

FEATURES

- 1.5 pF off capacitance
- 0.5 pC charge injection
- 33 V supply range
- 120 Ω on resistance
- Fully specified at ± 15 V/+12 V
- 3 V logic-compatible inputs
- Rail-to-rail operation
- Break-before-make switching action
- 16-lead TSSOP, 20-lead TSSOP, and 4 mm \times 4 mm LFCSP
- Typical power consumption (<0.03 μ W)

APPLICATIONS

- Audio and video routing
- Automatic test equipment
- Data acquisition systems
- Battery-powered systems
- Sample-and-hold systems
- Communication systems

GENERAL DESCRIPTION

The [ADG1233](#) and [ADG1234](#) are monolithic *i*CMOS[®] analog switches comprising three independently selectable single-pole, double throw SPDT switches and four independently selectable SPDT switches, respectively.

All channels exhibit break-before-make switching action preventing momentary shorting when switching channels. An \overline{EN} input on the [ADG1233](#) and [ADG1234](#) enables or disables the device. When disabled, all channels are switched off.

The *i*CMOS (industrial-CMOS) modular manufacturing process combines a high voltage complementary metal-oxide semiconductor (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 other generation of high voltage devices has been able to achieve.

Rev. D

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FUNCTIONAL BLOCK DIAGRAMS

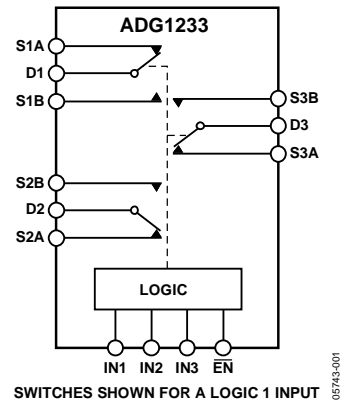


Figure 1.

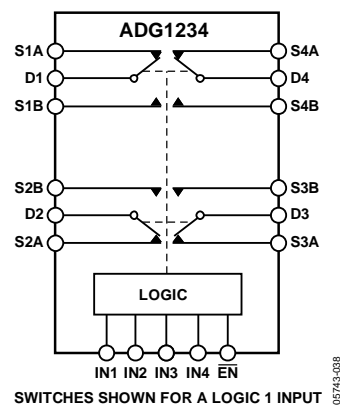


Figure 2.

Unlike analog ICs using conventional CMOS processes, *i*CMOS components can tolerate high supply voltages while providing increased performance, dramatically lowered power consumption, and reduced package size.

The ultralow capacitance and charge injection of these multiplexers make them ideal solutions for data acquisition and sample-and-hold applications, where low glitch and fast settling are required.

Fast switching speed coupled with high signal bandwidth make the devices suitable for video signal switching. *i*CMOS construction ensures ultralow power dissipation, making the devices ideally suited for portable and battery-powered instruments.

PRODUCT HIGHLIGHTS

1. 1.5 pF off capacitance (± 15 V supply).
2. 0.5 pC charge injection.
3. 3 V logic-compatible digital input, $V_{IH} = 2.0$ V, $V_{IL} = 0.8$ V.
4. 16-lead TSSOP, 20-lead TSSOP, and 4 mm \times 4 mm LFCSP.

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REVISION HISTORY

8/2016—Rev. C to Rev. D

| | |
|--|----|
| Changes to Analog Inputs Parameter and Digital Inputs Parameter, Table 3..... | 7 |
| Updated Outline Dimensions | 17 |

3/2016—Rev. B to Rev. C

| | |
|---------------------------------------|----|
| Changes to Figure 5 and Figure 6..... | 9 |
| Updated Outline Dimensions | 17 |
| Changes to Ordering Guide | 17 |

2/2009—Rev. A to Rev. B

| | |
|--|----|
| Change to I _{DD} Parameter, Table 1 | 4 |
| Change to I _{DD} Parameter, Table 2 | 6 |
| Updated Outline Dimensions | 16 |

8/2006—Rev. 0 to Rev. A

| | |
|---------------------------|------------|
| Updated Format..... | \Universal |
| Changes to Table 1..... | 13 |
| Changes to Table 2..... | 14 |
| Changes to Figure 11..... | 110 |
| Changes to Figure 12..... | 111 |

1/2006—Revision 0: Initial Version

SPECIFICATIONS

DUAL SUPPLY

$V_{DD} = +15\text{ V} \pm 10\%$, $V_{SS} = -15\text{ V} \pm 10\%$, $GND = 0\text{ V}$, unless otherwise noted.

