

**ADG811/ADG812/ADG813**
**FEATURES**

- 0.5  $\Omega$  typ on resistance**
- 0.8  $\Omega$  max on resistance at 125°C**
- 1.65 V to 3.6 V operation**
- Automotive temperature range: -40°C to +125°C**
- High current carrying capability: 300 mA continuous**
- Rail-to-rail switching operation**
- Fast switching times: <25 ns**
- Typical power consumption < 0.1  $\mu$ W**

**APPLICATIONS**

- Cellular phones**
- MP3 players**
- Power routing**
- Battery-powered systems**
- PCMCIA cards**
- Modems**
- Audio and video signal routing**
- Communications systems**

**GENERAL DESCRIPTION**

The ADG811, ADG812, and ADG813 are low voltage CMOS devices containing four independently selectable switches. These switches offer ultralow on resistance of less than 0.8  $\Omega$  over the full temperature range. The digital inputs can handle 1.8 V logic with a 2.7 V to 3.6 V supply.

These devices contain four independent single-pole/single-throw (SPST) switches. The ADG811 and ADG812 differ only in that the digital control logic is inverted. The ADG811 switches are turned on with a logic low on the appropriate control input, while a logic high is required to turn on the switches of the ADG812. The ADG813 contains two switches whose digital control logic is similar to the ADG811, while the logic is inverted on the other two switches.

Each switch conducts equally well in both directions when on and has an input signal range that extends to the supplies. The ADG813 exhibits break-before-make switching action.

The ADG811, ADG812, and ADG813 are fully specified for 3.3 V, 2.5 V, and 1.8 V supply operation. They are available in a 16-lead TSSOP package.

**Rev. A**

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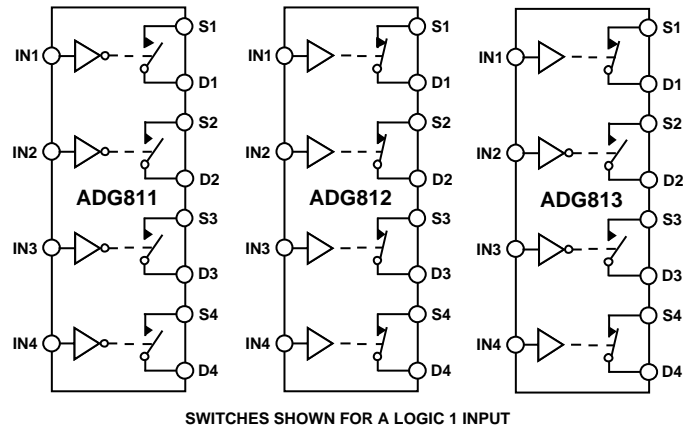
**FUNCTIONAL BLOCK DIAGRAMS**


Figure 1.

**PRODUCT HIGHLIGHTS**

1. <0.8  $\Omega$  over full temperature range of -40°C to +125°C.
2. Single 1.65 V to 3.6 V operation.
3. Operational with 1.8 V CMOS logic.
4. High current handling capability (300 mA continuous current at 3.3 V).
5. Low THD+N (0.02% typ).

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**REVISION HISTORY**

**5/04—Data Sheet Changed from Rev. 0 to Rev. A**

Updated Format..... Universal  
Updated Package Choices..... Universal

**11/03—Revision 0: Initial Version**

## ADG811/ADG812/ADG813—SPECIFICATIONS

Table 1.  $V_{DD} = 2.7\text{ V to }3.6\text{ V}$ ,  $GND = 0\text{ V}$ , unless otherwise noted<sup>1</sup>

