩ (See Fig. A, page 2-174)							
t_{PLH}	25LS157	Data	Y_i		5	10	ns
t_{PLH}					7	12	
t_{PLH}	25LS158	Data	Y_i		7	12	ns
t_{PLH}					5	10	
t_{PLH}	25LS157	Strobe	Y_i		13	20	ns
t_{PLH}					8	16	
t_{PLH}	25LS158	Strobe	Y_i		8	12	ns
t_{PLH}					12	17	
t_{PLH}	25LS157	Select	Y_i		10	20	ns
t_{PLH}					11	20	
t_{PLH}	25LS158	Select	Y_i		11	20	ns
t_{PLH}					10	20	