Table 1.

| Parameter | Y Version ¹ | | | Unit | Test Conditions/Comments |
|--|------------------------|----------------|----------------------|-------------------|--|
| | +25°C | -40°C to +85°C | -40°C to +125°C | | |
| ANALOG SWITCH | | | | | |
| Analog Signal Range | | | V_{SS} to V_{DD} | V | |
| On Resistance (R_{ON}) | 120 | | | Ω typ | $V_S = \pm 10\text{ V}$, $I_S = -1\text{ mA}$; see Figure 24 |
| | 190 | 230 | 260 | Ω max | $V_{DD} = +13.5\text{ V}$, $V_{SS} = -13.5\text{ V}$ |
| On Resistance Match Between Channels (ΔR_{ON}) | 3.5 | | | Ω typ | $V_S = \pm 10\text{ V}$, $I_S = -1\text{ mA}$ |
| | 6 | 10 | 12 | Ω max | |
| On Resistance Flatness ($R_{FLAT(ON)}$) | 20 | | | Ω typ | $V_S = -5\text{ V}, 0\text{ V}, +5\text{ V}$; $I_S = -1\text{ mA}$ |
| | 60 | 72 | 79 | Ω max | |
| LEAKAGE CURRENTS | | | | | |
| Source Off Leakage I_S (Off) | ± 0.02 | | | nA typ | $V_{DD} = +16.5\text{ V}$, $V_{SS} = -16.5\text{ V}$ |
| | ± 0.1 | ± 0.6 | ± 1 | nA max | $V_D = \pm 10\text{ V}$, $V_S = -10\text{ V}$; see Figure 25 |
| Drain Off Leakage I_D (Off) | ± 0.02 | | | nA typ | $V_S = 1\text{ V}/10\text{ V}$, $V_D = 10\text{ V}/1\text{ V}$; see Figure 25 |
| | ± 0.1 | ± 0.6 | ± 1 | nA max | |
| Channel On Leakage I_D, I_S (On) | ± 0.02 | | | nA typ | $V_S = V_D = \pm 10\text{ V}$; see Figure 26 |
| | ± 0.2 | ± 0.6 | ± 1 | nA max | |
| DIGITAL INPUTS | | | | | |
| Input High Voltage, V_{INH} | | | 2.0 | V min | |
| Input Low Voltage, V_{INL} | | | 0.8 | V max | |
| Input Current | | | | | |
| I_{INL} or I_{INH} | ± 0.005 | | | μA typ | $V_{IN} = V_{INL}$ or V_{INH} |
| | | | ± 0.1 | μA max | |
| Digital Input Capacitance, C_{IN} | 3 | | | pF typ | |
| DYNAMIC CHARACTERISTICS² | | | | | |
| $t_{TRANSITION}$ | 110 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 130 | 150 | 170 | ns max | $V_S = 10\text{ V}$; see Figure 27 |
| t_{BBM} | 25 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | | | 10 | ns min | $V_{S1} = V_{S2} = +10\text{ V}$; see Figure 28 |
| $t_{ON}(\overline{EN})$ | 120 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 140 | 170 | 195 | ns max | $V_S = 10\text{ V}$; see Figure 29 |
| $t_{OFF}(\overline{EN})$ | 40 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 45 | 55 | 60 | ns max | $V_S = 10\text{ V}$; see Figure 29 |
| Charge Injection | 0.5 | | | pC typ | $V_S = 0\text{ V}$, $R_S = 0\ \Omega$, $C_L = 1\text{ nF}$; see Figure 30 |
| Off Isolation | -80 | | | dB typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$, $f = 1\text{ MHz}$; see Figure 31 |
| Channel-to-Channel Crosstalk | -85 | | | dB typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$, $f = 1\text{ MHz}$; see Figure 33 |
| Total Harmonic Distortion, THD + N | 0.14 | | | % typ | $R_L = 10\text{ k}\Omega$, 5 V rms , $f = 20\text{ Hz}$ to 20 kHz ; see Figure 34 |
| -3 dB Bandwidth | 900 | | | MHz typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$; see Figure 32 |
| C_S (Off) | 1.5 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 0\text{ V}$ |
| | 1.7 | | | pF max | $f = 1\text{ MHz}$; $V_S = 0\text{ V}$ |
| C_D (Off) | 1.6 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 0\text{ V}$ |
| | 1.8 | | | pF max | $f = 1\text{ MHz}$; $V_S = 0\text{ V}$ |