Parameter	+25°C	-40°C to +85°C	-40°C to +125°C	Unit	Test Conditions/Comments
<b>ANALOG SWITCH</b>					
Analog Signal Range			0 V to $V_{DD}$	V	
On Resistance ( $R_{ON}$ )	0.5			$\Omega$ typ	$V_{DD} = 2.7\text{ V}$ , $V_S = 0\text{ V to }V_{DD}$ , $I_S = 10\text{ mA}$ ;
	0.65	0.75	0.8	$\Omega$ max	Figure 18
On Resistance Match between Channels ( $\Delta R_{ON}$ )	0.04			$\Omega$ typ	$V_{DD} = 2.7\text{ V}$ , $V_S = 0.5\text{ V}$ , $I_S = 10\text{ mA}$
		0.075	0.08	$\Omega$ max	
On Resistance Flatness ( $R_{FLAT(ON)}$ )	0.1			$\Omega$ typ	$V_{DD} = 2.7\text{ V}$ , $V_S = 0\text{ V to }V_{DD}$ , $I_S = 10\text{ mA}$
		0.15	0.16	$\Omega$ max	
<b>LEAKAGE CURRENTS</b>					
Source Off Leakage $I_S$ (OFF)	$\pm 0.2$			nA typ	$V_{DD} = 3.6\text{ V}$
	$\pm 1$	$\pm 8$	$\pm 80$	nA max	$V_S = 0.6\text{ V}/3.3\text{ V}$ , $V_D = 3.3\text{ V}/0.6\text{ V}$ ;
Drain Off Leakage $I_D$ (OFF)	$\pm 0.2$			nA typ	Figure 19
	$\pm 1$	$\pm 8$	$\pm 80$	nA max	$V_S = 0.6\text{ V}/3.3\text{ V}$ , $V_D = 3.3\text{ V}/0.6\text{ V}$ ;
Channel On Leakage $I_D, I_S$ (ON)	$\pm 0.2$			nA typ	Figure 19
	$\pm 1$	$\pm 15$	$\pm 90$	nA max	$V_S = V_D = 0.6\text{ V or }3.3\text{ V}$ ; Figure 20
<b>DIGITAL INPUTS</b>					
Input High Voltage, $V_{INH}$			2	V min	
Input Low Voltage, $V_{INL}$			0.8	V max	
Input Current, $I_{INL}$ or $I_{INH}$	0.005			$\mu\text{A}$ typ	$V_{IN} = V_{INL}$ or $V_{INH}$
			$\pm 0.1$	$\mu\text{A}$ max	
$C_{IN}$ , Digital Input Capacitance	6			pF typ	
<b>DYNAMIC CHARACTERISTICS<sup>2</sup></b>					
$t_{ON}$	21			ns typ	$R_L = 50\ \Omega$ , $C_L = 35\text{ pF}$
	25	26	28	ns max	$V_S = 1.5\text{ V}/0\text{ V}$ ; Figure 21
$t_{OFF}$	4			ns typ	$R_L = 50\ \Omega$ , $C_L = 35\text{ pF}$
	5	6	7	ns max	$V_S = 1.5\text{ V}$ ; Figure 21
Break-Before-Make Time Delay ( $t_{BBM}$ ) (ADG813 only)	17		5	ns typ	$R_L = 50\ \Omega$ , $C_L = 35\text{ pF}$
				ns min	$V_{S1} = V_{S2} = 1.5\text{ V}$ ; Figure 22
Charge Injection	30			pC typ	$V_S = 1.5\text{ V}$ , $R_S = 0\ \Omega$ , $C_L = 1\text{ nF}$ ;
					Figure 23
Off Isolation	-67			dB typ	$R_L = 50\ \Omega$ , $C_L = 5\text{ pF}$ , $f = 100\text{ kHz}$ ;
					Figure 24
Channel-to-Channel Crosstalk	-90			dB typ	$R_L = 50\ \Omega$ , $C_L = 5\text{ pF}$ , $f = 100\text{ kHz}$ ;
					Figure 26
Total Harmonic Distortion (THD + N)	0.02			%	$R_L = 32\ \Omega$ , $f = 20\text{ Hz to }20\text{ kHz}$ ,
					$V_S = 2\text{ V p-p}$
Insertion Loss	-0.05			dB typ	$R_L = 50\ \Omega$ , $C_L = 5\text{ pF}$ , $f = 100\text{ kHz}$
-3 dB Bandwidth	90			MHz typ	$R_L = 50\ \Omega$ , $C_L = 5\text{ pF}$ ; Figure 25
$C_S$ (OFF)	30			pF typ	
$C_D$ (OFF)	35			pF typ	
$C_D, C_S$ (ON)	60			pF typ	
<b>POWER REQUIREMENTS</b>					
$I_{DD}$	0.003			$\mu\text{A}$ typ	$V_{DD} = 3.6\text{ V}$
		1.0	4	$\mu\text{A}$ max	Digital inputs = 0 V or 3.6 V

<sup>1</sup>Temperature range for the Y version is  $-40^\circ\text{C}$  to  $+125^\circ\text{C}$ .<sup>2</sup>Guaranteed by design, not subject to production test.

