

# NLAS5223B, NLAS5223BL

## Ultra-Low 0.35 $\Omega$ Dual SPDT Analog Switch

The NLAS5223B is an advanced CMOS analog switch fabricated in Sub-micron silicon gate CMOS technology. The device is a dual Independent Single Pole Double Throw (SPDT) switch featuring Ultra-Low  $R_{ON}$  of 0.35  $\Omega$ , at  $V_{CC} = 4.3$  V.

The part also features guaranteed Break Before Make (BBM) switching, assuring the switches never short the driver.

### Features

- Ultra-Low  $R_{ON}$ , 0.35  $\Omega$  (typ) at  $V_{CC} = 4.3$  V
- NLAS5223B Interfaces with 2.8 V Chipset
- NLAS5223BL Interfaces with 1.8 V Chipset
- Single Supply Operation from 1.65–4.5 V
- Full 0– $V_{CC}$  Signal Handling Capability
- High Off-Channel Isolation
- Low Standby Current, < 50 nA
- Low Distortion
- $R_{ON}$  Flatness of 0.15  $\Omega$
- High Continuous Current Capability
  - ♦  $\pm 320$  mA Through Each Switch
- Large Current Clamping Diodes at Analog Inputs
  - ♦  $\pm 100$  mA Continuous Current Capability
- Package:
  - ♦ 1.4 x 1.8 x 0.75 mm WQFN10 Pb-Free
  - ♦ 1.4 x 1.8 x 0.55 mm UQFN10 Pb-Free
- These are Pb-Free Devices

### Applications

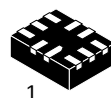
- Cell Phone Audio Block
- Speaker and Earphone Switching
- Ring-Tone Chip/Amplifier Switching
- Modems



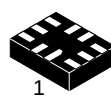
ON Semiconductor®

[www.onsemi.com](http://www.onsemi.com)

### MARKING DIAGRAM



WQFN10  
CASE 488AQ

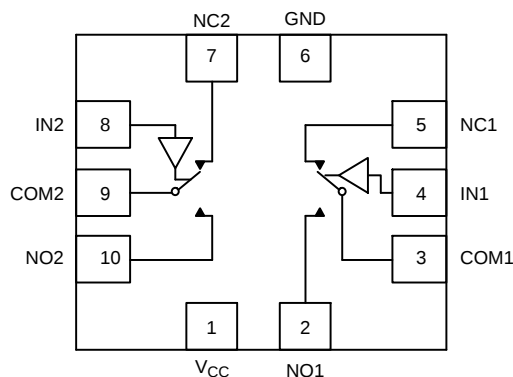


UQFN10  
CASE 488AT



XX = Specific Device Code  
AD = NLAS5223BMNR2G  
AE = NLAS5223BLMNR2G  
AP = NLAS5223BMUR2G  
M = Date Code/Assembly Location  
▪ = Pb-Free Device

(Note: Microdot may be in either location)



### FUNCTION TABLE

| IN 1, 2 | NO 1, 2 | NC 1, 2 |
|---------|---------|---------|
| 0       | OFF     | ON      |
| 1       | ON      | OFF     |

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 9 of this data sheet.

# NLAS5223B, NLAS5223BL

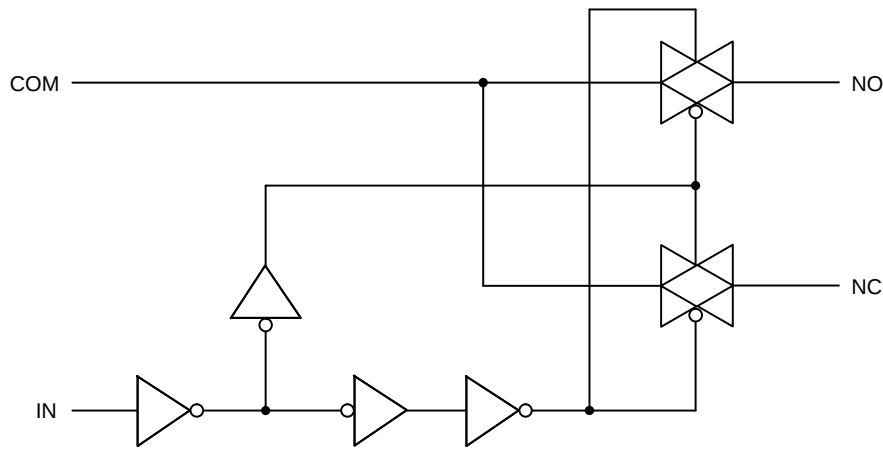


Figure 1. Logic Equivalent Circuit

## PIN DESCRIPTION

| QFN PIN #   | Symbol                 | Name and Function       |
|-------------|------------------------|-------------------------|
| 2, 5, 7, 10 | NC1 to NC2, NO1 to NO2 | Independent Channels    |
| 4, 8        | IN1 and IN2            | Controls                |
| 3, 9        | COM1 and COM2          | Common Channels         |
| 6           | GND                    | Ground (V)              |
| 1           | V <sub>CC</sub>        | Positive Supply Voltage |

