

2Ω Max On Resistance, ±15 V/12 V/±5 V 4:1 *i*CMOS[™] Multiplexer

Preliminary Technical Data

ADG1404

FEATURES

2Ω Max On Resistance 0.5Ω Max On Resistance Flatness 200mA Continuous current 33 V supply range Fully specified at +12 V, ±15 V, ±5 V No V_L supply required 3 V logic-compatible inputs Rail-to-rail operation 14-lead TSSOP and 16-lead LFCSP

APPLICATIONS

Automatic test equipment Data aquisition systems Battery-powered systems Sample-and-hold systems Audio signal routing Communication systems Relay Replacement

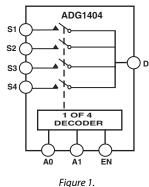
GENERAL DESCRIPTION

The ADG1404 is a complementary metal-oxide semiconductor (CMOS) analog multiplexer, comprising four single channels designed on an *i*CMOS process. *i*CMOS (industrial CMOS) is a modular manufacturing process that combines high voltage CMOS and bipolar technologies. It enables the development of a wide range of high performance analog ICs capable of 33 V operation in a footprint that no previous generation of high voltage parts has been able to achieve. Unlike analog ICs using conventional CMOS processes, *i*CMOS components can tolerate high supply voltages while providing increased performance, dramatically lower power consumption, and reduced package size.

The on resistance profile is very flat over the full analog input range ensuring excellent linearity and low distortion when switching audio signals.

*i*CMOS construction ensures ultralow power dissipation, making the parts ideally suited for portable and battery-powered instruments.

FUNCTIONAL BLOCK DIAGRAM



The ADG1404 switches one of four inputs to a common output, D, as determined by the 3-bit binary address lines, A0, A1, and EN. Logic 0 on the EN pin disables the device. Each switch conducts equally well in both directions when on and has an input signal range that extends to the supplies. In the off condition, signal levels up to the supplies are blocked. All switches exhibit break-before-make switching action. Inherent in the design is low charge injection for minimum transients when switching the digital inputs.

PRODUCT HIGHLIGHTS

- 1. 2Ω Max On Resistance over temperature.
- 2. Minimum distortion
- 3. 3 V logic-compatible digital inputs: $V_{\rm IH} = 2.0 \ V, \ V_{\rm IL} = 0.8 \ V$
- 4. No V_L logic power supply required.
- 5. Ultralow power dissipation: $<0.03 \mu$ W.
- 6. 14-lead TSSOP and 16-lead 4 mm × 4 mm LFCSP package.

Rev.PrB

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REVISION HISTORY

SPECIFICATIONS

DUAL SUPPLY

 V_{DD} = 15 V \pm 10%, V_{SS} = –15 V \pm 10%, GND = 0 V, unless otherwise noted.

Table 1.