# ADG811/ADG812/ADG813

**Table 2.**  $V_{DD} = 2.5 \text{ V} \pm 0.2 \text{ V}$ ,  $GND = 0 \text{ V}$ , unless otherwise noted<sup>1</sup>

Parameter	+25°C	-40°C to +85°C	-40°C to +125°C	Unit	Test Conditions/Comments
<b>ANALOG SWITCH</b>					
Analog Signal Range			0 V to $V_{DD}$	V	
On Resistance ( $R_{ON}$ )	0.65			$\Omega$ typ	$V_{DD} = 2.3 \text{ V}$ , $V_S = 0 \text{ V to } V_{DD}$ , $I_S = 10 \text{ mA}$ ;
	0.72	0.8	0.88	$\Omega$ max	Figure 18
On Resistance Match between Channels ( $\Delta R_{ON}$ )	0.04			$\Omega$ typ	$V_{DD} = 2.3 \text{ V}$ ; $V_S = 0.55 \text{ V}$ , $I_S = 10 \text{ mA}$
		0.08	0.085	$\Omega$ max	
On Resistance Flatness ( $R_{FLAT(ON)}$ )	0.16			$\Omega$ typ	$V_{DD} = 2.3 \text{ V}$ ; $V_S = 0 \text{ V to } V_{DD}$ , $I_S = 10 \text{ mA}$
		0.23	0.24	$\Omega$ max	
<b>LEAKAGE CURRENTS</b>					
Source Off Leakage $I_S$ (OFF)	$\pm 0.2$			nA typ	$V_{DD} = 2.7 \text{ V}$
	$\pm 1$	$\pm 6$	$\pm 35$	nA max	$V_S = 0.6 \text{ V}/2.4 \text{ V}$ , $V_D = 2.4 \text{ V}/0.6 \text{ V}$ ;
Drain Off Leakage $I_D$ (OFF)	$\pm 0.2$			nA typ	$V_S = 0.6 \text{ V}/2.4 \text{ V}$ , $V_D = 2.4 \text{ V}/0.6 \text{ V}$ ;
	$\pm 1$	$\pm 6$	$\pm 35$	nA max	Figure 19
Channel On Leakage $I_D$ , $I_S$ (ON)	$\pm 0.2$			nA typ	$V_S = V_D = 0.6 \text{ V or } 2.4 \text{ V}$ ; Figure 20
	$\pm 1$	$\pm 11$	$\pm 70$	nA max	
<b>DIGITAL INPUTS</b>					
Input High Voltage, $V_{INH}$			1.7	V min	
Input Low Voltage, $V_{INL}$			0.7	V max	
Input Current, $I_{INL}$ or $I_{INH}$	0.005			$\mu\text{A}$ typ	$V_{IN} = V_{INL}$ or $V_{INH}$
			$\pm 0.1$	$\mu\text{A}$ max	
$C_{IN}$ , Digital Input Capacitance	6			pF typ	
<b>DYNAMIC CHARACTERISTICS<sup>2</sup></b>					
$t_{ON}$	22			ns typ	$R_L = 50 \Omega$ , $C_L = 35 \text{ pF}$
	27	29	30	ns max	$V_S = 1.5 \text{ V}/0 \text{ V}$ ; Figure 21
$t_{OFF}$	4			ns typ	$R_L = 50 \Omega$ , $C_L = 35 \text{ pF}$
	6	7	8	ns max	$V_S = 1.5 \text{ V}$ ; Figure 21
Break-Before-Make Time Delay ( $t_{BBM}$ ) (ADG813 only)	18			ns typ	$R_L = 50 \Omega$ , $C_L = 35 \text{ pF}$
			5	ns min	$V_{S1} = V_{S2} = 1.5 \text{ V}$ ; Figure 22
Charge Injection	25			pC typ	$V_S = 1.25 \text{ V}$ , $R_S = 0 \Omega$ , $C_L = 1 \text{ nF}$ ;
					Figure 23
Off Isolation	-67			dB typ	$R_L = 50 \Omega$ , $C_L = 5 \text{ pF}$ , $f = 100 \text{ kHz}$ ;
					Figure 24
Channel-to-Channel Crosstalk	-90			dB typ	$R_L = 50 \Omega$ , $C_L = 5 \text{ pF}$ , $f = 100 \text{ kHz}$ ;
					Figure 26
Total Harmonic Distortion (THD + N)	0.022			%	$R_L = 32 \Omega$ , $f = 20 \text{ Hz to } 20 \text{ kHz}$ , $V_S = 1.5 \text{ V p-p}$
Insertion Loss	-0.06			dB typ	$R_L = 50 \Omega$ , $C_L = 5 \text{ pF}$ , $f = 100 \text{ kHz}$
-3 dB Bandwidth	90			MHz typ	$R_L = 50 \Omega$ , $C_L = 5 \text{ pF}$ ; Figure 25
$C_S$ (OFF)	32			pF typ	
$C_D$ (OFF)	37			pF typ	
$C_D$ , $C_S$ (ON)	60			pF typ	
<b>POWER REQUIREMENTS</b>					
$I_{DD}$	0.003			$\mu\text{A}$ typ	$V_{DD} = 2.7 \text{ V}$
		1.0	4	$\mu\text{A}$ max	Digital inputs = 0 V or 2.7 V

<sup>1</sup> Temperature range for the Y version is -40°C to +125°C.

<sup>2</sup> Guaranteed by design, not subject to production test.

Table 3.  $V_{DD} = 1.65\text{ V to }1.95\text{ V}$ ,  $GND = 0\text{ V}$ , unless otherwise noted<sup>1</sup>

Parameter	+25°C	-40°C to +85°C	-40°C to +125°C	Unit	Test Conditions/Comments
<b>ANALOG SWITCH</b>					
Analog Signal Range			0 V to $V_{DD}$	V	
On Resistance ( $R_{ON}$ )	1			$\Omega$ typ	$V_{DD} = 1.8\text{ V}$ , $V_S = 0\text{ V to }V_{DD}$ , $I_S = 10\text{ mA}$ ; Figure 18
	1.4	2.2	2.2	$\Omega$ max	
	2.5	4	4	$\Omega$ max	$V_{DD} = 1.65\text{ V}$ , $V_S = 0\text{ V to }V_{DD}$ , $I_S = 10\text{ mA}$
On Resistance Match between Channels ( $\Delta R_{ON}$ )	0.1			$\Omega$ typ	$V_{DD} = 1.65\text{ V}$ , $V_S = 0.7\text{ V}$ , $I_S = 10\text{ mA}$
<b>LEAKAGE CURRENTS</b>					
Source Off Leakage $I_S$ (OFF)	$\pm 0.2$			nA typ	$V_{DD} = 1.95\text{ V}$ $V_S = 0.6\text{ V}/1.65\text{ V}$ , $V_D = 1.65\text{ V}/0.6\text{ V}$ ; Figure 19
	$\pm 1$	$\pm 5$	$\pm 30$	nA max	
Drain Off Leakage $I_D$ (OFF)	$\pm 0.2$			nA typ	$V_S = 0.6\text{ V}/1.65\text{ V}$ , $V_D = 1.65\text{ V}/0.6\text{ V}$ ; Figure 19
	$\pm 1$	$\pm 5$	$\pm 30$	nA max	
Channel On Leakage $I_D, I_S$ (ON)	$\pm 0.2$			nA typ	$V_S = V_D = 0.6\text{ V or }1.65\text{ V}$ ; Figure 20
	$\pm 1$	$\pm 9$	$\pm 60$	nA max	
<b>DIGITAL INPUTS</b>					
Input High Voltage, $V_{INH}$			$0.65V_{DD}$	V min	
Input Low Voltage, $V_{INL}$			$0.35V_{DD}$	V max	
Input Current, $I_{INL}$ or $I_{INH}$	0.005			$\mu\text{A}$ typ	$V_{IN} = V_{INL}$ or $V_{INH}$
			$\pm 0.1$	$\mu\text{A}$ max	
CIN, Digital Input Capacitance	6			pF typ	
<b>DYNAMIC CHARACTERISTICS<sup>2</sup></b>					
$t_{ON}$	27			ns typ	$R_L = 50\ \Omega$ , $C_L = 35\text{ pF}$
	35	36	37	ns max	$V_S = 1.5\text{ V}/0\text{ V}$ ; Figure 21
$t_{OFF}$	6			ns typ	$R_L = 50\ \Omega$ , $C_L = 35\text{ pF}$
	8	9	10	ns max	$V_S = 1.5\text{ V}$ ; Figure 21
Break-Before-Make Time Delay ( $t_{BBM}$ ) (ADG813 only)	20		5	ns typ	$R_L = 50\ \Omega$ , $C_L = 35\text{ pF}$
				ns min	$V_{S1} = V_{S2} = 1\text{ V}$ ; Figure 22
Charge Injection	15			pC typ	$V_S = 1\text{ V}$ , $R_S = 0\ \Omega$ , $C_L = 1\text{ nF}$ ; Figure 23
Off Isolation	-67			dB typ	$R_L = 50\ \Omega$ , $C_L = 5\text{ pF}$ , $f = 100\text{ kHz}$ ; Figure 24
Channel-to-Channel Crosstalk	-90			dB typ	$R_L = 50\ \Omega$ , $C_L = 5\text{ pF}$ , $f = 100\text{ kHz}$ ; Figure 26
Total Harmonic Distortion (THD + N)	0.14			%	$R_L = 32\ \Omega$ , $f = 20\text{ Hz to }20\text{ kHz}$ , $V_S = 1.2\text{ V p-p}$
Insertion Loss	-0.08			dB typ	$R_L = 50\ \Omega$ , $C_L = 5\text{ pF}$ , $f = 100\text{ kHz}$
-3 dB Bandwidth	90			MHz typ	$R_L = 50\ \Omega$ , $C_L = 5\text{ pF}$ ; Figure 25
$C_S$ (OFF)	32			pF typ	
$C_D$ (OFF)	38			pF typ	
$C_D, C_S$ (ON)	60			pF typ	
<b>POWER REQUIREMENTS</b>					
$I_{DD}$	0.003			$\mu\text{A}$ typ	$V_{DD} = 1.95\text{ V}$ Digital inputs = 0 V or 1.95 V
		1.0	4	$\mu\text{A}$ max	