## MAXIMUM RATINGS

| Symbol               | Parameter                                                                            | Value                                          | Unit |
|----------------------|--------------------------------------------------------------------------------------|------------------------------------------------|------|
| V <sub>CC</sub>      | Positive DC Supply Voltage                                                           | -0.5 to +5.5                                   | V    |
| V <sub>IS</sub>      | Analog Input Voltage (V <sub>NO</sub> , V <sub>NC</sub> , or V <sub>COM</sub> )      | -0.5 ≤ V <sub>IS</sub> ≤ V <sub>CC</sub> + 0.5 | V    |
| V <sub>IN</sub>      | Digital Select Input Voltage                                                         | -0.5 ≤ V <sub>IN</sub> ≤ +5.5                  | V    |
| I <sub>anl1</sub>    | Continuous DC Current from COM to NC/NO                                              | ±320                                           | mA   |
| I <sub>anl-pk1</sub> | Peak Current from COM to NC/NO, 10% Duty Cycle, 100 ms = t <sub>ON</sub> (Note 1)    | ±600                                           | mA   |
| I <sub>anl-pk2</sub> | Instantaneous Peak Current from COM to NC/NO, 10% Duty Cycle, t <sub>ON</sub> < 1 μs | ±850                                           | mA   |
| I <sub>clmp</sub>    | Continuous DC Current into COM/NO/NC with Respect to V <sub>CC</sub> or GND          | ±100                                           | mA   |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Defined as 10% ON, 90% OFF Duty Cycle.

## RECOMMENDED OPERATING CONDITIONS

| Symbol                          | Parameter                                                                                             | Min  | Max             | Unit |
|---------------------------------|-------------------------------------------------------------------------------------------------------|------|-----------------|------|
| V <sub>CC</sub>                 | DC Supply Voltage                                                                                     | 1.65 | 4.5             | V    |
| V <sub>IN</sub>                 | Digital Select Input Voltage (OVT) Overvoltage Tolerance                                              | GND  | 4.5             | V    |
| V <sub>IS</sub>                 | Analog Input Voltage (NC, NO, COM)                                                                    | GND  | V <sub>CC</sub> | V    |
| T <sub>A</sub>                  | Operating Temperature Range                                                                           | -40  | +85             | °C   |
| t <sub>r</sub> , t <sub>f</sub> | Input Rise or Fall Time, SELECT<br>V <sub>CC</sub> = 1.6 V – 2.7 V<br>V <sub>CC</sub> = 3.0 V – 4.5 V |      | 20<br>10        | ns/V |

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

# NLAS5223B, NLAS5223BL

## NLAS5223B DC CHARACTERISTICS – DIGITAL SECTION (Voltages Referenced to GND)

| Symbol           | Parameter                                       | Condition                                           | V <sub>CC</sub> | Guaranteed Limit |                | Unit |
|------------------|-------------------------------------------------|-----------------------------------------------------|-----------------|------------------|----------------|------|
|                  |                                                 |                                                     |                 | 25°C             | –40°C to +85°C |      |
| V <sub>IH</sub>  | Minimum High–Level Input Voltage, Select Inputs |                                                     | 3.0<br>4.3      | 1.4<br>2.0       | 1.4<br>2.0     | V    |
| V <sub>IL</sub>  | Maximum Low–Level Input Voltage, Select Inputs  |                                                     | 3.0<br>4.3      | 0.7<br>0.8       | 0.7<br>0.8     | V    |
| I <sub>IN</sub>  | Maximum Input Leakage Current, Select Inputs    | V <sub>IN</sub> = V <sub>CC</sub> or GND            | 4.3             | ±0.1             | ±1.0           | μA   |
| I <sub>OFF</sub> | Power Off Leakage Current                       | V <sub>IN</sub> = V <sub>CC</sub> or GND            | 0               | ±0.5             | ±2.0           | μA   |
| I <sub>CC</sub>  | Maximum Quiescent Supply Current (Note 2)       | Select and V <sub>IS</sub> = V <sub>CC</sub> or GND | 1.65 to 4.5     | ±1.0             | ±2.0           | μA   |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Guaranteed by design. Resistance measurements do not include test circuit or package resistance.