	25°C	-40°C to + 85°C	-40°C to + 125°C		
ANALOG SWITCH				1	
Analog Signal Range			V _{DD} to V _{SS}	v	
On Resistance (R _{ON})	1.5			Ωtyp	$V_s = \pm 10 V$, $I_s = -10 mA$; Figure 21
		2		Ωmax	$V_{DD} = +13.5 \text{ V}, \text{ V}_{SS} = -13.5 \text{ V}$
On Resistance Match Between Channels (ΔR_{ON})	0.1			Ωtyp	$V_s = \pm 10 V, I_s = -10 mA$
		0.5		Ωmax	
On Resistance Flatness (R _{FLAT(ON)})	0.1			Ωtyp	$V_s = -5 V, 0 V, +5 V; I_s = -10 mA$
		0.5		Ωmax	
LEAKAGE CURRENTS		0.0		32 11107	$V_{DD} = +16.5 \text{ V}, \text{ V}_{SS} = -16.5 \text{ V}$
Source Off Leakage, Is (Off)	±0.01			nA typ	
Source On Leakage, is (OII)		125			$V_s = \pm 10 V$, $V_s = \mp 10 V$; Figure 22
	±0.5	±2.5	±5	nA max	
Drain Off Leakage, I _D (Off)	±0.01			nA typ	V_{s} = ±10 V, V_{s} = ∓10 V ; Figure 22
	±0.5	±2.5	±5	nA max	
Channel On Leakage, I _D , I _S (On)	±0.04			nA typ	$V_s = V_D = \pm 10 V$; Figure 23
	±1	±2.5	±5	nA max	
DIGITAL INPUTS					
Input High Voltage, V _{INH}			2.0	V min	
Input Low Voltage, VINL			0.8	V max	
Input Current, IINLor INH	0.005			μA typ	$V_{IN} = V_{INL} \text{ or } V_{INH}$
			±0.5	μA max	
Digital Input Capacitance, C _{IN}	2.5			pF typ	
DYNAMIC CHARACTERISTICS ¹					
Transition Time, t _{TRANS}	120			ns typ	$R_L = 300 \Omega, C_L = 35 pF$
	150	200	200	ns max	$V_{s} = +10 V;$ Figure 24
t _{on} (EN)	70			ns typ	$R_L = 300 \Omega, C_L = 35 pF$
	85	110	110	ns max	$V_{s} = +10 V;$ Figure 24
t _{off} (EN)	90			ns typ	$R_L = 300 \Omega, C_L = 35 pF$
	110	155	155	ns max	$V_s = +10 V;$ Figure 24
Break-Before-Make Time Delay, t _D	25			ns typ	$R_L = 300 \Omega, C_L = 35 \text{ pF}$
2.cuk before make time belay, th		10	10	ns min	$V_{s1} = V_{s2} = 10 V$; Figure 25
Charge Injection	50			pC typ	$V_{s} = 0 V, R_{s} = 0 \Omega, C_{L} = 1 nF;$ Figure 26
Off Isolation	50			dB typ	$R_L = 50 \Omega$, $C_L = 5 pF$, $f = 1 MHz$; Figure 27
Channel-to-Channel Crosstalk	50 60			dB typ	$R_L = 50 \Omega_2$, $C_L = 5 pF$, $I = 1 MHz$; Figure 27 $R_L = 50 \Omega$, $C_L = 5 pF$, $f = 1 MHz$; Figure 28
Total Harmonic Distortion + Noise					$R_L = 30 \Omega$, $C_L = 3 pF$, $I = 1 MH2$; Figure 28 $R_L = 110 \Omega$, 5 V rms, $f = 20 Hz$ to 20 kHz
-3 dB Bandwidth	0.01 50			% typ MHz typ	$R_L = 110 \Omega$, 5 v rms, 1 = 20 Hz to 20 kHz $R_L = 50 \Omega$, $C_L = 5 pF$; Figure 29
				MHz typ	$R_{L} = 50 \Omega$, $C_{L} = 5 pF$; Figure 29 $R_{L} = 50 \Omega$, $C_{L} = 5 pF$, $f = 1 MHz$; Figure 29
Insertion Loss	0.17			dB typ	
Cs (Off)	35			pF typ	$f = 1 MHz; V_S = 0 V$
	100			pF max	$f = 1 MHz; V_S = 0 V$
C _D (Off)	100			pF typ	$f = 1 MHz; V_s = 0 V$
/				pF max	$f = 1 MHz; V_s = 0 V$
C _D , C _s (On)	150			pF typ	$f = 1 MHz; V_s = 0 V$
				pF max	$f = 1 MHz; V_s = 0 V$
POWER REQUIREMENTS					$V_{DD} = +16.5 \text{ V}, V_{SS} = -16.5 \text{ V}$
ldd	0.001			μA typ	Digital inputs = $0 V \text{ or } V_{DD}$

	25°C	-40°C to + 85°C	-40°C to + 125°C		
			1	µA max	
IDD	150			μA typ	Digital inputs = 5 V
			300	µA max	
lss	0.001			μA typ	Digital inputs = 0 V, 5V or V_{DD}
			1	µA max	
V _{DD} /V _{SS}			±4.5/±16.5	V	Gnd = 0V
				min/max	

¹ Guaranteed by design, not subject to production test.