<sup>1</sup>Temperature range for the Y version is -40°C to +125°C.

<sup>2</sup>Guaranteed by design, not subject to production test.

# ADG811/ADG812/ADG813

## ABSOLUTE MAXIMUM RATINGS

Table 4.  $T_A = 25^\circ\text{C}$ , unless otherwise noted

Parameter	Rating
$V_{DD}$ to GND	-0.3 V to +4.6 V
Analog Inputs <sup>1</sup>	-0.3 V to $V_{DD} + 0.3$ V
Digital Inputs <sup>1</sup>	GND - 0.3 V to 4.6 V or 10 mA, whichever occurs first
Peak Current, S or D	(Pulsed at 1 ms, 10% Duty Cycle Max)
3.3 V Operation	500 mA
2.5 V Operation	460 mA
1.8 V Operation	420 mA
Continuous Current, S or D	
3.3 V Operation	300 mA
2.5 V Operation	275 mA
1.8 V Operation	250 mA
Operating Temperature Range Automotive (Y Version)	-40°C to +125°C
Storage Temperature Range	-65°C to +150°C
Junction Temperature	150°C
TSSOP Package	
$\theta_{JA}$ Thermal Impedance	150°C/W
$\theta_{JC}$ Thermal Impedance	27°C/W
IR Reflow, Peak Temperature <20 sec	235°C

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.

<sup>1</sup> 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.



Table 5. ADG811/ADG812 Truth Table

ADG811 IN	ADG812 IN	Switch Condition
0	1	On
1	0	Off

Table 6. ADG813 Truth Table

Logic	Switch 1, Switch 4	Switch 2, Switch 3
0	Off	On
1	On	Off

## PIN CONFIGURATION AND FUNCTION DESCRIPTIONS

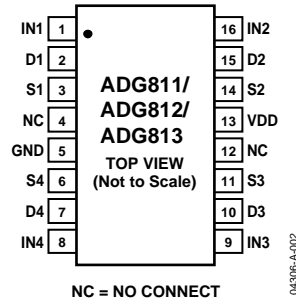


Figure 2.

Table 7. Terminology

Term	Definition
V <sub>DD</sub>	Most positive power supply potential.
I <sub>DD</sub>	Positive supply current.
GND	Ground (0 V) reference.
S	Source terminal. May be an input or output.
D	Drain terminal. May be an input or output.
IN	Logic control input.
V <sub>D</sub> , V <sub>S</sub>	Analog voltage on Terminals D, S.
R <sub>ON</sub>	Ohmic resistance between D and S.
R <sub>FLAT (ON)</sub>	Flatness is defined as the difference between the maximum and minimum value of on resistance as measured over the specified analog signal range.
ΔR <sub>ON</sub>	On resistance match between any two channels, i.e., R <sub>ON max</sub> – R <sub>ON min</sub> .
I <sub>S (OFF)</sub>	Source leakage current with the switch off.
I <sub>D (OFF)</sub>	Drain leakage current with the switch off.
I <sub>D</sub> , I <sub>S (ON)</sub>	Channel leakage current with the switch on.
V <sub>INL</sub>	Maximum input voltage for Logic 0.
V <sub>INH</sub>	Minimum input voltage for Logic 1.
I <sub>INL (I<sub>INH</sub>)</sub>	Input current of the digital input.
C <sub>S (OFF)</sub>	Off switch source capacitance. Measured with reference to ground.
C <sub>D (OFF)</sub>	Off switch drain capacitance. Measured with reference to ground.
C <sub>D</sub> , C <sub>S (ON)</sub>	On switch capacitance. Measured with reference to ground.
C <sub>IN</sub>	Digital input capacitance.
t <sub>ON</sub>	Delay time between the 50% and the 90% points of the digital input and switch on condition.
t <sub>OFF</sub>	Delay time between the 50% and the 90% points of the digital input and switch off condition.
t <sub>BBM</sub>	On or off time measured between the 80% points of both switches, when switching from one to another.
Charge Injection	A measure of the glitch impulse transferred from the digital input to the analog output during on-to-off 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.
–3 dB 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 amplitudes plus noise of a signal to the fundamental.

