

1.1 Scope.

This specification covers the detail requirements for a monolithic dielectrically isolated CMOS switch, consisting of two independent single pole double throw switches.

1.2 Part Number.

The complete part number per Table 1 of this specification is as follows:

Device	Part Number
-1	AD7512DIS(X)/883B
-2	AD7512DIT(X)/883B

1.2.3 Case Outline.

See Appendix 1 of General Specification ADI-M-1000: package outline:

(X)	Package	Description
Q	Q-14	14-Pin Cerdip
E	E-20A	20-Contact LCC

1.3 Absolute Maximum Ratings. ($T_A = 25^\circ\text{C}$ unless otherwise noted)

V_{DD} to GND	+17V
V_{SS} to GND	-17V
Overvoltage at V_D (V_S)	
(1 second surge)	$V_{DD} + 25\text{V}$ or $V_{SS} - 25\text{V}$
(Continuous)	$V_{DD} + 20\text{V}$ or $V_{SS} - 20\text{V}$
Switch Current (I_{DS} , Continuous)	50mA
1ms Duration, 10% Duty Cycle	150mA
Digital Input Voltage Range	-0.3V to $V_{DD} + 0.3\text{V}$
Power Dissipation	
Up to $+75^\circ\text{C}$	450mW
Derate above $+75^\circ\text{C}$	6mW/ $^\circ\text{C}$
Operating Temperature Range	-55°C to $+125^\circ\text{C}$
Storage Temperature Range	-65°C to $+150^\circ\text{C}$
Lead Temperature (Soldering 10sec)	$+300^\circ\text{C}$

1.5 Thermal Characteristics.

Thermal Resistance $\theta_{JC} = 35^\circ\text{C/W}$
 $\theta_{JA} = 120^\circ\text{C/W}$

AD7512DI — SPECIFICATIONS

Table 1.

Test	Symbol	Device	Design Limit $T_{min}-T_{max}$	Sub Group 1	Sub Group 2, 3	Sub Group 4	Test Condition ¹	Units
Switch "ON" Resistance	R_{ON}	- 1, 2	175	100	175		$-10V \leq V_{OUT} \leq +10V, I_{DS} = 1mA$	Ω max
Leakage Current, Switch Open	I_S	- 1, 2	200		200	3	$V_{OUT} = -10V, V_S = +10V$ and $V_{OUT} = +10V, V_S = -10V$	$\pm$ nA max
Difference Between Output ² and Input Current	$I_{OUT}-I_S$	- 1, 2	600		600	9	$V_{OUT} = -10V, V_S = +10V$ and $V_{OUT} = +10V, V_S = -10V$	$\pm$ nA max
Digital Input Low Voltage	V_{IL}	- 1, 2	0.8	0.8	0.8			V max
Digital Input High Voltage	V_{IH}	- 1 - 2	3.0 2.4	3.0 2.4	3.0 2.4			V min V min
Input Leakage Current ³	I_{IN}	- 1, 2	10	10			$V_{IN} = 0V$ or V_{DD}	$\pm$ nA max
Enable to Switch "ON" ³	t_{ON}	- 1, 2	1.0				$V_{IN} = 0$ to $+3V$ and $+3V$ to $0V$	μs max
Enable to Switch "OFF" ³	t_{OFF}	- 1, 2	1.0					μs max
Supply Current from V_{DD}	I_{DD}	- 1, 2	800 500	800 500	800 500		All Digital Inputs = V_{IH} All Digital Inputs = V_{IL}	μA max μA max
Supply Current from V_{SS}	I_{SS}	- 1, 2	800 500	800 500	800 500		All Digital Inputs = V_{IH} All Digital Inputs = V_{IL}	μA max μA max

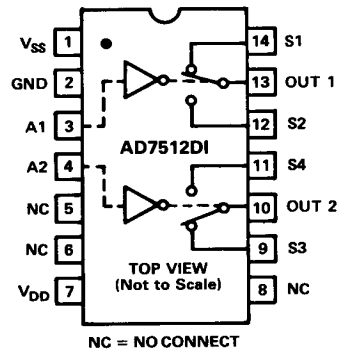
NOTES

¹ $V_{DD} = +15V; V_{SS} = -15V$ unless otherwise stated.

²This is the leakage current flowing in the OUT terminal with 20V across the S terminals.

³These design limits are at $+25^\circ C$ only.

3.2.1 Functional Block Diagram and Terminal Assignments.



AD7512DI: Address "HIGH" makes S1 to OUT 1 and S3 to OUT 2.

3.2.4 Microcircuit Technology Group.

This microcircuit is covered by technology group (82).

4.2.1 Life Test/Burn-In Circuit.

Steady state life test is per MIL-STD-883 Method 1005. Burn-in is per MIL-STD-883 Method 1015 test condition (B).