SINGLE SUPPLY

 V_{DD} = 12 V \pm 10%, V_{SS} = 0 V, GND = 0 V, unless otherwise noted.

Table 2.

	25°C	–40°C to +85°C	-40°C to +125°C		
ANALOG SWITCH					
Analog Signal Range			$0 V to V_{DD}$	V	
On Resistance (R _{ON})	2.5			Ωtyp	$V_s = 10 V$, $I_s = -10 mA$; Figure 21
	3	4		Ω max	$V_{DD} = +10.8 V, V_{SS} = 0 V$
On Resistance Match Between	0.1			Ωtyp	$V_{\rm s} = 10 \text{ V}, \text{ I}_{\rm s} = -10 \text{ mA}$
Channels (ΔR_{ON})	0.1			$\Omega \max$	
On Resistance Flatness (R _{FLAT(ON)})	0.1			-	$V_s = 3 V, 6 V, 9 V; I_s = -10 mA$
	0.1			Ωtyp	
LEAKAGE CURRENTS	10.01				$V_{DD} = 13.2 V$
Source Off Leakage, Is (Off)	±0.01			nA typ	$V_{S} = 1 \text{ V}/10 \text{ V}, V_{D} = 10 \text{ V}/1 \text{ V};$ Figure 22
	±0.5	±2.5	±5	nA max	
Drain Off Leakage, I _D (Off)	±0.01		_	nA typ	$V_{S} = 1 \text{ V}/10 \text{ V}, V_{D} = 10 \text{ V}/1 \text{ V};$ Figure 22
	±0.5	±2.5	±5	nA max	
Channel On Leakage, I _D , I _S (On)	±0.04			nA typ	$V_{s} = V_{D} = 1 V \text{ or } 10 V$; Figure 23
	±1	±2.5	±5	nA max	
DIGITAL INPUTS					
Input High Voltage, V _{INH}			2.0	V min	
Input Low Voltage, VINL			0.8	V max	
Input Current, I _{INL} or I _{INH}	0.001			μA typ	$V_{IN} = V_{INL} \text{ or } V_{INH}$
			±0.5	μA max	
Digital Input Capacitance, C _{IN}	2.5			pF typ	
DYNAMIC CHARACTERISTICS ¹					
Transition Time, t _{TRANS}	150			ns typ	$R_L = 300 \Omega, C_L = 35 pF$
	190		265	ns max	$V_s = 8 V$; Figure 24
t _{on} (EN)	95			ns typ	$R_L = 300 \Omega$, $C_L = 35 pF$
	120		170	ns max	$V_s = 8 V$; Figure 24
t _{off} (EN)	100			ns typ	$R_L = 300 \Omega, C_L = 35 pF$
	125		170	ns max	$V_{\rm s} = 8 \text{ V};$ Figure 24
Break-Before-Make Time Delay, t _D	50		170	ns typ	$R_L = 300 \Omega, C_L = 35 pF$
break before make time belay, to	50		10	ns min	$V_{s1} = V_{s2} = 8 V$; Figure 25
Charge Injection	50		10	pC typ	$V_{s} = 6 V, R_{s} = 0 \Omega, C_{L} = 1 nF;$ Figure 26
Off Isolation	50				$R_L = 50 \Omega$, $C_L = 5 pF$, $f = 1 MHz$; Figure 27
Channel-to-Channel Crosstalk	50 60			dB typ	$R_L = 50 \Omega$, $C_L = 5 pF$, $f = 1 MHz$; Figure 28 $R_L = 50 \Omega$, $C_L = 5 pF$, $f = 1 MHz$; Figure 28
				dB typ	
–3 dB Bandwidth	50			MHz typ	$R_L = 50 \Omega$, $C_L = 5 pF$; Figure 29
C _s (Off)	35			pF typ	$f = 1 MHz; V_s = 6V$
				pF max	$f = 1 MHz; V_s = 6V$
C _D (Off)	100			pF typ	$f = 1 MHz; V_s = 6 V$
/				pF max	$f = 1 MHz; V_s = 6 V$
C _D , C _s (On)	150			pF typ	$f = 1 MHz; V_s = 6 V$
				pF max	$f = 1 MHz; V_s = 6 V$
POWER REQUIREMENTS					$V_{DD} = 13.2 V$
ldd	0.001			μA typ	Digital inputs = $0 V \text{ or } V_{DD}$
			1	μA max	
IDD	150			μA typ	Digital inputs = 5 V
			300	μA max	
V _{DD}			5/16.5	v	Gnd = 0V, Vss = 0V
				min/max	