TYPICAL PERFORMANCE CHARACTERISTICS

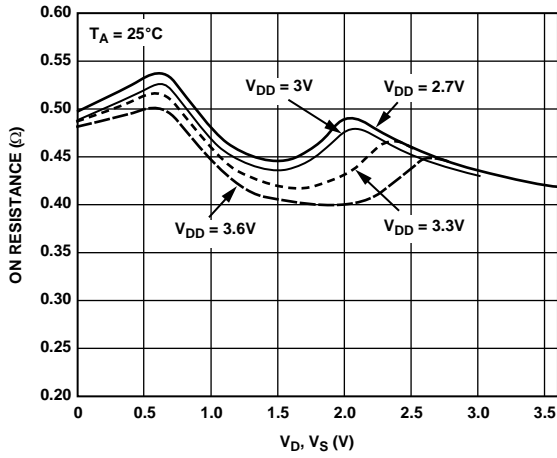


Figure 3. On Resistance vs.  $V_D$  ( $V_S$ ),  $V_{DD} = 2.7\text{ V to }3.6\text{ V}$

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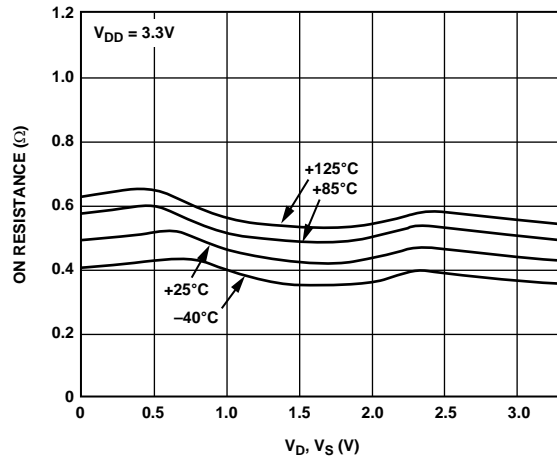


Figure 6. On Resistance vs.  $V_D$  ( $V_S$ ) for Different Temperatures,  $V_{DD} = 3.3\text{ V}$

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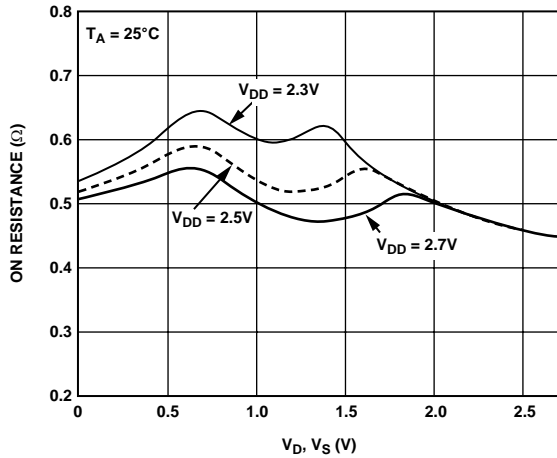


Figure 4. On Resistance vs.  $V_D$  ( $V_S$ ),  $V_{DD} = 2.5\text{ V} \pm 0.2\text{ V}$

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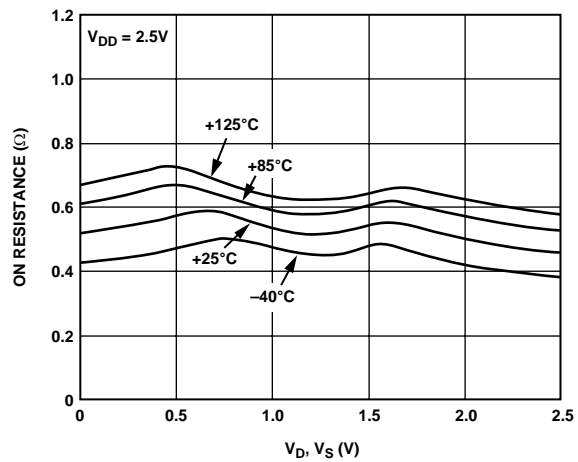


Figure 7. On Resistance vs.  $V_D$  ( $V_S$ ) for Different Temperatures,  $V_{DD} = 2.5\text{ V}$

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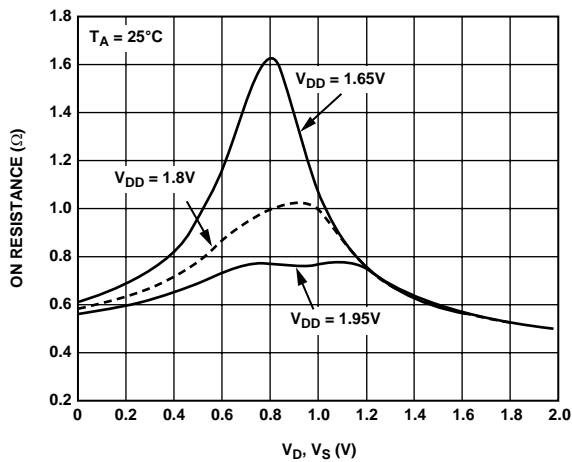


Figure 5. On Resistance vs.  $V_D$  ( $V_S$ ),  $V_{DD} = 1.8\text{ V} \pm 0.15\text{ V}$

