

## 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

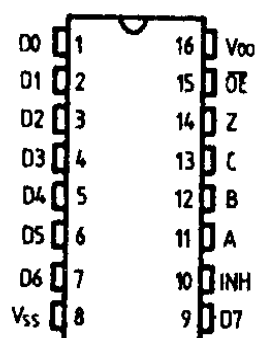
$V_{DD}^*$	Supply voltage: G and H types E and F types	-0.5 to -0.5 to -0.5 to	20 18 $V_{DD}+0.5$	V V V
$V_i$	Input voltage			
$I_i$	DC input current (any one input)		$\pm 10$	mA
$P_{tot}$	Total power dissipation (per package) Dissipation per output transistor for $T_A$ = full package-temperature range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

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

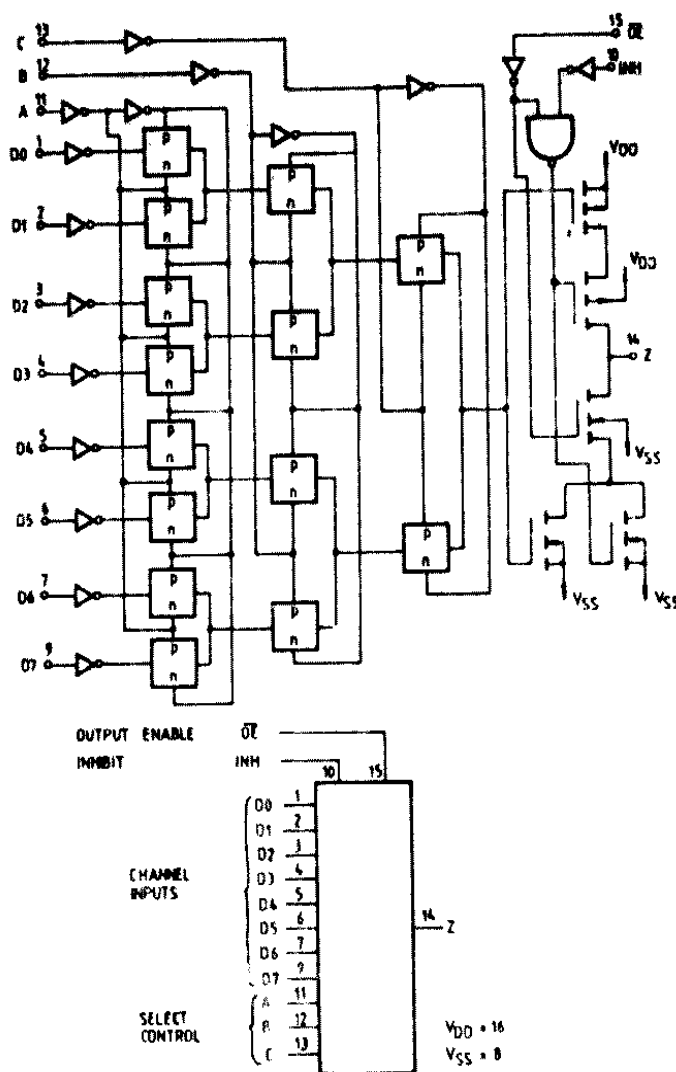
### RECOMMENDED OPERATING CONDITIONS

$V_{DD}^*$	Supply voltage: G and H types E and F types	3 to 3 to	18 15	V V
$V_i$	Input voltage	0 to	$V_{DD}$	V
$T_A$	Operating temperature: G and H types E and F types	-55 to -40 to	125 85	°C °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 <sub>I</sub> (V)	V <sub>O</sub> (V)	I <sub>O</sub>   ( $\mu$ A)	V <sub>OD</sub> (V)	T <sub>LOW</sub>		25°C			T <sub>HIGH</sub>			
						min.	max.	min.	typ	max.	min.		max.	
I <sub>L</sub>	—Quiescent current	G, H types	0/ 5			5		5		0.04	5		150	$\mu$ 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 <sub>OH</sub>	—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 <sub>OL</sub>	—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 <sub>IH</sub>	—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 <sub>IL</sub>	—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 <sub>OH</sub>	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		
I <sub>OL</sub>	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 <sub>IH</sub> , I <sub>IL</sub>	Input leakage current	G, H types	0/18	Any input		18		$\pm 0.1$		$\pm 10^{-5}$	$\pm 0.1$		$\pm 1$	$\mu$ A
		E, F types	0/15			15		$\pm 0.3$		$\pm 10^{-5}$	$\pm 0.3$		$\pm 1$	
I <sub>OH</sub>	3—state output	G, H types	0/18	0/18		18		$\pm 0.4$		$\pm 10^{-4}$	$\pm 0.4$		$\pm 12$	$\mu$ A
		E, F types	0/15	0/15		15		$\pm 1.0$		$\pm 10^{-4}$	$\pm 1.0$		$\pm 7.5$	

**STATIC ELECTRICAL CHARACTERISTICS**

PARAMETER	TEST CONDITIONS					VALUES						UNIT
	V <sub>I</sub> (V)	V <sub>O</sub> (V)	I <sub>O</sub> ( $\mu$ A)	V <sub>DD</sub> (V)	T <sub>LOW</sub>		25°C			T <sub>HIGH</sub>		
					min.	max.	min.	typ	max.	min.	max.	
C <sub>i</sub> Input capacitance		Any input						5	7.5			pF

\* T<sub>LOW</sub> = -55°C for G, H devices; -40°C for E, F devices.

\* T<sub>HIGH</sub> = +125°C for G, H devices; +85°C for E, F devices.

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

- 1 V min. with V<sub>DD</sub> = 5 V
- 2 V min. with V<sub>DD</sub> = 10 V
- 2.5 V min. with V<sub>DD</sub> = 15 V

**DYNAMIC ELECTRICAL CHARACTERISTICS** (T<sub>amb</sub> = 25°C, C<sub>L</sub> = 50 pF, R<sub>L</sub> = 200  $\Omega$ , typical temperature coefficient for all V<sub>DD</sub> values is 0.3/°C, all input rise and fall times = 20 ns)

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