¹ Guaranteed by design, not subject to production test.

DUAL SUPPLY

 V_{DD} = 5 V \pm 10%, V_{SS} = -5 V \pm 10%, GND = 0 V, unless otherwise noted.

Table 3.

1 able 5.			1		I
	25°C	−40°C to +85°C	−40°C to +125°C	Unit	Test Conditions/Comments
ANALOG SWITCH	25 C	+85 C	+125 C	Unit	Test Conditions/Comments
Analog Signal Range			0 V to V _{DD}	v	
	4		U V LO VDD		
On Resistance (R _{ON})				Ω typ	$V_s = \pm 3.3V$, $I_s = -10$ mA; See figure x
	5			Ωmax	$V_{DD} = +4.5 \text{ V}, \text{ V}_{SS} = -4.5 \text{ V}$
On Resistance Match Between	0.1			Ω typ	$V_{s} = \pm 3.3 \text{ V}$, $I_{s} = -10 \text{ mA}$
Channels (ΔR_{ON})				Ωmax	
	0.1			_	
On Resistance Flatness (R _{FLAT(ON)})	0.1			Ω typ	$V_s = -3 V/0 V/+3 V; I_s = -10 mA$
LEAKAGE CURRENTS					$V_{DD} = +5.5 V, V_{SS} = -5.5 V$
Source Off Leakage, Is (Off)	±0.01			nA typ	V_{S} = ±4.5 V, V_{D} = ∓4.5 V; See figure x
	±0.5	±2.5	±5	nA max	
Drain Off Leakage, I _D (Off)	±0.01			nA typ	$V_s = \pm 4.5V$, $V_D = \mp 4.5V$; See figure x
	±0.5	±2.5	±5	nA max	
Channel On Leakage, I _D , I _S (On)	±0.04			nA typ	$V_{\rm S} = V_{\rm D} = \pm 4.5 V$; See figure x
2 · · · · ·	±1	±5	±5	nA max	
DIGITAL INPUTS					
Input High Voltage, VINH			2.0	V min	
Input Low Voltage, V _{INL}			0.8	V max	
	0.001			μA typ	$V_{IN} = V_{INL}$ or V_{INH}
			±0.5	μA max	
Digital Input Capacitance, C _{IN}	3		_0.0	pF typ	
DYNAMIC CHARACTERISTICS ¹	3			p: 9p	
Transition Time, trans	150			ns typ	$R_L = 300 \Omega, C_L = 35 pF$
	190		265	ns max	$V_{\rm s} = 3 V;$ Figure 24
ton (EN)	95		205	ns typ	$R_L = 300 \Omega, C_L = 35 pF$
	120		170	ns max	$V_s = 3 V;$ Figure 24
t _{off} (EN)	100		170	ns typ	$R_L = 300 \Omega, C_L = 35 pF$
	125		170	ns max	$V_s = 3 V$; Figure 24
Break-Before-Make Time Delay, t⊳	50		170	ns typ	$R_{L} = 300 \Omega, C_{L} = 35 pF$
bleak-beloie-make time belay, to	50		10	ns min	$V_{s1} = V_{s2} = 8 V$; See figure x
Charge Injection	50		10	pC typ	$V_{s1} = V_{s2} = 0$ V, see figure x $V_{s} = 0$ V, $R_{s} = 0$ Ω , $C_{L} = 1$ nF; See figure x
Off Isolation	50				-
On isolation	50			dB typ	$R_L = 50 \Omega$, $C_L = 5 pF$, $f = 1 MHz$; See figure
Channel-to-Channel Crosstalk	60			dB typ	$\hat{R}_{L} = 50 \Omega$, C _L = 5 pF, f = 1 MHz; See figure
Channel-to-Channel Crosstark	00			ubtyp	$x_{L} = 30.22, C_{L} = 3.07, T = 1.000, See figure$
-3 dB Bandwidth	50			MHz typ	$R_L = 50 \Omega$, $C_L = 5 pF$; See figure x
C _s (Off)	35			pF typ	$V_s = 0V, f = 1 MHz$
	55			pF max	$V_s = 0V, f = 1 \text{ MHz}$ $V_s = 0V, f = 1 \text{ MHz}$
C _D (Off)	35			pF filax pF typ	$V_{S} = 0V, f = 1 \text{ MHz}$ $V_{S} = 0V, f = 1 \text{ MHz}$
				pF typ pF max	$V_{S} = 0V, f = 1 \text{ MHz}$ $V_{S} = 0V, f = 1 \text{ MHz}$
C _D , C _s (On)	150			pF filax pF typ	$V_{S} = 0V, f = 1 \text{ MHz}$ $V_{S} = 0V, f = 1 \text{ MHz}$
	150			pF typ pF max	Vs = 0V, f = 1 MHz Vs = 0V, f = 1 MHz
				pi max	
POWER REQUIREMENTS	0.001				$V_{DD} = 5.5 \text{ V}$, $Vss = -5.5 \text{ V}$
DD	0.001		1	μA typ	Digital inputs = 0 V, 5V or V_{DD}
N/ 0/			1	μA max	
V _{DD} /V _{SS}			±4.5/±16.5	V min/max	Gnd = 0V
				11111/111aX	