## NLAS5223B DC ELECTRICAL CHARACTERISTICS – ANALOG SECTION

| Symbol                                       | Parameter                                               | Condition                                                                                                                                                                                                                          | V <sub>CC</sub> | Guaranteed Maximum Limit |              |                |              | Unit |
|----------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------|--------------|----------------|--------------|------|
|                                              |                                                         |                                                                                                                                                                                                                                    |                 | 25°C                     |              | –40°C to +85°C |              |      |
|                                              |                                                         |                                                                                                                                                                                                                                    |                 | Min                      | Max          | Min            | Max          |      |
| R <sub>ON</sub>                              | NC/NO On–Resistance<br>(Note 3)                         | V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IN</sub> = V <sub>IH</sub><br>V <sub>IS</sub> = GND to V <sub>CC</sub><br>I <sub>COM</sub> = 100 mA                                                                                    | 3.0<br>4.3      |                          | 0.4<br>0.35  |                | 0.5<br>0.4   | Ω    |
| R <sub>FLAT</sub>                            | NC/NO On–Resistance Flatness<br>(Notes 3 and 4)         | I <sub>COM</sub> = 100 mA<br>V <sub>IS</sub> = 0 to V <sub>CC</sub>                                                                                                                                                                | 3.0<br>4.3      |                          | 0.16<br>0.11 |                | 0.20<br>0.14 | Ω    |
| ΔR <sub>ON</sub>                             | On–Resistance Match Between Channels<br>(Notes 3 and 5) | V <sub>IS</sub> = 1.5 V;<br>I <sub>COM</sub> = 100 mA<br>V <sub>IS</sub> = 2.2 V;<br>I <sub>COM</sub> = 100 mA                                                                                                                     | 3.0<br>4.3      |                          | 0.05<br>0.05 |                | 0.05<br>0.05 | Ω    |
| I <sub>NC(OFF)</sub><br>I <sub>NO(OFF)</sub> | NC or NO Off Leakage Current (Note 3)                   | V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>V <sub>NO</sub> or V <sub>NC</sub> = 0.3 V<br>V <sub>COM</sub> = 4.0 V                                                                                                     | 4.3             | –5.0                     | 5.0          | –50            | 50           | nA   |
| I <sub>COM(ON)</sub>                         | COM ON Leakage Current<br>(Note 3)                      | V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>V <sub>NO</sub> 0.3 V or 4.0 V with<br>V <sub>NC</sub> floating or<br>V <sub>NC</sub> 0.3 V or 4.0 V with<br>V <sub>NO</sub> floating<br>V <sub>COM</sub> = 0.3 V or 4.0 V | 4.3             | –10                      | 10           | –100           | 100          | nA   |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

3. Guaranteed by design. Resistance measurements do not include test circuit or package resistance.

4. Flatness is defined as the difference between the maximum and minimum value of On–resistance as measured over the specified analog signal ranges.

5. ΔR<sub>ON</sub> = R<sub>ON(MAX)</sub> – R<sub>ON(MIN)</sub> between NC1 and NC2 or between NO1 and NO2.

# NLAS5223B, NLAS5223BL

## NLAS5223BL DC CHARACTERISTICS – DIGITAL SECTION (Voltages Referenced to GND)

| Symbol           | Parameter                                       | Condition                                           | V <sub>CC</sub> | Guaranteed Limit |                | Unit |
|------------------|-------------------------------------------------|-----------------------------------------------------|-----------------|------------------|----------------|------|
|                  |                                                 |                                                     |                 | 25°C             | –40°C to +85°C |      |
| V <sub>IH</sub>  | Minimum High–Level Input Voltage, Select Inputs |                                                     | 3.0<br>4.3      | 1.3<br>1.6       | 1.3<br>1.6     | V    |
| V <sub>IL</sub>  | Maximum Low–Level Input Voltage, Select Inputs  |                                                     | 3.0<br>4.3      | 0.5<br>0.6       | 0.5<br>0.6     | V    |
| I <sub>IN</sub>  | Maximum Input Leakage Current, Select Inputs    | V <sub>IN</sub> = 4.5 V or GND                      | 4.3             | ±0.1             | ±1.0           | μA   |
| I <sub>OFF</sub> | Power Off Leakage Current                       | V <sub>IN</sub> = 4.5 V or GND                      | 0               | ±0.5             | ±2.0           | μA   |
| I <sub>CC</sub>  | Maximum Quiescent Supply Current (Note 6)       | Select and V <sub>IS</sub> = V <sub>CC</sub> or GND | 1.65 to 4.5     | ±1.0             | ±2.0           | μA   |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