| Parameter | Y Version ¹ | | | Unit | Test Conditions/Comments |
|--------------------------------------|------------------------|----------------|-----------------|------------------|---|
| | +25°C | -40°C to +85°C | -40°C to +125°C | | |
| C _D , C _S (On) | 3.5 4 | | | pF typ pF max | f = 1 MHz; V _S = 0 V f = 1 MHz; V _S = 0 V |
| POWER REQUIREMENTS | | | | | |
| I _{DD} | 0.002 | | 1.0 | μA typ μA max | V _{DD} = +16.5 V, V _{SS} = -16.5 V Digital inputs = 0 V or V _{DD} |
| I _{DD} | 260 | | 475 | μA typ μA max | Digital inputs = 5 V |
| I _{SS} | 0.002 | | 1.0 | μA typ μA max | Digital inputs = 0 V or V _{DD} |
| I _{SS} | 0.002 | | 1.0 | μA typ μA max | Digital inputs = 5 V |
| V _{DD} /V _{SS} | | | ±5/±16.5 | V min/max | GND = 0 V |

¹ Temperature range for the Y version: -40°C to +125°C.

² Guaranteed by design, not subject to production test.

SINGLE SUPPLY

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

Table 2.

| Parameter | Y Version ¹ | | | Unit | Test Conditions/Comments |
|--|--------------------------------------|----------------|-----------------|--|---|
| | +25°C | −40°C to +85°C | −40°C to +125°C | | |
| ANALOG SWITCH | | | | | |
| Analog Signal Range | | | 0 to V_{DD} | V | |
| On Resistance (R_{ON}) | 300 | | | Ω typ | $V_S = 0\text{ V}$ to 10 V , $I_S = -1\text{ mA}$; see Figure 24 |
| On Resistance Match Between Channels (ΔR_{ON}) | 475 | 567 | 625 | Ω max | $V_{DD} = 10.8\text{ V}$, $V_{SS} = 0\text{ V}$ |
| | 5 | | | Ω typ | $V_S = 0\text{ V}$ to 10 V , $I_S = -1\text{ mA}$ |
| On Resistance Flatness ($R_{FLAT(ON)}$) | 16 | 26 | 27 | Ω max | |
| | 60 | | | Ω typ | $V_S = 3\text{ V}$, 6 V , 9 V , $I_S = -1\text{ mA}$ |
| LEAKAGE CURRENTS | | | | | |
| Source Off Leakage I_S (Off) | ± 0.02 | | | nA typ | $V_{DD} = 13.2\text{ V}$ $V_S = 1\text{ V}/10\text{ V}$, $V_D = 10\text{ V}/1\text{ V}$; see Figure 25 |
| Drain Off Leakage I_D (Off) | ± 0.1 ± 0.02 | ± 0.6 | ± 1 | nA max nA typ | $V_S = 1\text{ V}/10\text{ V}$, $V_D = 10\text{ V}/1\text{ V}$; see Figure 25 |
| Channel On Leakage I_D, I_S (On) | ± 0.1 ± 0.02 ± 0.2 | ± 0.6 | ± 1 | nA max nA typ nA max | $V_S = V_D = 1\text{ V}$ or 10 V , see Figure 26 |
| DIGITAL INPUTS | | | | | |
| Input High Voltage, V_{INH} | | | 2.0 | V min | |
| Input Low Voltage, V_{INL} | | | 0.8 | V max | |
| Input Current, I_{INL} or I_{INH} | ± 0.001 | | | μA typ μA max | $V_{IN} = V_{INL}$ or V_{INH} |
| Digital Input Capacitance, C_{IN} | 2 | | | pF typ | |
| DYNAMIC CHARACTERISTICS² | | | | | |
| $t_{TRANSITION}$ | 135 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ $V_S = 8\text{ V}$; see Figure 27 |
| | 170 | 200 | 230 | | |
| t_{BBM} | 45 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | | | 10 | ns min | $V_{S1} = V_{S2} = 8\text{ V}$; see Figure 28 |
| $t_{ON}(\overline{EN})$ | 150 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 195 | 230 | 265 | | $V_S = 8\text{ V}$; see Figure 29 |
| $t_{OFF}(\overline{EN})$ | 45 | | | ns typ | $R_L = 300\ \Omega$, $C_L = 35\text{ pF}$ |
| | 60 | 70 | 75 | | $V_S = 8\text{ V}$; see Figure 29 |
| Charge Injection | −0.3 | | | pC typ | $V_S = 6\text{ V}$, $R_S = 0\ \Omega$, $C_L = 1\text{ nF}$; see Figure 30 |
| Off Isolation | −80 | | | dB typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$, $f = 1\text{ MHz}$; see Figure 31 |
| Channel-to-Channel Crosstalk | −85 | | | dB typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$, $f = 1\text{ MHz}$; see Figure 33 |
| −3 dB Bandwidth | 600 | | | MHz typ | $R_L = 50\ \Omega$, $C_L = 5\text{ pF}$; see Figure 32 |
| C_S (Off) | 1.5 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| | 1.7 | | | pF max | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| C_D (Off) | 2 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| | 2.2 | | | pF max | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| C_D, C_S (On) | 4 | | | pF typ | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |
| | 4.5 | | | pF max | $f = 1\text{ MHz}$; $V_S = 6\text{ V}$ |