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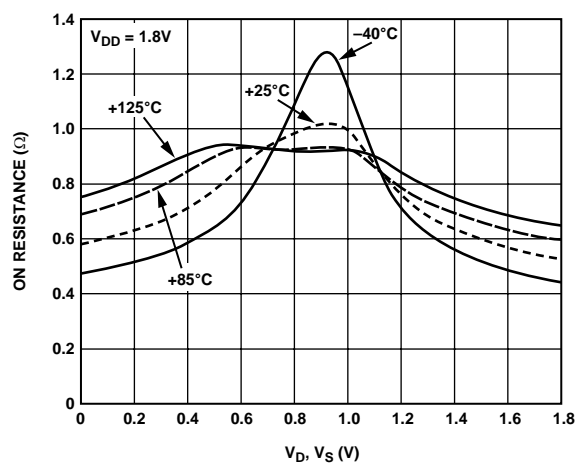


Figure 8. On Resistance vs.  $V_D$  ( $V_S$ ) for Different Temperatures,  $V_{DD} = 1.8\text{ V}$

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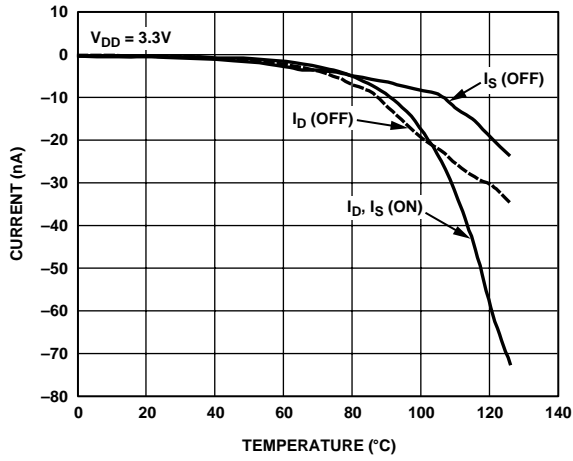