6. Guaranteed by design. Resistance measurements do not include test circuit or package resistance.

## NLAS5223BL DC ELECTRICAL CHARACTERISTICS – ANALOG SECTION

| Symbol                                       | Parameter                                               | Condition                                                                                                                                                                                                                          | V <sub>CC</sub> | Guaranteed Maximum Limit |              |                |              | Unit |
|----------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------|--------------|----------------|--------------|------|
|                                              |                                                         |                                                                                                                                                                                                                                    |                 | 25°C                     |              | –40°C to +85°C |              |      |
|                                              |                                                         |                                                                                                                                                                                                                                    |                 | Min                      | Max          | Min            | Max          |      |
| R <sub>ON</sub>                              | NC/NO On–Resistance<br>(Note 7)                         | V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IN</sub> = V <sub>IH</sub><br>V <sub>IS</sub> = GND to V <sub>CC</sub><br>I <sub>COM</sub> = 100 mA                                                                                    | 3.0<br>4.3      |                          | 0.4<br>0.35  |                | 0.5<br>0.4   | Ω    |
| R <sub>FLAT</sub>                            | NC/NO On–Resistance Flatness<br>(Notes 7 and 8)         | I <sub>COM</sub> = 100 mA<br>V <sub>IS</sub> = 0 to V <sub>CC</sub>                                                                                                                                                                | 3.0<br>4.3      |                          | 0.16<br>0.11 |                | 0.20<br>0.14 | Ω    |
| ΔR <sub>ON</sub>                             | On–Resistance Match Between Channels<br>(Notes 7 and 9) | V <sub>IS</sub> = 1.5 V;<br>I <sub>COM</sub> = 100 mA<br>V <sub>IS</sub> = 2.2 V;<br>I <sub>COM</sub> = 100 mA                                                                                                                     | 3.0<br>4.3      |                          | 0.05<br>0.05 |                | 0.05<br>0.05 | Ω    |
| I <sub>NC(OFF)</sub><br>I <sub>NO(OFF)</sub> | NC or NO Off Leakage Current (Note 7)                   | V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>V <sub>NO</sub> or V <sub>NC</sub> = 0.3 V<br>V <sub>COM</sub> = 4.0 V                                                                                                     | 4.3             | –10                      | 10           | –100           | 100          | nA   |
| I <sub>COM(ON)</sub>                         | COM ON Leakage Current<br>(Note 7)                      | V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub><br>V <sub>NO</sub> 0.3 V or 4.0 V with<br>V <sub>NC</sub> floating or<br>V <sub>NC</sub> 0.3 V or 4.0 V with<br>V <sub>NO</sub> floating<br>V <sub>COM</sub> = 0.3 V or 4.0 V | 4.3             | –10                      | 10           | –100           | 100          | nA   |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

7. Guaranteed by design. Resistance measurements do not include test circuit or package resistance.

8. Flatness is defined as the difference between the maximum and minimum value of On–resistance as measured over the specified analog signal ranges.

9. ΔR<sub>ON</sub> = R<sub>ON(MAX)</sub> – R<sub>ON(MIN)</sub> between NC1 and NC2 or between NO1 and NO2.

# NLAS5223B, NLAS5223BL

## AC ELECTRICAL CHARACTERISTICS (Input $t_r = t_f = 3.0$ ns)

| Symbol           | Parameter                      | Test Conditions                                                                      | V <sub>CC</sub><br>(V) | V <sub>IS</sub><br>(V) | Guaranteed Maximum Limit |      |     |                |     | Unit |
|------------------|--------------------------------|--------------------------------------------------------------------------------------|------------------------|------------------------|--------------------------|------|-----|----------------|-----|------|
|                  |                                |                                                                                      |                        |                        | 25°C                     |      |     | −40°C to +85°C |     |      |
|                  |                                |                                                                                      |                        |                        | Min                      | Typ* | Max | Min            | Max |      |
| t <sub>ON</sub>  | Turn-On Time                   | R <sub>L</sub> = 50 Ω, C <sub>L</sub> = 35 pF<br>(Figures 3 and 4)                   | 2.3 – 4.5              | 1.5                    |                          |      | 50  |                | 60  | ns   |
| t <sub>OFF</sub> | Turn-Off Time                  | R <sub>L</sub> = 50 Ω, C <sub>L</sub> = 35 pF<br>(Figures 3 and 4)                   | 2.3 – 4.5              | 1.5                    |                          |      | 30  |                | 40  | ns   |
| t <sub>BBM</sub> | Minimum Break-Before-Make Time | V <sub>IS</sub> = 3.0<br>R <sub>L</sub> = 50 Ω, C <sub>L</sub> = 35 pF<br>(Figure 2) | 3.0                    | 1.5                    | 2                        | 15   |     |                |     | ns   |

|             |                                             |  | Typical @ 25, $V_{CC} = 3.6$ V |  |    |
|-------------|---------------------------------------------|--|--------------------------------|--|----|
| $C_{IN}$    | Control Pin Input Capacitance               |  | 3.5                            |  | pF |
| $C_{NO/NC}$ | NO, NC Port Capacitance                     |  | 60                             |  | pF |
| $C_{COM}$   | COM Port Capacitance When Switch is Enabled |  | 200                            |  | pF |

\*Typical Characteristics are at 25°C.