| Parameter | Y Version ¹ | | | Unit | Test Conditions/Comments |
|--------------------|------------------------|----------------|-----------------|-------------------|--|
| | +25°C | -40°C to +85°C | -40°C to +125°C | | |
| POWER REQUIREMENTS | | | | | $V_{DD} = 13.2\text{ V}$ |
| I_{DD} | 0.002 | | | $\mu\text{A typ}$ | Digital inputs = 0 V or V_{DD} |
| | | | 1.0 | $\mu\text{A max}$ | |
| I_{DD} | 260 | | | $\mu\text{A typ}$ | Digital inputs = 5 V |
| | | | 475 | $\mu\text{A max}$ | |
| V_{DD} | | | 5/16.5 | V min/max | $V_{SS} = 0\text{ V}, \text{GND} = 0\text{ V}$ |

¹ Temperature range for the Y version: -40°C to +125°C

² Guaranteed by design, not subject to production test.

ABSOLUTE MAXIMUM RATINGS

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

Table 3.

| 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 | $V_{SS} - 0.3\text{ V}$ to $V_{DD} + 0.3\text{ V}$ or 30 mA (whichever occurs first) |
| Digital Inputs | GND - 0.3 V to $V_{DD} + 0.3\text{ V}$ or 30 mA (whichever occurs first) |
| Continuous Current, S or D | 24 mA |
| Peak Current, S or D (Pulsed at 1 ms, 10% Duty Cycle Maximum) | 100 mA |
| Operating Temperature Range | |
| Automotive Temperature Range (Y Version) | -40°C to +125°C |
| Storage Temperature Range | -65°C to +150°C |
| Junction Temperature | 150°C |
| TSSOP, θ_{JA} , Thermal Impedance | 112°C/W |
| LFCSP, θ_{JA} , Thermal Impedance | 30.4°C/W |
| Reflow Soldering Peak Temperature, Pb-Free | 260°C |

¹ Overvoltages at A, $\overline{\text{EN}}$, S, or D are clamped by internal diodes. Current must be limited to the maximum ratings given.

Stresses at or above those listed under Absolute Maximum Ratings may cause permanent damage to the product. This is a stress rating only; functional operation of the product at these or any other conditions above those indicated in the operational section of this specification is not implied. Operation beyond the maximum operating conditions for extended periods may affect product reliability.

Only one absolute maximum rating is applied at any one time.

ESD CAUTION



ESD (electrostatic discharge) sensitive device.

Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

PIN CONFIGURATIONS AND FUNCTION DESCRIPTIONS

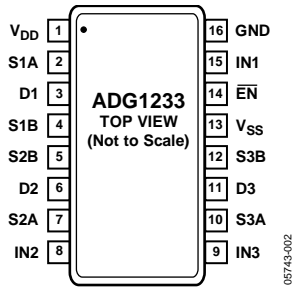


Figure 3. 16-Lead TSSOP Pin Configuration

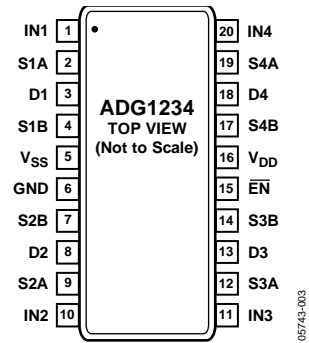
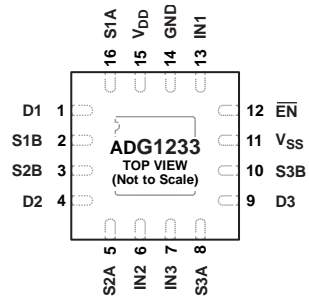