ABSOLUTE MAXIMUM RATINGS

¹ Guaranteed by design, not subject to production test.

 $T_A = 25^{\circ}C$, unless otherwise noted.

Table 4.

Table 4.	
Parameter	Rating
V _{DD} to V _{SS}	35 V
V _{DD} to GND	–0.3 V to +25 V
V _{ss} to GND	+0.3 V to -25 V
Analog Inputs ¹	$V_{SS} - 0.3 V$ to $V_{DD} + 0.3 V$
Digital Inputs	$GND-0.3$ V to V_{DD} + 0.3 V or
	30 mA, whichever occurs first
Peak Current, S or D	300 mA (pulsed at 1 ms, 10%
	duty cycle max)
Continuous Current, S or D	200 mA
Operating Temperature Range	
Automotive (Y Version)	–40°C to +125°C
Storage Temperature Range	–65°C to +150°C
Junction Temperature	150°C
16-Lead TSSOP, θ _{JA} Thermal	150.4°C/W
Impedance	
16-Lead LFCSP, θ _{JA} Thermal	72.7°C/W
Impedance	
Reflow Soldering Peak	260°C
Temperature, Pb free	

Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those listed in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Only one absolute maximum rating may be applied at any one time.

¹ Overvoltages at IN, S, or D are clamped by internal diodes. Current should be limited to the maximum ratings given.

ESD CAUTION

ESD (electrostatic discharge) sensitive device. Electrostatic charges as high as 4000 V readily accumulate on the human body and test equipment and can discharge without detection. Although this product features proprietary ESD protection circuitry, permanent damage may occur on devices subjected to high energy electrostatic discharges. Therefore, proper ESD precautions are recommended to avoid performance degradation or loss of functionality.