## ADDITIONAL APPLICATION CHARACTERISTICS (Voltages Referenced to GND Unless Noted)

| Symbol    | Parameter                                                        | Condition                                                                                                                       | $V_{CC}$<br>(V) | 25°C    | Unit |
|-----------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|------|
|           |                                                                  |                                                                                                                                 |                 | Typical |      |
| BW        | Maximum On-Channel -3 dB Bandwidth or Minimum Frequency Response | $V_{IN}$ centered between $V_{CC}$ and GND<br>(Figure 5)                                                                        | 1.65 – 4.5      | 19      | MHz  |
| $V_{ONL}$ | Maximum Feed-through On Loss                                     | $V_{IN} = 0$ dBm @ 100 kHz to 50 MHz<br>$V_{IN}$ centered between $V_{CC}$ and GND (Figure 5)                                   | 1.65 – 4.5      | -0.06   | dB   |
| $V_{ISO}$ | Off-Channel Isolation                                            | $f = 100$ kHz; $V_{IS} = 1$ V RMS; $C_L = 5.0$ pF<br>$V_{IN}$ centered between $V_{CC}$ and GND (Figure 5)                      | 1.65 – 4.5      | -68     | dB   |
| Q         | Charge Injection Select Input to Common I/O                      | $V_{IN} = V_{CC}$ to GND, $R_{IS} = 0 \Omega$ , $C_L = 1.0$ nF<br>$Q = C_L \times dV_{OUT}$ (Figure 6)                          | 1.65 – 4.5      | 38      | pC   |
| THD       | Total Harmonic Distortion THD + Noise                            | $F_{IS} = 20$ Hz to 20 kHz, $R_L = R_{gen} = 600 \Omega$ , $C_L = 50$ pF<br>$V_{IS} = 2.0$ V RMS                                | 3.0             | 0.08    | %    |
| VCT       | Channel-to-Channel Crosstalk                                     | $f = 100$ kHz; $V_{IS} = 1.0$ V RMS, $C_L = 5.0$ pF, $R_L = 50 \Omega$<br>$V_{IN}$ centered between $V_{CC}$ and GND (Figure 5) | 1.65 – 4.5      | -70     | dB   |

10. Off-Channel Isolation =  $20 \log_{10} (V_{COM}/V_{NO})$ ,  $V_{COM}$  = output,  $V_{NO}$  = input to off switch.

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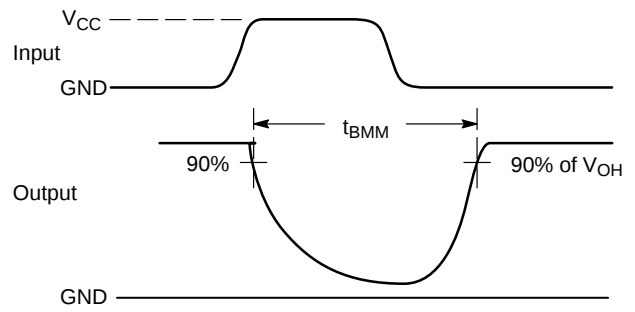
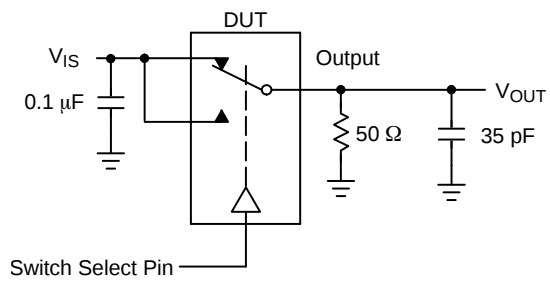


Figure 2.  $t_{BMM}$  (Time Break-Before-Make)

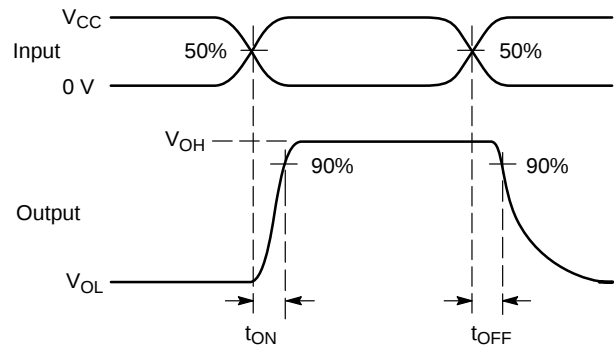
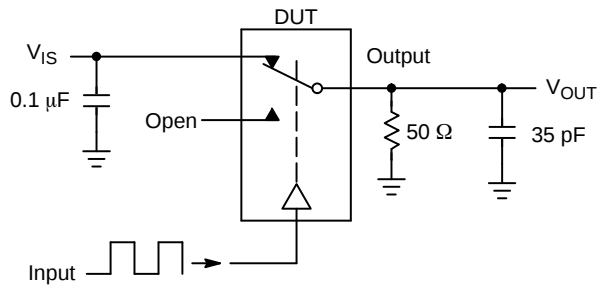