Figure 4. 20-Lead TSSOP Pin Configuration

Table 4. 16-Lead TSSOP/20-Lead TSSOP Pin Configurations

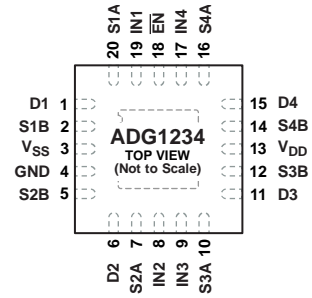
| Pin No. ADG1233 16-Lead TSSOP | Pin No. ADG1234 20-Lead TSSOP | Mnemonic |
|--------------------------------------|--------------------------------------|-----------------|
| 1 | 16 | V _{DD} |
| 2 | 2 | S1A |
| 3 | 3 | D1 |
| 4 | 4 | S1B |
| 5 | 7 | S2B |
| 6 | 8 | D2 |
| 7 | 9 | S2A |
| 8 | 10 | IN2 |
| 9 | 11 | IN3 |
| 10 | 12 | S3A |
| 11 | 13 | D3 |
| 12 | 14 | S3B |
| 13 | 5 | V _{SS} |
| 14 | 15 | EN |
| 15 | 1 | IN1 |
| 16 | 6 | GND |
| Not applicable | 17 | S4B |
| Not applicable | 18 | D4 |
| Not applicable | 19 | S4A |
| Not applicable | 20 | IN4 |



- NOTES
1. NC = NO CONNECT. DO NOT CONNECT TO THIS PIN.
 2. THE EXPOSED PAD MUST BE TIED TO SUBSTRATE, V_{SS} .

05743-004

Figure 5. 16-Lead, 4 mm x 4 mm LFCSP Pin Configuration, Exposed Pad Tied to Substrate, V_{SS}



- NOTES
1. THE EXPOSED PAD MUST BE TIED TO SUBSTRATE, V_{SS} .

05743-005

Figure 6. 20-Lead, 4 mm x 4 mm LFCSP Pin Configuration, Exposed Pad Tied to Substrate, V_{SS}

Table 5. 16-Lead LFCSP/20-Lead LFCSP Pin Configurations

| Pin No. ADG1233 16-Lead LFCSP | Pin No. ADG1234 20-Lead LFCSP | Mnemonic |
|--------------------------------------|--------------------------------------|-----------------|
| 1 | 1 | D1 |
| 2 | 2 | S1B |
| 3 | 5 | S2B |
| 4 | 6 | D2 |
| 5 | 7 | S2A |
| 6 | 8 | IN2 |
| 7 | 9 | IN3 |
| 8 | 10 | S3A |
| 9 | 11 | D3 |
| 10 | 12 | S3B |
| 11 | 3 | V_{SS} |
| 12 | 18 | \overline{EN} |
| 13 | 19 | IN1 |
| 14 | 4 | GND |
| 15 | 13 | V_{DD} |
| 16 | 20 | S1A |
| Not applicable | 14 | S4B |
| Not applicable | 15 | D4 |
| Not applicable | 16 | S4A |
| Not applicable | 17 | IN4 |

Table 6. **ADG1233/ADG1234** Truth Table

| \overline{EN} | INx | Switch xA | Switch xB |
|-----------------|-----|-----------|-----------|
| 1 | X | Off | Off |
| 0 | 0 | Off | On |
| 0 | 1 | On | Off |

TERMINOLOGY

V_{DD}

Most positive supply potential.

V_{SS}

Most negative power supply potential in dual supplies. In single-supply applications, it can be connected to ground.

GND

Ground (0 V) reference.

R_{ON}

Ohmic resistance between D and S.

ΔR_{ON}

Difference between the R_{ON} of any two channels.

I_S (Off)

Source leakage current when switch is off.

I_D (Off)

Drain leakage current when switch is off.

I_D, I_S (On)

Channel leakage current when switch is on.

V_D, V_S

Analog voltage on Terminal D, Terminal S.

C_S (Off)

Channel input capacitance for off condition.

C_D (Off)

Channel output capacitance for off condition.

C_D, C_S (On)

On switch capacitance.

C_{IN}

Digital input capacitance.

$t_{ON}(\overline{EN})$

Delay time between the 50% and 90% points of the digital input and switch on condition.

$t_{OFF}(\overline{EN})$

Delay time between the 50% and 90% points of the digital input and switch off condition.

$t_{TRANSITION}$

Delay time between the 50% and 90% points of the digital inputs and the switch on condition when switching from one address state to another.

t_{BBM}

Off time measured between the 80% point of both switches when switching from one address state to another.

V_{INL}

Maximum input voltage for Logic 0.

V_{INH}

Minimum input voltage for Logic 1.

I_{INL}, I_{INH}

Input current of the digital input.