PIN CONFIGURATIONS AND FUNCTION DESCRIPTIONS

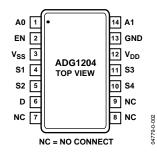
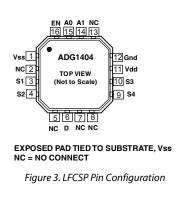


Figure 2. TSSOP Pin Configuration

Table 5. Pin Function Descriptions



Pin No.									
TSSOP	LFCSP	Mnemonic Description							
1	15	A0	Logic Control Input.						
2	16	EN	Active High Digital Input. When low, the device is disabled and all switches are off. When high, Ax logic inputs determine on switches.						
3	1	Vss	Most Negative Power Supply Potential.						
4	3	S1	Source Terminal. Can be an input or an output.						
5	4	S2	Source Terminal. Can be an input or an output.						
6	6	D	Drain Terminal. Can be an input or an output.						
7 to 9	2,5,7,8, 13	NC	No Connection.						
10	9	S4	Source Terminal. Can be an input or an output.						
11	10	S3	Source Terminal. Can be an input or an output.						
12	11	V _{DD}	Most Positive Power Supply Potential.						
13	12	GND	Ground (0 V) Reference.						
14	14	A1	Logic Control Input.						

TRUTH TABLE Table 6

Table 0.	Table 0.								
EN	A1	A0	S1	S2	S 3	S4			
0	Х	Х	Off	Off	Off	Off			
1	0	0	On	Off	Off	Off			
1	0	1	Off	On	Off	Off			
1	1	0	Off	Off	On	Off			
1	1	1	Off	Off	Off	On			

TERMINOLOGY

IDD The positive supply current.

Iss The negative supply current.

 $\mathbf{V}_{D}\left(\mathbf{V}_{S}\right)$ The analog voltage on Terminals D and S.

 $R_{\mbox{\scriptsize ON}}$ The ohmic resistance between D and S.

 $\mathbf{R}_{\text{FLAT(ON)}}$ Flatness is defined as the difference between the maximum and minimum value of on resistance, as measured over the specified analog signal range.

Is (Off) The source leakage current with the switch off.

 \mathbf{I}_{D} (Off) The drain leakage current with the switch off.

 $\mathbf{I}_{D}\text{, }\mathbf{I}_{S}\left(On\right)$ The channel leakage current with the switch on.

 $V_{\mbox{\scriptsize INL}}$ The maximum input voltage for Logic 0.

 \mathbf{V}_{INH} The minimum input voltage for Logic 1.

I_{INL} (I_{INH}) The input current of the digital input.

Cs (Off) The off switch source ca

The off switch source capacitance, which is measured with reference to ground.

 C_D (Off) The off switch drain capacitance, which is measured with reference to ground. C_D , C_S (On) The on switch capacitance, which is measured with reference to ground.

 $C_{\rm IN}$ The digital input capacitance.

ton (EN) The delay between applying the digital control input and the output switching on. See Figure 24, Test Circuit 4.

 $t_{\rm OFF}$ (EN) The delay between applying the digital control input and the output switching off.

Charge Injection A measure of the glitch impulse transferred from the digital input to the analog output during switching.

Off Isolation A measure of unwanted signal coupling through an off switch.

Crosstalk A measure of unwanted signal that is coupled through from one channel to another as a result of parasitic capacitance.

Bandwidth The frequency at which the output is attenuated by 3 dB.

On Response The frequency response of the on switch.

Insertion Loss The loss due to the on resistance of the switch.

THD + N The ratio of the harmonic amplitude plus noise of the signal to the fundamental.

 t_{TRANS} The delay time between the 50% and 90% points of the digital input and switch on condition when switching from one address state to another.

TYPICAL PERFORMANCE CHARACTERISTICS



Figure 4. On Resistance as a Function of V_D (V_S) for Single Supply

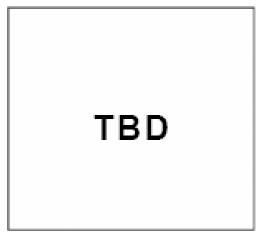


Figure 5. On Resistance as a Function of V_D (V_S) for Dual Supply

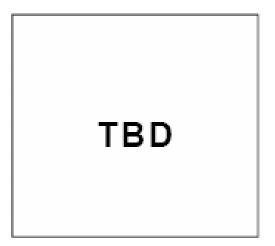


Figure 6. On Resistance as a Function of $V_{\rm D}\,(V_{\rm S})$ for Different Temperatures, Dual Supply