Figure 3.  $t_{ON}/t_{OFF}$

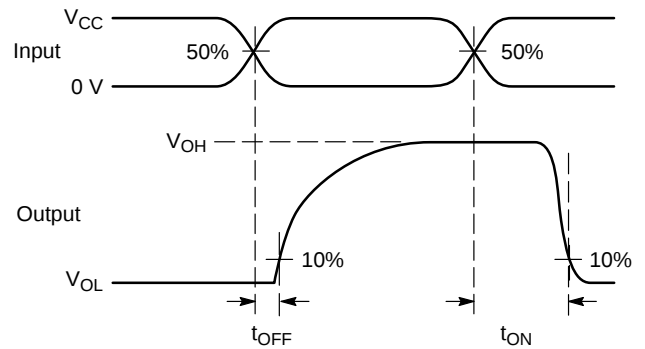
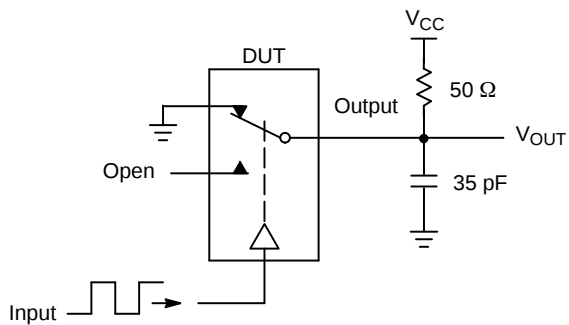
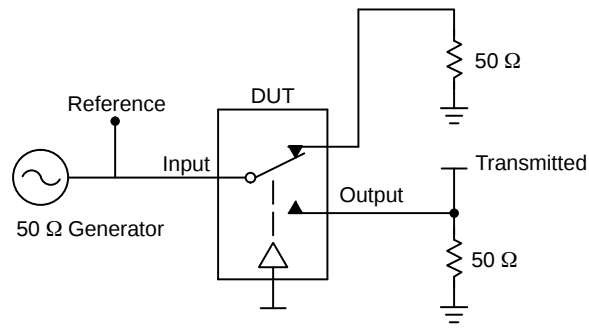


Figure 4.  $t_{ON}/t_{OFF}$

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Channel switch control/s test socket is normalized. Off isolation is measured across an off channel. On loss is the bandwidth of an On switch.  $V_{ISO}$ , Bandwidth and  $V_{ONL}$  are independent of the input signal direction.

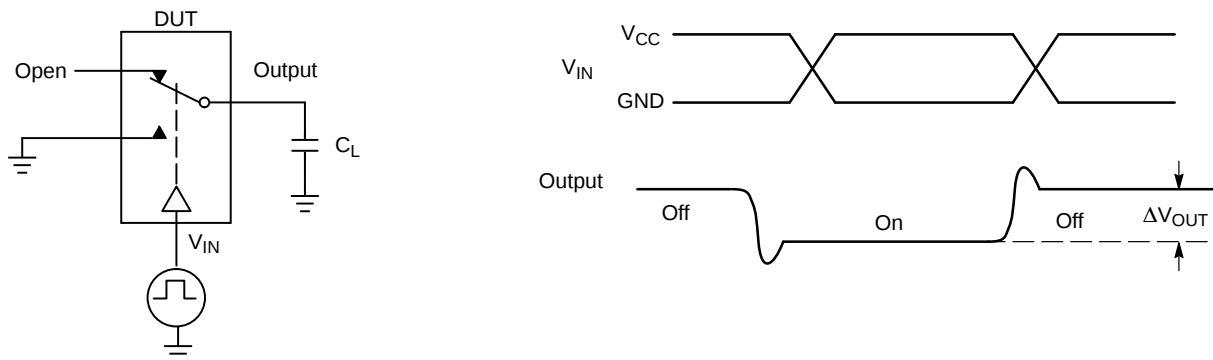
$$V_{ISO} = \text{Off Channel Isolation} = 20 \text{ Log} \left( \frac{V_{OUT}}{V_{IN}} \right) \text{ for } V_{IN} \text{ at } 100 \text{ kHz}$$

$$V_{ONL} = \text{On Channel Loss} = 20 \text{ Log} \left( \frac{V_{OUT}}{V_{IN}} \right) \text{ for } V_{IN} \text{ at } 100 \text{ kHz to } 50 \text{ MHz}$$

Bandwidth (BW) = the frequency 3 dB below  $V_{ONL}$

$V_{CT}$  = Use  $V_{ISO}$  setup and test to all other switch analog input/outputs terminated with 50 Ω