I_{DD}

Positive supply current.

I_{SS}

Negative supply current.

Off Isolation

A measure of an unwanted signal coupling through an off channel.

Charge Injection

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

Bandwidth

Frequency at which the output is attenuated by 3 dB.

On Response

Frequency response of the on switch.

THD + N

Ratio of the harmonic amplitude plus noise of the signal to the fundamental.

TYPICAL PERFORMANCE CHARACTERISTICS



Figure 7. On Resistance as a Function of V_D (V_S) for Dual Supply



Figure 10. On Resistance as a Function of V_D (V_S) for Different Temperatures, Dual Supply

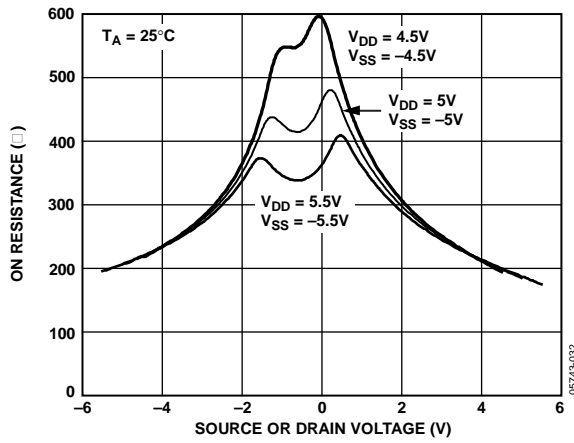


Figure 8. On Resistance as a Function of V_D (V_S) for Dual Supply

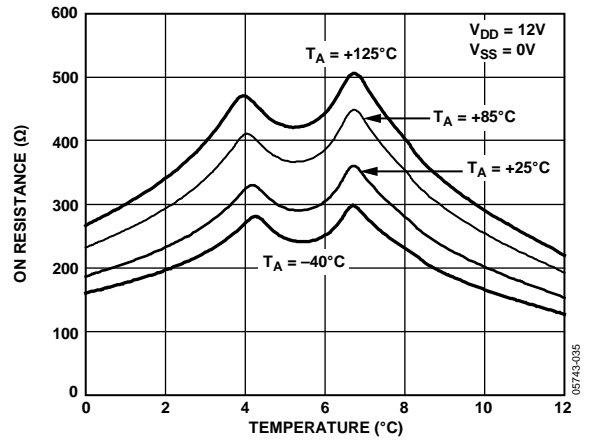


Figure 11. On Resistance as a Function of V_D (V_S) for Different Temperatures, Single Supply

