



MMC 4512

8 - CHANNEL DATA SELECTOR

GENERAL DESCRIPTION

The MMC 4512 (G and H types) and MMC 4512 (E and F types) are monolithic integrated circuit, available in 16-lead dual in-line plastic or ceramic package.

The MMC 4512 is an 8-channel data selector featuring a tri-state output that can interface directly with, and drive, data lines of bus oriented systems.

FEATURES

- 3-state output
- Quiescent current specified to 20 V for G and H types
- 5 V, 10 V and 15 V parametric ratings
- Input current of 100 nA at 18 V and 25° C for G and H types, 100% tested for quiescent current

ABSOLUTE MAXIMUM RATINGS

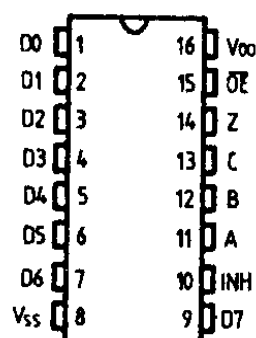
V_{DD}^*	Supply voltage: G and H types	-0.5 to 20	V
	E and F types	-0.5 to 18	V
V_i	Input voltage	-0.5 to $V_{DD}+0.5$	V
I_i	DC input current (any one input)	± 10	mA
P_{tot}	Total power dissipation (per package)	200	mW
	Dissipation per output transistor for T_A = full package-temperature range	100	mW
T_A	Operating temperature: G and H types	-55 to 125	°C
	E and F types	-40 to 85	°C
T_{stg}	Storage temperature	-65 to 150	°C

* All voltage values are referred to V_{SS} pin voltage

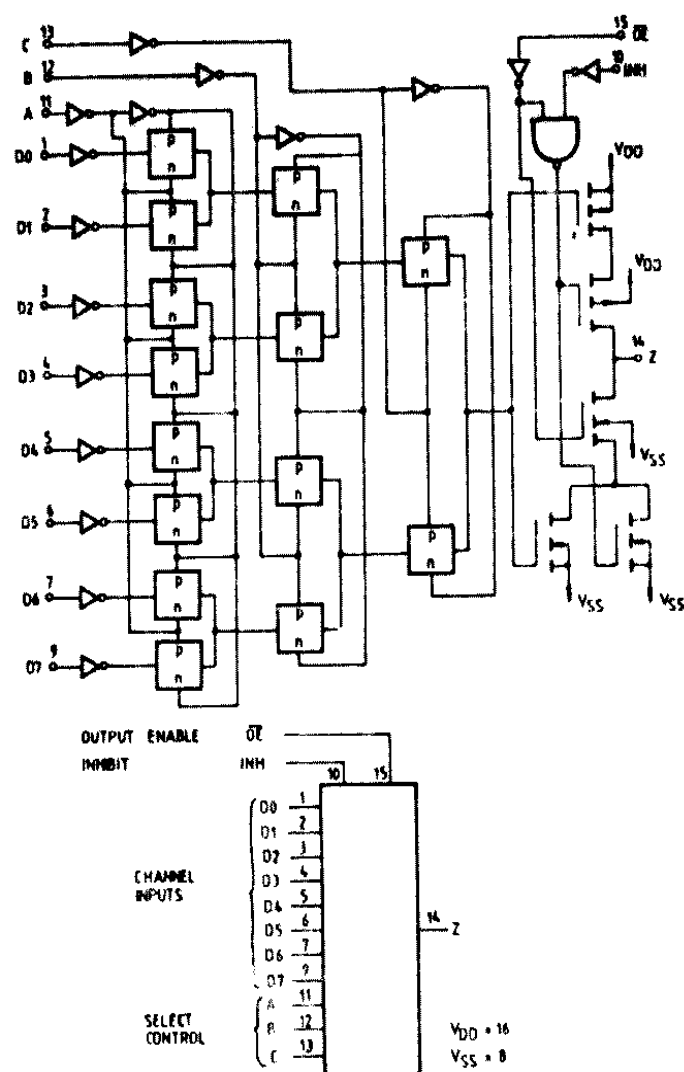
RECOMMENDED OPERATING CONDITIONS

V_{DD}^*	Supply voltage: G and H types	3 to 18	V
	E and F types	3 to 15	V
V_i	Input voltage	0 to V_{DD}	V
T_A	Operating temperature: G and H types	-55 to 125	°C
	E and F types	-40 to 85	°C

CONNECTION DIAGRAM



LOGIC DIAGRAM



TRUTH TABLE

SEL. CONT.			INH.	3- STATE DISABLE	SEL. OUTPUT
A	B	C			
0	0	0	0	0	D0
1	0	0	0	0	D1
0	1	0	0	0	D2
1	1	0	0	0	D3
0	0	1	0	0	D4
1	0	1	0	0	D5
0	1	1	0	0	D6
1	1	1	0	0	D7
X	X	X	1	0	0
X	X	X	X	1	High Z

1 = High level

0 = Low level

X = Don't Care

STATIC ELECTRICAL CHARACTERISTICS

(over recommended operating conditions)