**Figure 5. Off Channel Isolation/On Channel Loss (BW)/Crosstalk (On Channel to Off Channel)/ $V_{ONL}$**



**Figure 6. Charge Injection: (Q)**

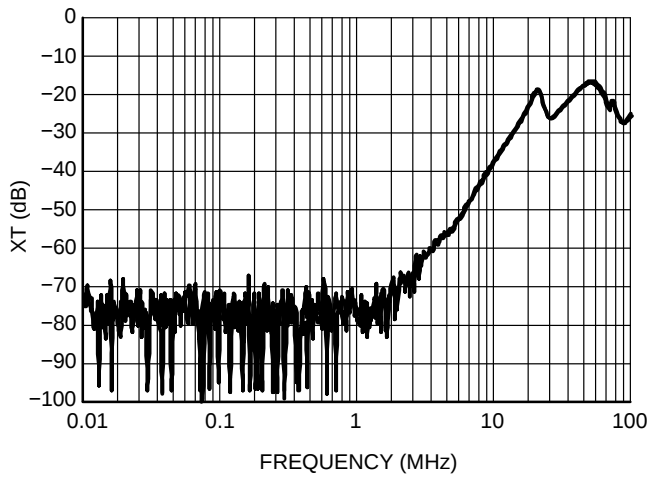


Figure 7. Cross Talk vs. Frequency  
@  $V_{CC} = 4.3 \text{ V}$

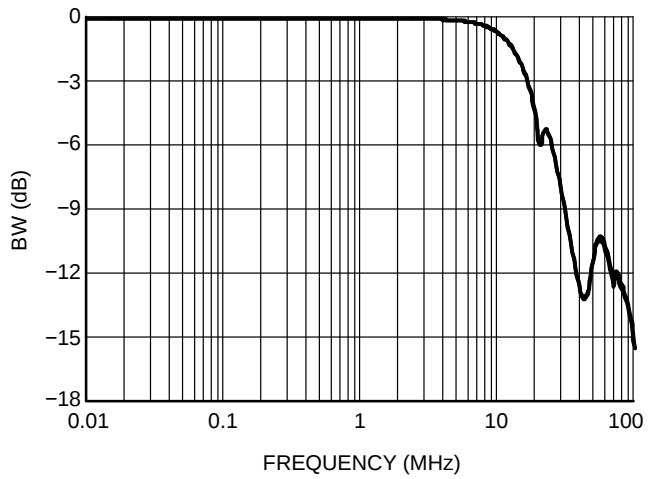


Figure 8. Bandwidth vs. Frequency

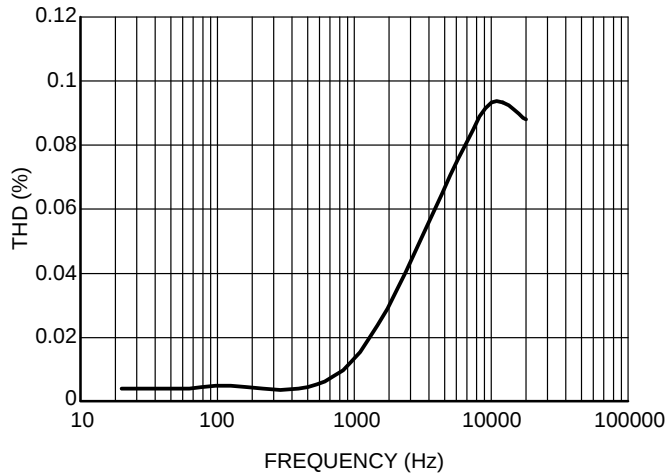


Figure 9. Total Harmonic Distortion

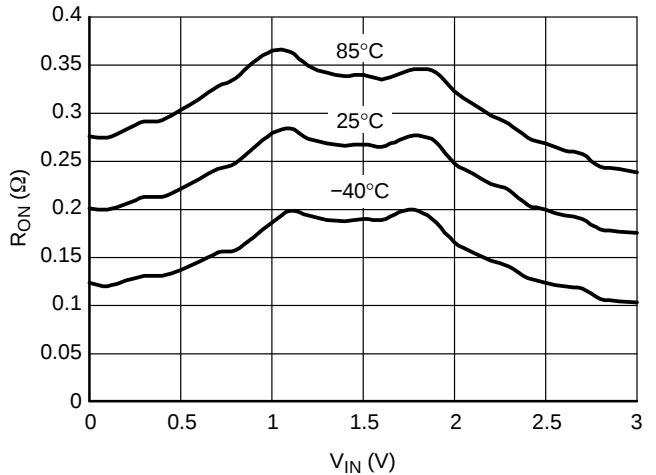


Figure 10. On-Resistance vs. Input Voltage  
@  $V_{CC} = 3.0 \text{ V}$

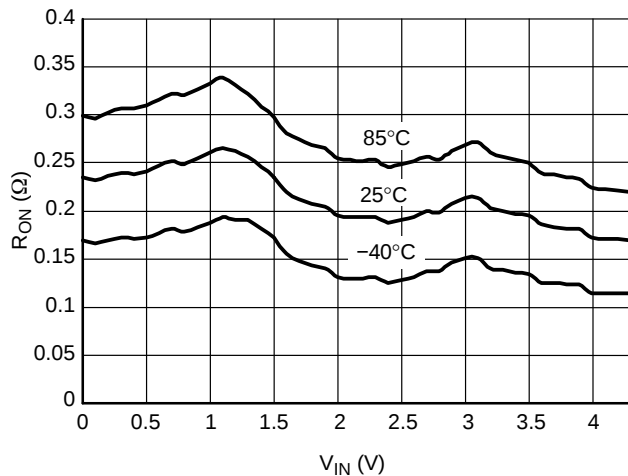


Figure 11. On-Resistance vs. Input Voltage  
@  $V_{CC} = 4.3 \text{ V}$

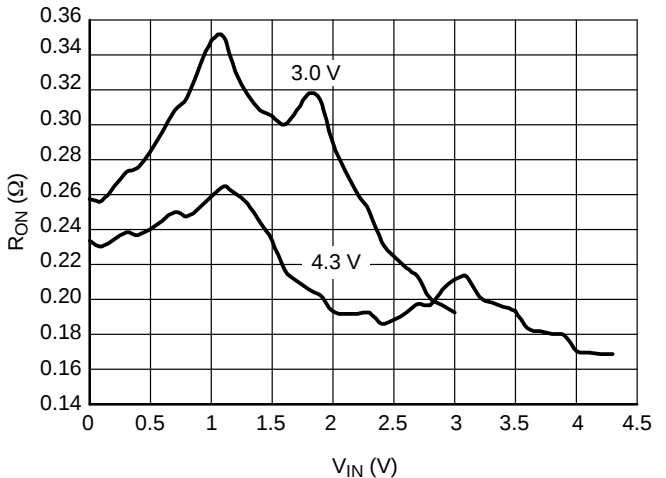


Figure 12. On-Resistance vs. Input Voltage

## NLAS5223B, NLAS5223BL

### ORDERING INFORMATION

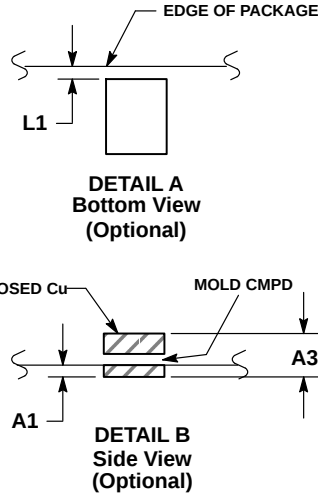
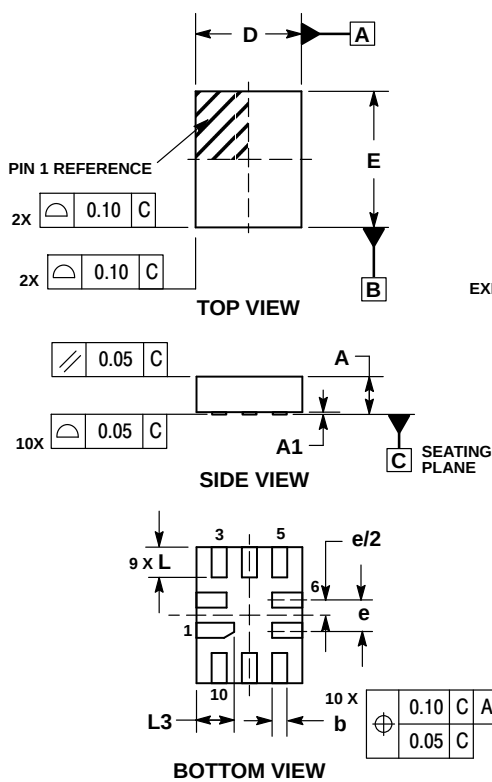
| Device          | Package             | Shipping†          |