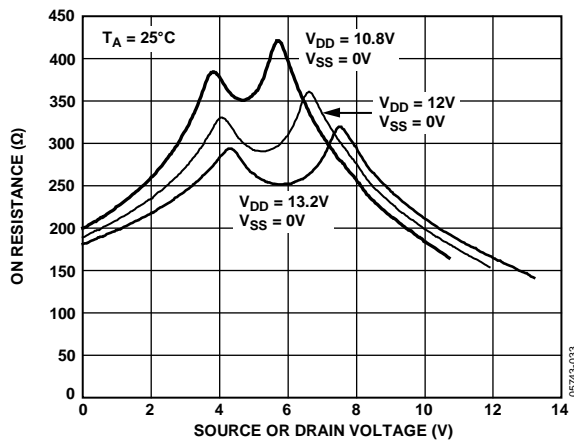


Figure 9. On Resistance as a Function of V_D (V_S) for Single Supply

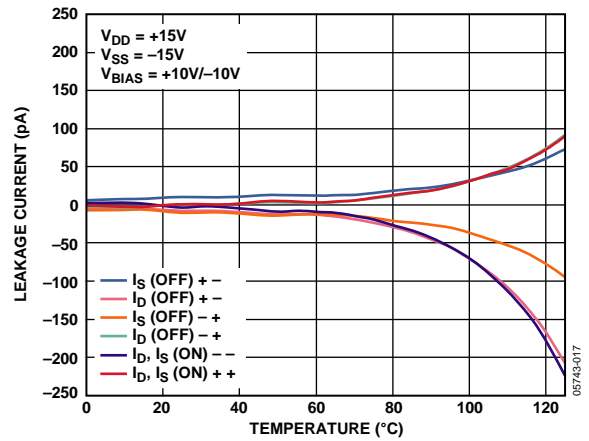


Figure 12. Leakage Currents as a Function of Temperature, Dual Supply



Figure 13. Leakage Currents as a Function of Temperature, Single Supply



Figure 16. $t_{TRANSITION}$ vs. Temperature



Figure 14. I_{DD} vs. Logic Level



Figure 17. Off Isolation vs. Frequency



Figure 15. Charge Injection vs. Source Voltage



Figure 18. Crosstalk vs. Frequency



Figure 19. On Response vs. Frequency

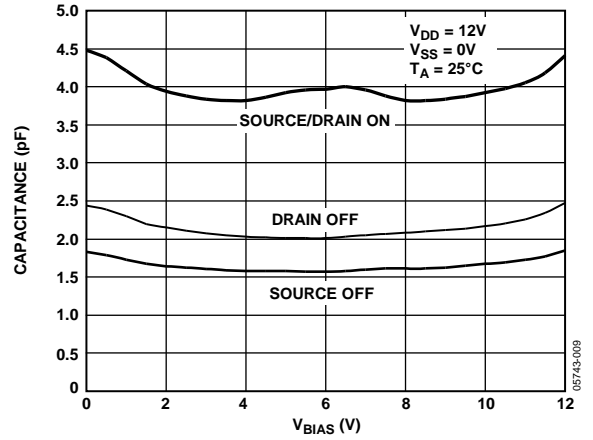


Figure 22. Capacitance vs. Source Voltage for Single Supply

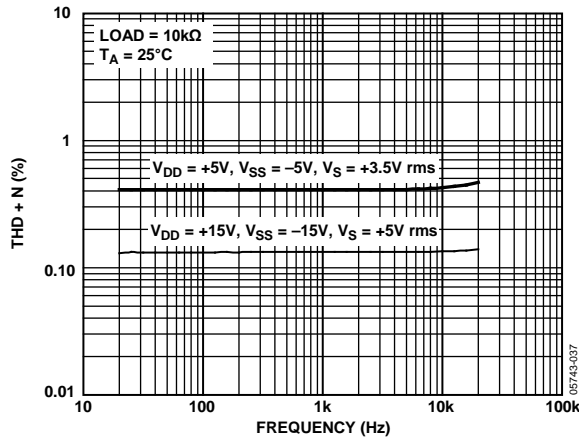


Figure 20. THD + N vs. Frequency

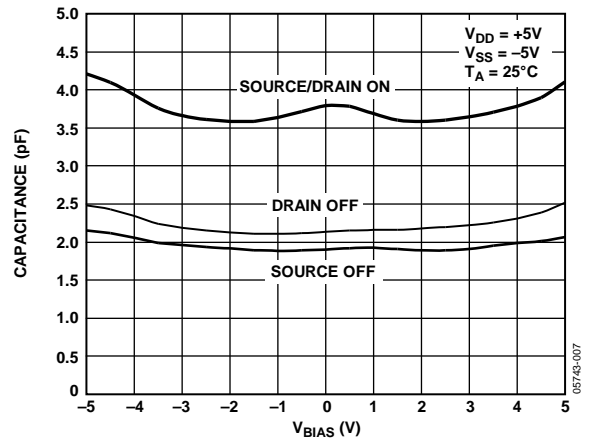


Figure 23. Capacitance vs. Source Voltage for Dual Supply



Figure 21. Capacitance vs. Source Voltage for Dual Supply

TEST CIRCUITS



Figure 24. On Resistance



Figure 25. Off Leakage

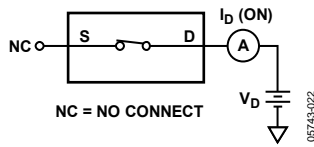


Figure 26. On Leakage



Figure 27. Switching Timing

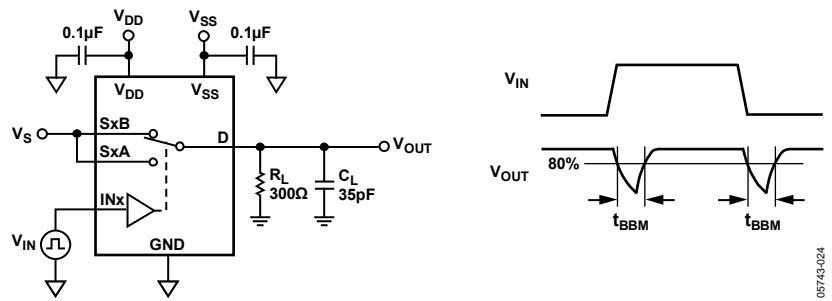


Figure 28. Break-Before-Make Delay

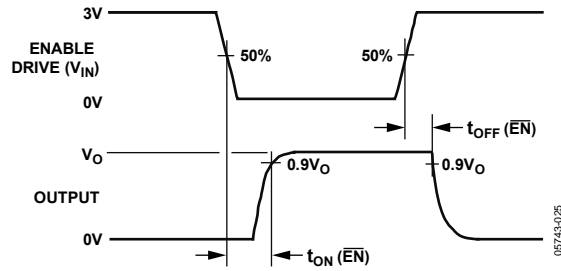


Figure 29. Enable Delay, $t_{ON}(\overline{EN})$, $t_{OFF}(\overline{EN})$

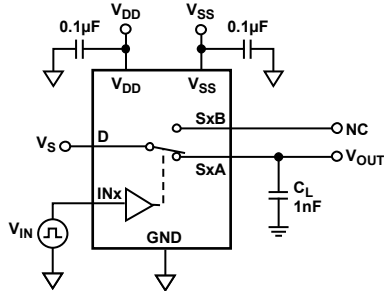


Figure 30. Charge Injection



$$\text{OFF ISOLATION} = 20 \log \frac{V_{OUT}}{V_S}$$

Figure 31. Off Isolation



$$\text{CHANNEL-TO-CHANNEL CROSSTALK} = 20 \log \frac{V_{OUT}}{V_S}$$

Figure 33. Channel-to-Channel Crosstalk



$$\text{INSERTION LOSS} = 20 \log \frac{V_{OUT \text{ WITH SWITCH}}}{V_{OUT \text{ WITHOUT SWITCH}}}$$

Figure 32. Bandwidth

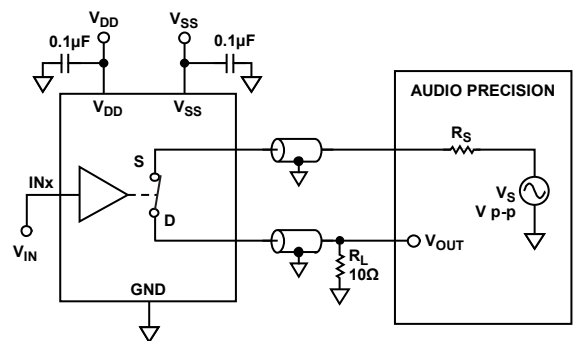


