

MN4539B/MN4539BS

Dual 4-Input Multiplexer

Outline

The MN4539B/S is a 4-input data selector consisting of two circuits to select data by common select inputs (S_0, S_1). The input to each circuit selects the output according to the combination of the select inputs when the level of the enable input is "L".

When the level of the enable input is set to "H", the level of the corresponding output becomes "L" irrespectively of the other inputs.

This 4-input multiplexer is widely applicable to signal composition, parallel/series conversion, etc.

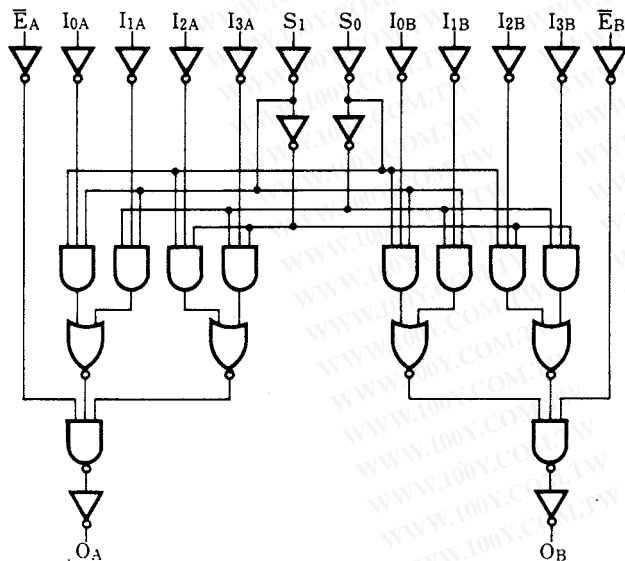
The MN4539B/S is equivalent to Motorola's MC14539B.

Truth Table

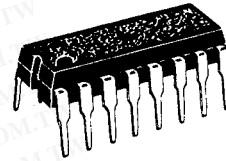
Input			Output
S_0	S_1	\bar{E}	O
x	x	H	L
L	L	L	I_0
H	L	L	I_1
L	H	L	I_2
H	H	L	I_3

Note) x: don't care

Logic Diagram

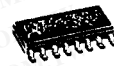


P-3



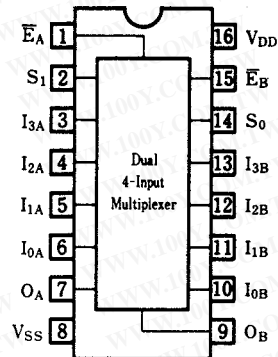
16-pin plastic DIL package

P-4



16-pin PANAFLAT package (SO-16D)

Pin Configuration



Pin description

- $I_{0A}, I_{1A}, I_{2A}, I_{3A}$: Multiplexer input
- $I_{0B}, I_{1B}, I_{2B}, I_{3B}$: Multiplexer output
- S_0, S_1 : Select input
- \bar{E}_A, \bar{E}_B : Enable output
- O_A, O_B : Multiplexer output

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■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply voltage	V _{DD}	-0.5~+18	V
Input voltage	V _I	-0.5~V _{DD} +0.5*	V
Output pin voltage	V _O	-0.5~V _{DD} +0.5*	V
Peak input · output pin current	±I _I	max. 10	mA
Power dissipation (per package)	P _D	Ta=-40~+60°C	max. 400
		Ta=+60~+80°C	Decrease to 200mW at the rate of 8mW/°C
Power dissipation (per output pin)	P _D	max. 100	mW
Operating ambient temperature	T _{opr}	-40~+85	°C
Storage temperature	T _{stg}	-65~+150	°C

* V_{DD}+0.5V should be lower than 18V.

■ DC Characteristics (V_{SS}=0V)

Item	V _{DD} (V)	Symbol	Condition	Ta=-40°C		Ta=25°C		Ta=85°C		Unit	
				min.	max.	min.	max.	min.	max.		
Static supply current	5	I _{DD}	V _I =V _{SS} or V _{DD}	—	20	—	20	—	150	μA	
	10			—	40	—	40	—	300		
	15			—	80	—	80	—	600		
Output voltage low level	5	V _{OL}	V _I =V _{SS} or V _{DD} I _{OI} <1μA	—	0.05	—	0.05	—	0.05	V	
	10			—	0.05	—	0.05	—	0.05		
	15			—	0.05	—	0.05	—	0.05		
Output voltage high level	5	V _{OH}	V _I =V _{SS} or V _{DD} I _{OI} <1μA	4.95	—	4.95	—	4.95	—	V	
	10			9.95	—	9.95	—	9.95	—		
	15			14.95	—	14.95	—	14.95	—		
Input voltage low level	5	V _{IL}	I _{OI} <1μA	V _O =0.5V or 4.5V V _O =1V or 9V V _O =1.5V or 13.5V	—	1.5	—	1.5	—	1.5	V
	10				—	3	—	3	—	3	
	15				—	4	—	4	—	4	
Input voltage high level	5	V _{IH}	I _{OI} <1μA	V _O =0.5V or 4.5V V _O =1V or 9V V _O =1.5V or 13.5V	3.5	—	3.5	—	3.5	—	V
	10				7	—	7	—	7	—	
	15				11	—	11	—	11	—	
Output current low level	5	I _{OL}	V _O =0.4V, V _I =0 or 5V V _O =0.5V, V _I =0 or 10V V _O =1.5V, V _I =0 or 15V	0.52	—	0.44	—	0.36	—	mA	
	10			1.3	—	1.1	—	0.9	—		
	15			3.6	—	3	—	2.4	—		
Output current high level	5	-I _{OH}	V _O =4.6V, V _I =0 or 5V V _O =9.5V, V _I =0 or 10V V _O =13.5V, V _I =0 or 15V	0.52	—	0.44	—	0.36	—	mA	
	10			1.3	—	1.1	—	0.9	—		
	15			3.6	—	3	—	2.4	—		
Output current high level	5	-I _{OH}	V _O =2.5V, V _I =0 or 5V	1.7	—	1.4	—	1.1	—	mA	
Input leakage current	15	±I _I	V _I =0 or 15V	—	0.3	—	0.3	—	1	μA	

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■ Switching Characteristics (Ta=25°C, V_{SS}=0V, C_L=50pF)

Item	V _{DD} (V)	Symbol	min.	typ.	max.	Unit
Output rise time	5	t _{TLH}	—	60	180	ns
	10		—	30	90	
	15		—	20	60	
Output fall time	5	t _{THL}	—	60	180	ns
	10		—	30	90	
	15		—	20	60	
Propagation time In→On (L→H)	5	t _{PLH}	—	120	360	ns
	10		—	50	150	
	15		—	35	105	
Propagation time In→On (H→L)	5	t _{PHL}	—	120	360	ns
	10		—	45	135	
	15		—	30	90	
Propagation time Sn→On (L→H)	5	t _{PLH}	—	155	465	ns
	10		—	60	180	
	15		—	40	120	
Propagation time Sn→On (H→L)	5	t _{PHL}	—	165	495	ns
	10		—	65	195	
	15		—	40	120	
Propagation time Ē _n →On (L→H)	5	t _{PLH}	—	100	300	ns
	10		—	40	120	
	15		—	30	90	
Propagation time Ē _n →On (H→L)	5	t _{PHL}	—	100	300	ns
	10		—	40	120	
	15		—	30	90	
Input capacitance		C _i	—	—	7.5	pF

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