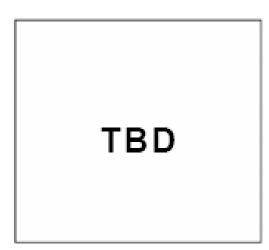


Figure 7. On Resistance as a Function of $V_{\rm D}$ (V_{\rm S}) for Different Temperatures, Single Supply

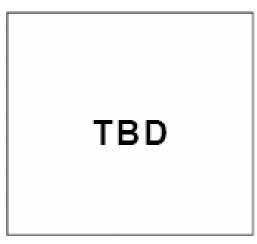


Figure 8. Leakage Currents as a Function of Temperature for Dual Supply

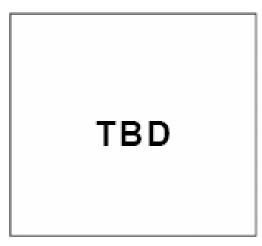


Figure 9. Leakage Currents as a Function of Temperature for Single Supply

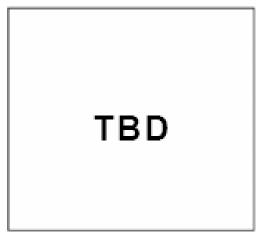


Figure 10. Logic Threshold Voltage vs Supply Voltage

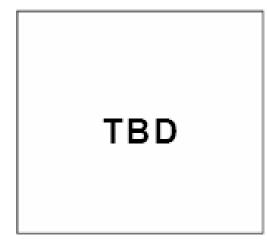


Figure 13. Transition Times vs. Temperature

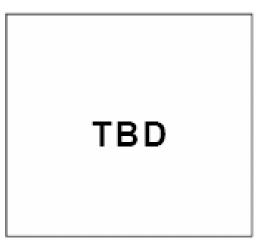


Figure 11. IDD vs. Logic Level

TBD

Figure 12. Charge Injection vs. Source Voltage

Figure 14. Off Isolation vs. Frequency

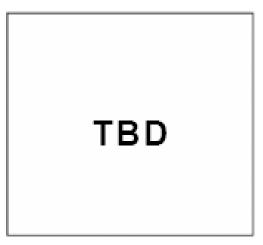


Figure 15. Crosstalk vs. Frequency



Figure 16. On Response vs. Frequency

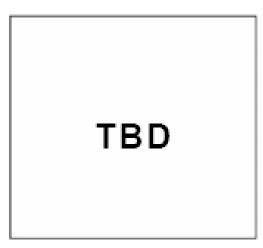


Figure 19. On Capacitance vs. Source Voltage



Figure 17. THD + N vs. Frequency

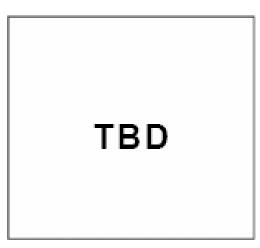


Figure 18. Off Capacitance vs. Source Voltage



Figure 20. Capacitance vs. Source Voltage for Single Supply

TEST CIRCUITS

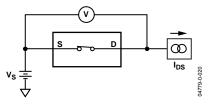
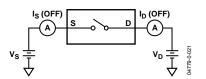


