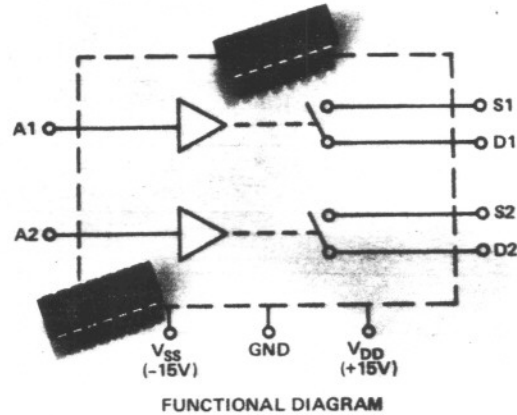


FEATURES

- "ON" Resistance: 55Ω
- Break-Before-Make Switching Power Dissipation: 3mW
- DTL/TTL/CMOS Compatible
- Switch Current: 50mA
- Replaces DG-200



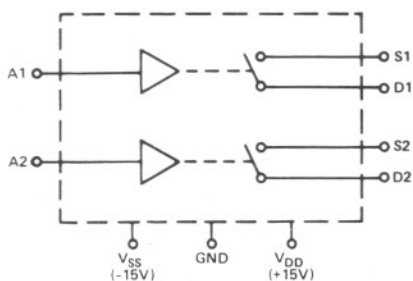
OBSOLETE

GENERAL DESCRIPTION

The AD7513 is composed of two independent single-pole-single-throw switches on a CMOS chip. State-of-the-art design provides TTL/DTL/CMOS compatibility and a low power dissipation of 3mW.

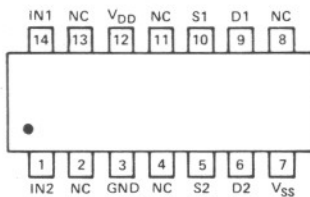
The AD7513 is an excellent replacement for reed relays and FET switches due to its low power dissipation, direct logic interface capability and low price. Its high surge current capability makes it ideal for use in integrator or sample/hold circuits.

FUNCTIONAL DIAGRAM

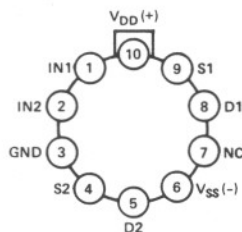


PIN CONFIGURATIONS (Top View)

PLASTIC DIP



TO-100



ABSOLUTE MAXIMUM RATINGS

(TA = +25°C unless otherwise noted)

V _{DD} to GND	.....	+17V
V _{SS} to GND	.....	-17V
V Between any Switch Terminals	.....	+25V
Switch Current (I _{DS} , Continuous)	.....	50mA
Switch Current (I _{DS} , Surge) – 1ms duration, 10% duty cycle	.....	150mA
Digital Input Voltage Range	.....	GND to V _{DD}
Power Dissipation (Package)		
14 pin Plastic DIP		
Up to +70°C	.....	670mW
Derates above +70°C by	.....	8.3mW/°C
10 lead TO-100		
Up to +25°C	.....	680mW
Derates above +25°C by	.....	5.4mW/°C
Operating Temperature		
Plastic	.....	0 to +75°C
TO-100 (J, K versions)	.....	-25°C to +85°C
TO-100 (S, T versions)	.....	-55°C to +125°C
Storage Temperature	.....	-65°C to +150°C

CAUTION:

1. Do not apply voltages higher than V_{DD} and V_{SS} to any other terminal, especially when V_{SS} = V_{DD} = 0V all other pins should be at 0V.
2. The digital control inputs are zener protected; however, permanent damage may occur on unconnected units under high energy electrostatic fields. Keep unused units in conductive foam at all times.

LOGIC

Switch "ON" For Address "LOW".

SPECIFICATIONS

($V_{DD} = +15V$, $V_{SS} = -15V$ unless otherwise noted)

PARAMETER	VERSION ¹	SWITCH	@ +25°C	OVER SPECIFIED TEMP. RANGE	TEST CONDITIONS
ANALOG SWITCH					
R_{DS}	J, K	ON	55Ω typ, 80Ω max	100Ω max	$-10V \leq V_D \leq +10V$, $I_{DS} = 1mA$
	S, T	ON	55Ω typ, 70Ω max	100Ω max	
R_{DS} vs. V_D	All	ON	20% typ		
R_{DS} vs. Temperature	All	ON	+0.5%/°C typ		$V_D = 0$, $I_{DS} = 1mA$
ΔR_{DS} Between Switches	All	ON	1% typ		
R_{DS} vs. Temperature Between Switches	All	ON	0.01%/°C typ		
I_D or I_S	J, K	OFF	0.1nA typ, 5nA max	500nA max	$V_S = 10V$, $V_D = -10V$ and $V_S = -10V$, $V_D = 10V$
	S, T	OFF	0.1nA typ, 2nA max	1000nA max	
$I_D - I_S$	J, K	ON	0.1nA typ	500nA max	$V_S = V_D = -10V$ and $V_S = V_D = +10V$
	S, T	ON	0.1nA typ	1000nA max	
DIGITAL CONTROL					
V_{INL}	All		0.8V max	0.8V max	Note 2
V_{INH}	J, S		3V min	3V min	
	K, T		2.4V min	2.4V min	
I_{INL} or I_{INH}	All		0.01μA max	10μA max	
C_{IN}	All		5pF typ		
DYNAMIC CHARACTERISTICS					
t_{ON}	J, S		700ns typ		$V_{IN} = 0$ to +3.0V $V_D (V_S) = 0V$
	K, T		700ns typ, 1000ns max		
t_{OFF}	J, S		400ns typ		$V_{IN} = 5V$, $R_1 = 1k\Omega$, $C_L = 10pF$ $V_S = 3V$ rms, $f = 100kHz$
	K, T		400ns typ, 500ns max		
C_S or C_D	All	OFF	8pF typ		
C_S or C_D	All	ON	22pF typ		
C_{DS}	All	OFF	1pF typ		
C_{DD} or C_{SS}	All	ON	0.5pF typ		
"OFF" Isolation	All	OFF	65dB typ		
POWER SUPPLY					
I_{DD}	All	OFF	0.15mA typ, 1mA max		$V_{IN} = 5V$, Both Channels
I_{SS}	All	OFF	0.1mA typ, 1mA max		
I_{DD}	All	ON	0.1mA typ, 1mA max		$V_{IN} = 0V$, Both Channels
I_{SS}	All	ON	0.1mA typ, 1mA max		
Operating Voltage Range	All		±7.5V typ to ±15V typ		

NOTES:

¹ JN, KN versions specified to 0 to +75°C; JH, KH versions for -25°C to +85°C and SH, TH versions for -55°C to +125°C.

² A pullup resistor, typically 1-2kΩ, is required to make J and S versions TTL/DTL compatible. The maximum value is determined by the output leakage current of the driver gate when in the high state.

³ AC parameters are sample tested to assure conformance to specification limits.

Specifications subject to change without notice.

ORDERING INFORMATION

Plastic Dip (Suffix N)	TO-100 (Suffix H)	Operating Temperature Range
AD7513JN		0 to +75°C
AD7513KN		
	AD7513JH	-25°C to +85°C
	AD7513KH	
	AD7513SH	-55°C to +125°C
	AD7513TH	