



MP7509DI

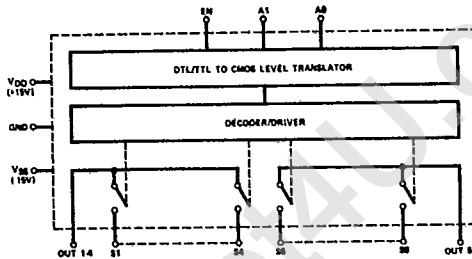
T-51-11

CMOS 4-CHANNEL DIFFERENTIAL ANALOG MULTIPLEXERS

FEATURES

- Latch-Proof
- Overvoltage Protected
- DTL/TTL/CMOS Direct Interface
- Power Dissipation: 30μW
- Silicon-Nitride Passivated
- Output "Enable" Control
- Low Power
- Replaces DG509 and HI509A

FUNCTIONAL DIAGRAM



GENERAL DESCRIPTION

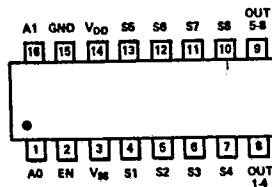
The MP7509 is a monolithic, CMOS dual 4-channel analog multiplexer. Depending on the state of two binary address lines and an "enable" input, it switches two output busses to two of 8 inputs.

Very low power dissipation, overvoltage protection and TTL/CMOS direct interfacing are achieved by combining a unique circuit design and a CMOS process. Silicon nitride passivation ensures long term stability while monolithic construction provides reliability.

TRUTH TABLE

MP7509			
A ₁	A ₀	E _N	"ON"
0	0	1	1 & 5
0	1	1	2 & 6
1	0	1	3 & 7
1	1	1	4 & 8
X	X	0	None

PIN CONFIGURATION (Top View)



ABSOLUTE MAXIMUM RATINGS

(T_A = +25°C unless otherwise noted.)

- V_{DD} to GND +17V
- V_{SS} to GND -17V
- Overvoltage at V_O (V_s)
 - 1 second surge V_{DD}+25V or (V_{SS}-25V)
 - Continuous V_{DD}+20V or (V_{SS}-20V)
- Switch Current (I_s, Continuous) 35mA
- Switch Current (I_s, Surge)
 - 1mS duration, 10% duty cycle 50mA
- Power Dissipation (Package)*
 - 16 Pin Ceramic DIP** 900mW
 - 16 Pin Plastic DIP*** 470mW
- Operating Temperature
 - Plastic (KN) 0°C to +70°C
 - Ceramic (KD) -25°C to +85°C
 - Ceramic (SD) -55°C to +125°C
- Storage Temperature -65°C to +150°C

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MP7508DI, MP7509DI

T-51-11

SPECIFICATIONS $V_{DD} = +15V$, $V_{SS} = -15V$, unless otherwise noted.

PARAMETER	TEST CONDITION	SWITCH CONDITION	Over Specified		UNITS
			25°C TYP	Temp. Range MIN MAX	
ANALOG SWITCH					
R_{ON}	$V_S = -10V$ to $+10V$ $I_S = 100\mu A$	ON	400	1000	Ω
ΔR_{ON} Between Switches		ON	4		%
I_S (Input Leakage)	$V_S = -10V$, $V_{OUT} = +10V$ and $V_S = +10V$, $V_{OUT} = -10V$ "Enable" Low	OFF	.1	± 50	nA
I_{OUT} (OFF Channel Leakage)		OFF	1.0	± 250	nA
I_{OUT} (ON Channel Leakage)	$V_S = -10V$ to $+10V$	ON	.1	± 250	nA
DIGITAL CONTROL					
V_{INL} V_{INH}			0.8 2.4	0.8 2.4	V
I_{INL} or I_{INH}			1.0	1.0	μA
DYNAMIC CHARACTERISTICS					
t_A (Access Time); (Note 1)			500	1000	ns
$t_{ON(EN)}$ $t_{OFF(EN)}$	$V_{IN}: 0$ to $5.0V$, $V_{EN}: 0$ to $5.0V$		530 600	1500 1000	ns
"OFF" Isolation	$V_{EN} = 0.8V$, $R_L = 1K\Omega$ $C_L = 7pf$, $V_S = 3V$ RMS $f = 500K$ Hz		65		dB
C_S (Input Capacitance)		OFF	5		pf
C_{OUT} (Output Capacitance)	Per Channel	OFF	2.5		pf
C_{OS} (Input to Output Capacitance)		OFF	0.1		pf
POWER SUPPLY					
I_{DD}	All Digital Inputs Low	OFF	5	400	μA
I_{SS}	All Digital Inputs Low	OFF	1	400	μA
I_{DD}	All Digital Inputs High	ON	270	2000	μA
I_{SS}	All Digital Inputs High	ON	1	400	μA

NOTES:

- AC parameters are sample tested to insure conformance to specifications.
- KN versions specified for $0^\circ C$ to $+70^\circ C$; KD versions for $-25^\circ C$ to $+85^\circ C$; and SD versions for $-55^\circ C$ to $+125^\circ C$.