Figure 9. Leakage Currents vs. Temperature,  $V_{DD} = 3.3\text{ V}$

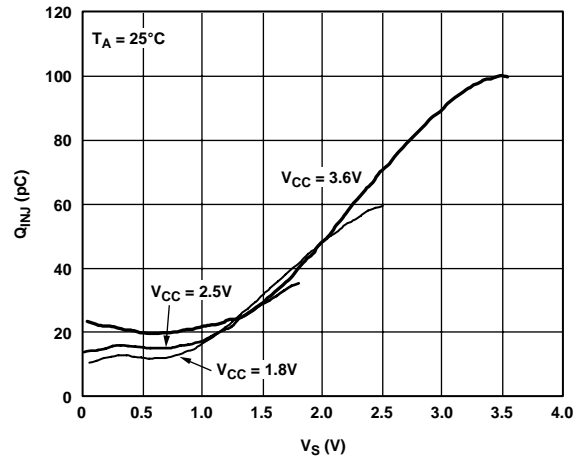


Figure 12. Charge Injection vs. Source Voltage

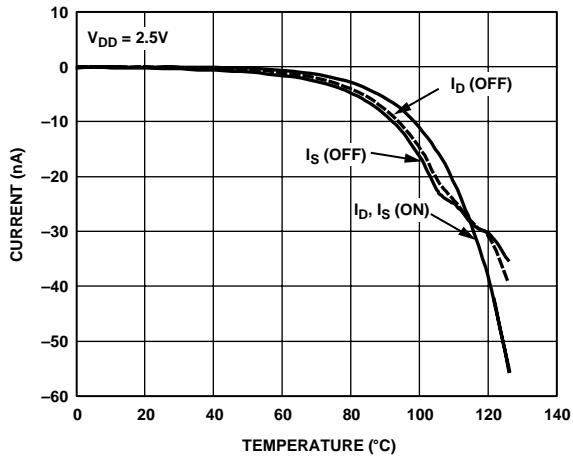


Figure 10. Leakage Currents vs. Temperature,  $V_{DD} = 2.5\text{ V}$

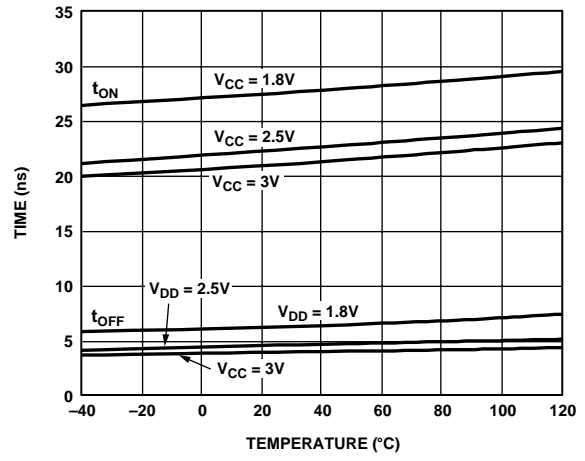


Figure 13.  $t_{ON}/t_{OFF}$  Times vs. Temperature

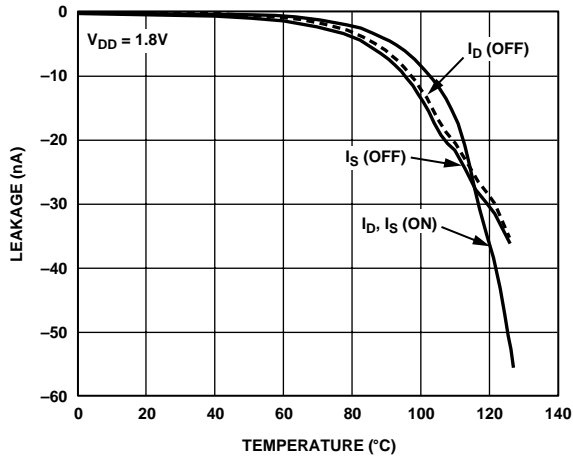


Figure 11. Leakage Currents vs. Temperature,  $V_{DD} = 1.8\text{ V}$

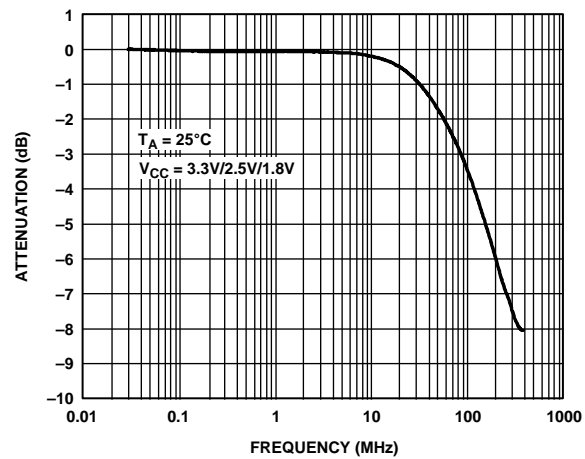


Figure 14. Bandwidth

04306-A-009

04306-A-012

04306-A-010

04306-A-013

04306-A-011

04306-A-014

# ADG811/ADG812/ADG813

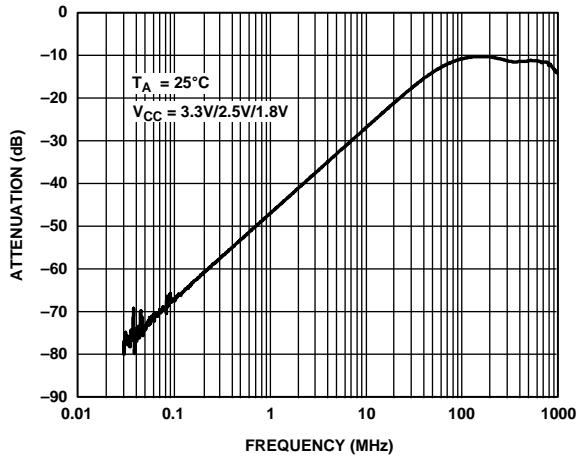


Figure 15. Crosstalk vs. Frequency

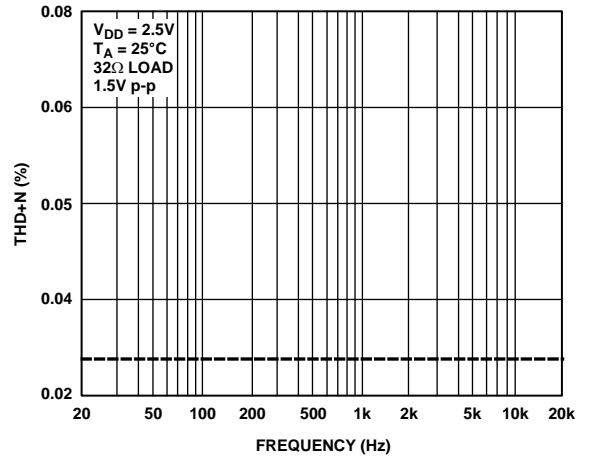


Figure 17. Total Harmonic Distortion

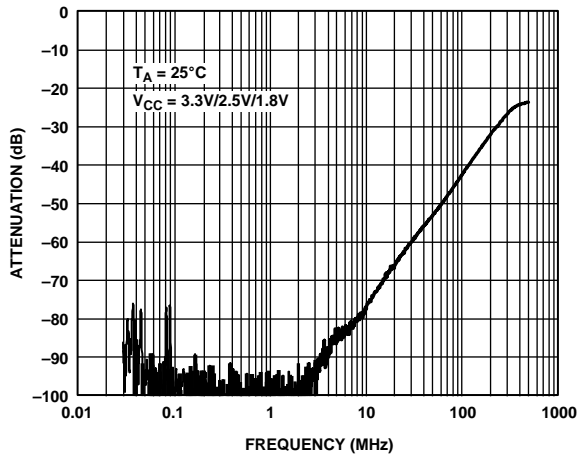


Figure 16. Off Isolation vs. Frequency

04306-A-015

04306-A-017

04306-A-016

# TEST CIRCUITS

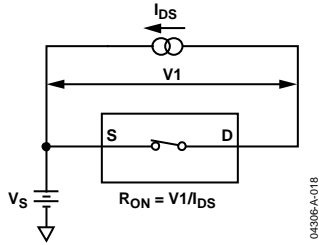


Figure 18. On Resistance

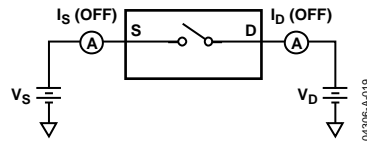


Figure 19. Off Leakage

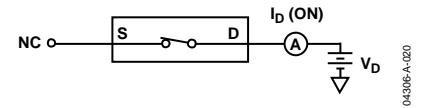


Figure 20. On Leakage

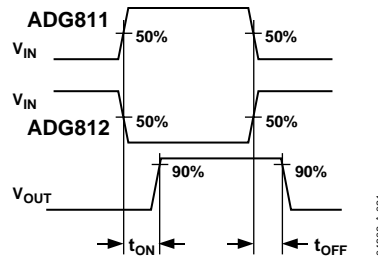
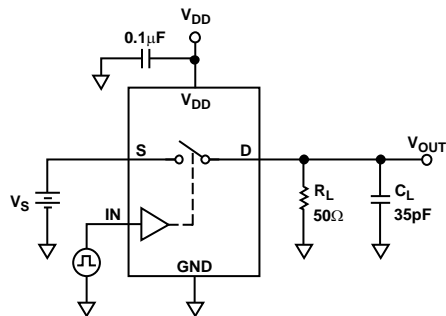