PARAMETER			TEST CONDITIONS				VALUES						UNIT	
			V _I (V)	V _O (V)	I _O (μ A)	V _{DD} (V)	T _{Low}		25°C			T _{High}		
							min.	max.	min.	typ	max.	min.		max.
I _L —Quiescent current	G, H types	0/ 5			5		5		0.04	5		150	μ A	
		0/10			10		10		0.04	10		300		
		0/15			15		20		0.04	20		600		
		0/20			20		100		0.08	100		3000		
	E, F types	0/ 5			5		20		0.04	20		150		
		0/10			10		40		0.04	40		300		
		0/15			15		80		0.04	80		600		
V _{OH} —Output high voltage		0/ 5		< 1	5	4.95		4.95			4.95		V	
		0/10		< 1	10	9.95		9.95			9.95			
		0/15		< 1	15	14.95		14.95			14.95			
V _{OL} —Output low voltage		5 / 0		< 1	5		0.05			0.05		0.05	V	
		10/ 0		< 1	10		0.05			0.05		0.05		
		15/ 0		< 1	15		0.05			0.05		0.05		
V _{IH} —Input high voltage			0.5/4.5	< 1	5	3.5		3.5			3.5		V	
			1/ 9	< 1	10	7		7			7			
			1.5/13.5	< 1	15	11		11			11			
V _{IL} —Input low voltage			4.5/0.5	< 1	5		1.5			1.5		1.5	V	
			9/ 1	< 1	10		3			3		3		
			13.5/1.5	< 1	15		4			4		4		
I _{OH} Output drive current	G, H types	0/ 5	2.5		5	-2		-1.6	-3.2		-1.15		mA	
		0/ 5	4.6		5	-0.64		-0.51	-1		-0.36			
		0/10	9.5		10	-1.6		-1.3	-2.6		-0.9			
		0/15	13.5		15	-4.2		-3.4	-6.8		-2.4			
	E, F types	0/ 5	2.5		5	-1.53		-1.36	-3.2		-1.1			
		0/ 5	4.6		5	-0.52		-0.44	-1		-0.36			
		0/10	9.5		10	-1.3		-1.1	-2.6		-0.9			
		0/15	13.5		15	-3.6		-3.0	-6.8		-2.4			
I _{OL} Output sink current	G, H types	0/ 5	0.4		5	0.64		0.51	1		0.36		mA	
		0/10	0.5		10	1.6		1.3	2.6		0.9			
		0/15	1.5		15	4.2		3.4	6.8		2.4			
	E, F types	0/ 5	0.4		5	0.52		0.44	1		0.36			
		0/10	0.5		10	1.3		1.1	2.6		0.9			
		0/15	1.5		15	3.6		3.0	6.8		2.4			
I _{IH} , I _{IL} Input leakage current	G, H types	0/18	Any input		18		± 0.1		$\pm 10^{-5}$	± 0.1		± 1	μ A	
	E, F types	0/15			15		± 0.3		$\pm 10^{-5}$	± 0.3		± 1		
I _{OH} 3—state output	G, H types	0/18	0/18		18		± 0.4		$\pm 10^{-4}$	± 0.4		± 12	μ A	
	E, F types	0/15	0/15		15		± 1.0		$\pm 10^{-4}$	± 1.0		± 7.5		

STATIC ELECTRICAL CHARACTERISTICS

PARAMETER		TEST CONDITIONS				VALUES						UNIT	
		V _I (V)	V _O (V)	I _O (μA)	V _{DD} (V)	T _{LOW}		25°C			T _{HIGH}		
						min.	max.	min.	typ	max.	min.		max.
C _i	Input capacitance		Any input						5	7.5			pF

* $T_{LOW} = -55^{\circ}C$ for G, H devices; $-40^{\circ}C$ for E, F devices.

* $T_{HIGH} = +125^{\circ}C$ for G, H devices; $+85^{\circ}C$ for E, F devices.

The Noise Margin for both "1" and "0" level is:

1 V min. with $V_{DD} = 5 V$

2 V min. with $V_{DD} = 10 V$

2.5 V min. with $V_{DD} = 15 V$

DYNAMIC ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}C$, $C_L = 50 pF$, $R_L = 200 k$
typical temperature coefficient for all V_{DD} values is $0.3/^{\circ}C$, all input rise and fall times = 20 ns)

PARAMETER	TEST CONDITIONS	VALUES				Unit
		$V_{DD}(V)$	Min.	Typ.	Max.	
t_{PHL} Propagation delay time		5		140	280	ns
t_{PLH} inhibit to output		10		70	140	
		15		50	100	
t_{PHL} Propagation delay time		5		200	400	ns
t_{PLH} „A“ select to output		10		85	170	
		15		60	120	
t_{PHL} Propagation delay		5		180	360	ns
t_{PLH} time data to output		10		75	150	
		15		55	110	
t_{PZL}, t_{PLZ} 3—state disable		5		60	120	ns
t_{PHZ}, t_{PZH} delay time		10		30	60	
		15		20	40	
t_{THL} Transition time		5		100	200	ns
t_{TLH}		10		50	100	
		15		40	80	