|-----------------|---------------------|--------------------|
| NLAS5223BMNR2G  | WQFN10<br>(Pb-Free) | 3000 / Tape & Reel |
| NLAS5223BLMNR2G | WQFN10<br>(Pb-Free) | 3000 / Tape & Reel |
| NLAS5223BMUR2G  | UQFN10<br>(Pb-Free) | 3000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



PACKAGE DIMENSIONS

UQFN10, 1.4x1.8, 0.4P  
CASE 488AT  
ISSUE A

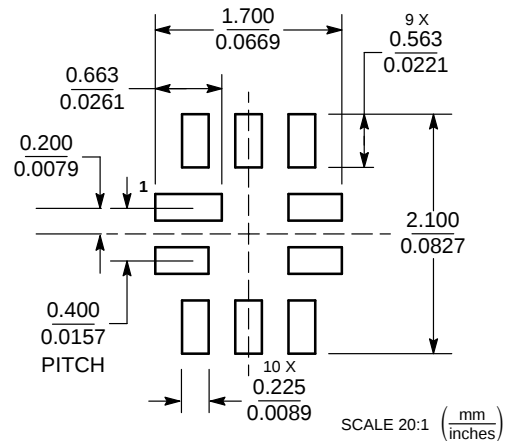


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.25 AND 0.30 MM FROM TERMINAL.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

| DIM | MILLIMETERS |      |
|-----|-------------|------|
|     | MIN         | MAX  |
| A   | 0.45        | 0.60 |
| A1  | 0.00        | 0.05 |
| A3  | 0.127 REF   |      |
| b   | 0.15        | 0.25 |
| D   | 1.40 BSC    |      |
| E   | 1.80 BSC    |      |
| e   | 0.40 BSC    |      |
| L   | 0.30        | 0.50 |
| L1  | 0.00        | 0.15 |
| L3  | 0.40        | 0.60 |

MOUNTING FOOTPRINT



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