Figure 21. Switching Times

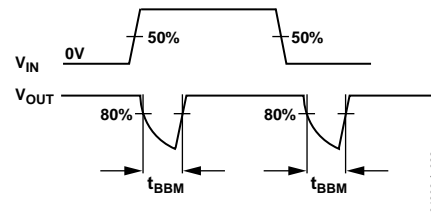
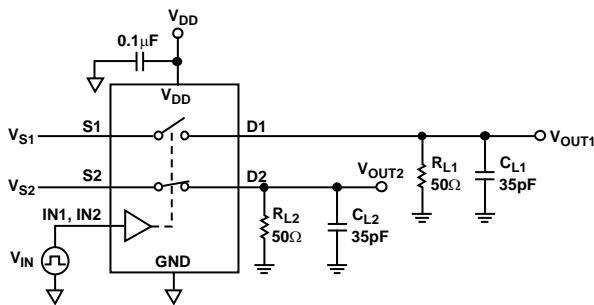


Figure 22. Break-Before-Make Time Delay,  $t_{BBM}$  (ADG813)

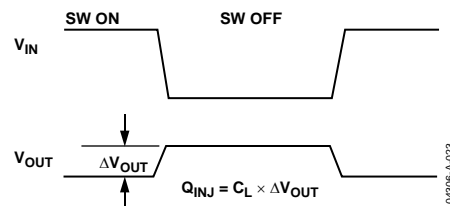
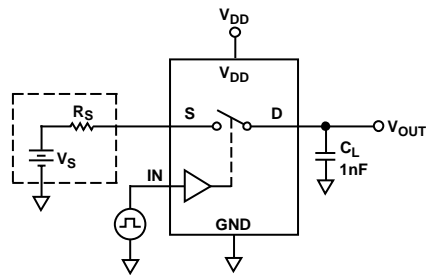


Figure 23. Charge Injection

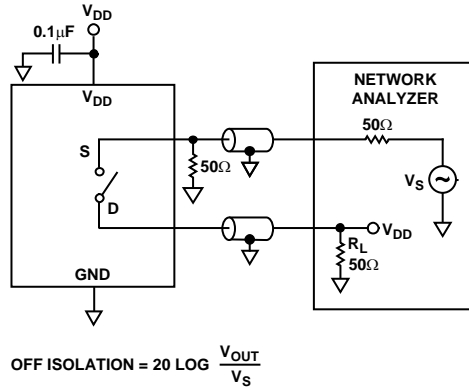


Figure 24. Off Isolation

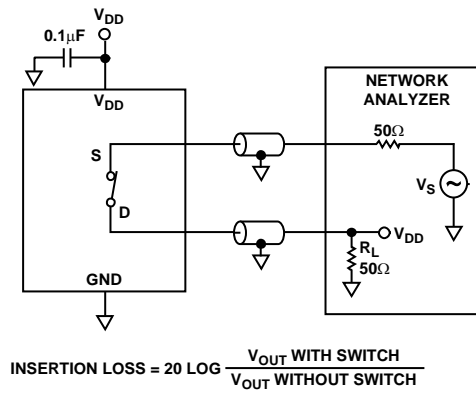


Figure 25. Bandwidth

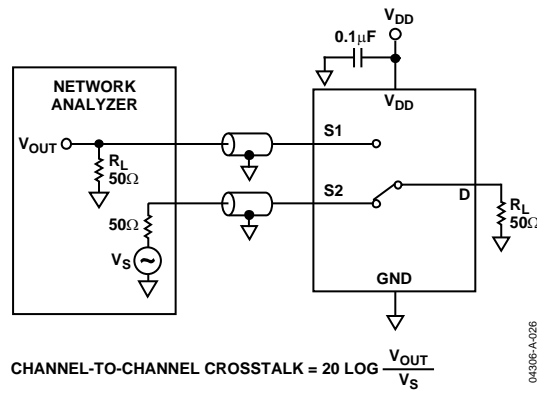


Figure 26. Channel-to-Channel Crosstalk

## OUTLINE DIMENSIONS

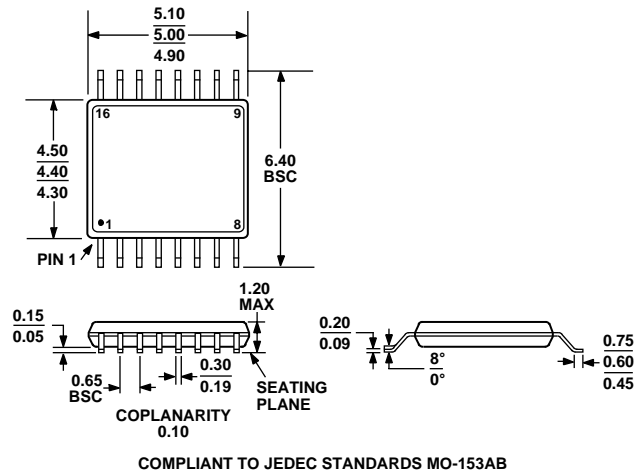


Figure 27. 16-Lead Thin Shrink Small Outline Package [TSSOP] (RU-16)  
Dimensions shown in millimeters

## ORDERING GUIDE

Model	Temperature Range	Package Description	Package Option
ADG811YRU	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16
ADG811YRU-REEL	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16
ADG811YRU-REEL7	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16
AADG812YRU	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16
ADG812YRU-REEL	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16
ADG812YRU-REEL7	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16
ADG813YRU	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16
ADG813YRU-REEL	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16
ADG813YRU-REEL7	-40°C to +125°C	Thin Shrink Small Outline (TSSOP)	RU-16

**NOTES**

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