Figure 34. THD + Noise

OUTLINE DIMENSIONS



COMPLIANT TO JEDEC STANDARDS MO-153-AB

Figure 35. 16-Lead Thin Shrink Small Outline Package [TSSOP] (RU-16)

Dimensions shown in millimeters



COMPLIANT TO JEDEC STANDARDS MO-153-AC

Figure 36. 20-Lead Thin Shrink Small Outline Package [TSSOP] (RU-20)

Dimensions shown in millimeters



COMPLIANT TO JEDEC STANDARDS MO-220-WGGC.
 Figure 37. 16-Lead Lead Frame Chip Scale Package [LFCS]
 4 mm × 4 mm Body and 0.75 mm Package Height
 (CP-16-23)
 Dimensions shown in millimeters



COMPLIANT TO JEDEC STANDARDS MO-220-WGGD-1.
 Figure 38. 20-Lead Lead Frame Chip Scale Package [LFCS]
 4 mm × 4 mm Body and 0.75 mm Package Height
 (CP-20-6)
 Dimensions shown in millimeters

ORDERING GUIDE

| Model ¹ | Temperature Range | Package Description | Package Option |
|--------------------|-------------------|---|----------------|
| ADG1233YRUZ | -40°C to +125°C | 16-Lead Thin Shrink Small Outline Package [TSSOP] | RU-16 |
| ADG1233YRUZ-REEL7 | -40°C to +125°C | 16-Lead Thin Shrink Small Outline Package [TSSOP] | RU-16 |
| ADG1233YCPZ-REEL7 | -40°C to +125°C | 16-Lead Lead Frame Chip Scale Package [LFCS] | CP-16-23 |
| ADG1234YRUZ | -40°C to +125°C | 20-Lead Thin Shrink Small Outline Package [TSSOP] | RU-20 |
| ADG1234YRUZ-REEL7 | -40°C to +125°C | 20-Lead Thin Shrink Small Outline Package [TSSOP] | RU-20 |
| ADG1234YCPZ-REEL | -40°C to +125°C | 20-Lead Lead Frame Chip Scale Package [LFCS] | CP-20-6 |
| ADG1234YCPZ-REEL7 | -40°C to +125°C | 20-Lead Lead Frame Chip Scale Package [LFCS] | CP-20-6 |

¹ Z = RoHS Compliant Part.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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