Figure 21. Test Circuit 1—On Resistance



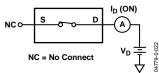


Figure 23. Test Circuit 3—On Leakage

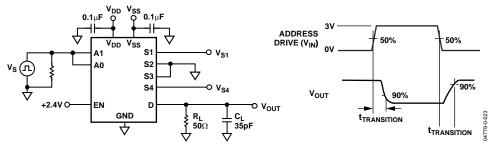


Figure 22. Test Circuit 2—Off Leakage

Figure 24. Test Circuit 4—Address to Output Switching Times

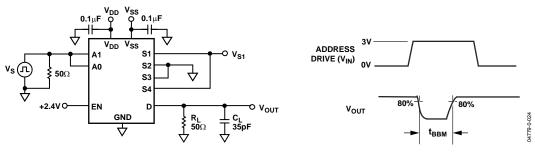


Figure 25. Test Circuit 5—Break-Before-Make Time

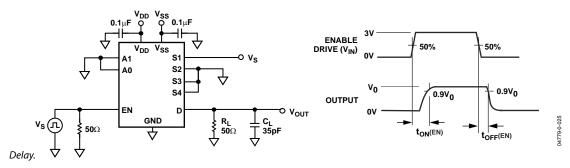


Figure 26. Test Circuit 6—Enable-to-Output Switching Delay

ADG1404

Preliminary Technical Data

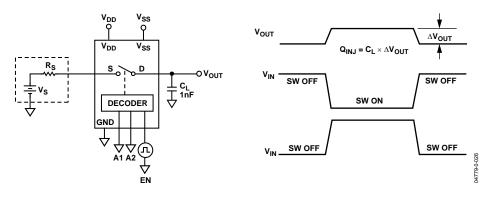


Figure 27. Test Circuit 7— Charge Injection

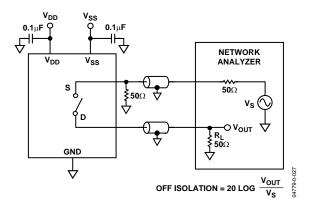


Figure 28. Test Circuit 8—Off Isolation

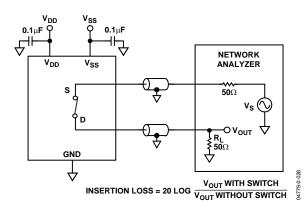


Figure 29. Test Circuit 9—Bandwidth

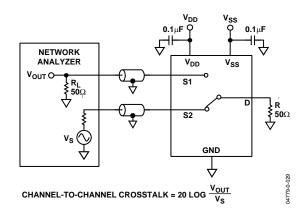


Figure 30. Test Circuit 10—Channel-to-Channel Crosstalk

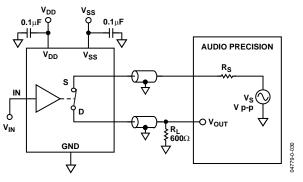


Figure 31. Test Circuit 11—THD + Noise

OUTLINE DIMENSIONS

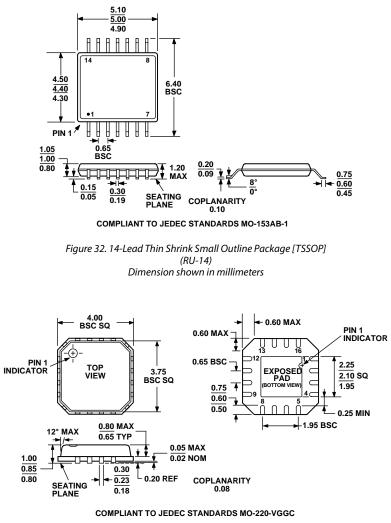


Figure 33. 16-Lead Lead Frame Chip Scale Package [VQ_LFCSP] 4 mm × 4 mm Body, Very Thin Quad (CP-16-4) Dimensions shown in millimeters

ORDERING GUIDE

Model	Temperature Range	Package Description	Package Option
ADG1404YRUZ ¹	-40°C to +125°C	Thin Shrink Small Outline Package (TSSOP)	RU-14
ADG1404YRUZ-REEL ¹	-40°C to +125°C	Thin Shrink Small Outline Package (TSSOP)	RU-14
ADG1404YRUZ-REEL71	-40°C to +125°C	Thin Shrink Small Outline Package (TSSOP)	RU-14
ADG1404YCPZ-500RL71	-40°C to +125°C	Lead Frame Chip Scale Package (VQ_LFCSP)	CP-16-4
ADG1404YCPZ-REEL71	-40°C to +125°C	Lead Frame Chip Scale Package (VQ_LFCSP)	CP-16-4

 1 Z = Pb-free part.

NOTES

NOTES

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