

NB7V33M

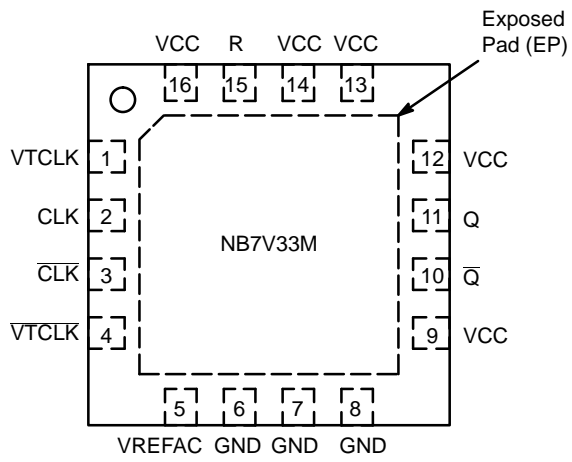


Figure 2. Pin Configuration (Top View)

Table 1. TRUTH TABLE

| CLK | CLK |
|-----|-----|
|-----|-----|

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Table 5. DC CHARACTERISTICS POSITIVE CML OUTPUT $V_{CC} = 1.71\text{ V to }2.625\text{ V}$; $GND = 0\text{ V}$; $T_A = -40^\circ\text{C to }85^\circ\text{C}$ (Note 5)

| Symbol | Characteristic | Min | Typ | Max | Unit |
|---|---|--|--|--|---------------|
| POWER SUPPLY CURRENT | | | | | |
| I_{CC} | Power Supply Current (Inputs and Outputs Open) $V_{CC} = 2.5\text{ V} \pm 5\%$ $V_{CC} = 1.8\text{ V} \pm 5\%$ | | 95 85 | 115 100 | mA |
| CML OUTPUTS | | | | | |
| V_{OH} | Output HIGH Voltage (Note 6) $V_{CC} = 2.5\text{ V}$ $V_{CC} = 1.8\text{ V}$ | $V_{CC} - 30$ 2470 1770 | $V_{CC} - 10$ 2490 1790 | V_{CC} 2500 1800 | mV |
| V_{OL} | Output LOW Voltage (Note 6) $V_{CC} = 2.5\text{ V}$ $V_{CC} = 1.8\text{ V}$ | $V_{CC} - 650$ 1850 $V_{CC} - 600$ 1200 | $V_{CC} - 550$ 1950 $V_{CC} - 500$ 1300 | $V_{CC} - 450$ 2050 $V_{CC} - 400$ 1400 | mV |
| DIFFERENTIAL INPUTS DRIVEN SINGLE-ENDED (Note 7) (Figures 5 & 6) | | | | | |
| V_{th} | Input Threshold Reference Voltage Range (Note 8) | 1050 | | $V_{CC} - 100$ | mV |
| V_{IH} | Single-ended Input HIGH Voltage | $V_{th} + 100$ | | V_{CC} | mV |
| V_{IL} | Single-ended Input LOW Voltage | GND | | $V_{th} - 100$ | mV |
| V_{ISE} | Single-ended Input Voltage ($V_{IH} - V_{IL}$) | 200 | | 1200 | mV |
| VREFAC | | | | | |
| V_{REFAC} | Output Reference Voltage @100 μA for Capacitor- Coupled Inputs, Only $V_{CC} = 2.5\text{ V}$ $V_{CC} = 1.8\text{ V}$ | $V_{CC} - 850$ $V_{CC} - 750$ | | $V_{CC} - 500$ $V_{CC} - 450$ | mV |
| DIFFERENTIAL INPUTS DRIVEN DIFFERENTIALLY (Figures 7 & 8) (Note 9) | | | | | |
| V_{IHD} | Differential Input HIGH Voltage | 1100 | | V_{CC} | mV |
| V_{ILD} | Differential Input LOW Voltage | GND | | $V_{CC} - 100$ | mV |
| V_{ID} | Differential Input Voltage ($V_{IHD} - V_{ILD}$) | 100 | | 1200 | mV |
| V_{CMR} | Input Common Mode Range (Differential Configuration, Note 10) (Figure 9) | 1050 | | $V_{CC} - 50$ | mV |
| I_{IH} | Input HIGH Current ($V_{Tx}/\sqrt{T_x}$ Open) | -150 | | 150 | μA |
| I_{IL} | Input LOW Current ($V_{Tx}/\sqrt{T_x}$ Open) | -150 | | 150 | μA |
| CONTROL INPUT (Reset pin) | | | | | |
| V_{IH} | Input HIGH Voltage for Control Pin | $V_{CC} - 200$ | | V_{CC} | mV |
| V_{IL} | Input LOW Voltage for Control Pin | GND | | 200 | mV |
| I_{IH} | Input HIGH Current | -150 | | 150 | μA |
| I_{IL} | Input LOW Current | -150 | | 150 | μA |
| TERMINATION RESISTORS | | | | | |
| R_{TIN} | Internal Input Termination Resistor | 45 | 50 | 55 | Ω |
| R_{TOUT} | Internal Output Termination Resistor | 45 | 50 | 55 | Ω |

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lpm.

5. Input and output parameters vary 1:1 with V_{CC} .
6. CML outputs loaded with 50- Ω

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Table 6. AC CHARACTERISTICS $V_{CC} = 1.71 \text{ V to } 2.625 \text{ V}$; $GND = 0 \text{ V}$; $T_A = -40^\circ\text{C to } 85^\circ\text{C}$ (Note 11)

| Symbol | Characteristic | Min | Typ | Max | Unit |
|--------|----------------|-----|-----|-----|------|
|--------|----------------|-----|-----|-----|------|

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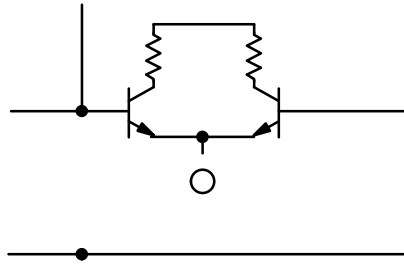
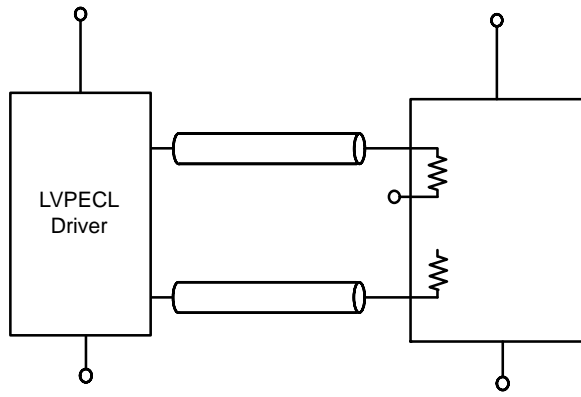


Figure 4. Input Structure

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DEVICE ORDERING INFORMATION

| Device | Package | Shipping† |
|---------------|---------------------|---------------------|
| NB7V33MMNG | QFN-16 (Pb-Free) | 123 Units / Rail |
| NB7V33MMNHTBG | QFN-16 (Pb-Free) | 100 / Tape & Reel |
| NB7V33MMNTXG | QFN-16 (Pb-Free) | 3,000 / Tape & Reel |

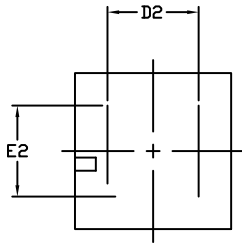
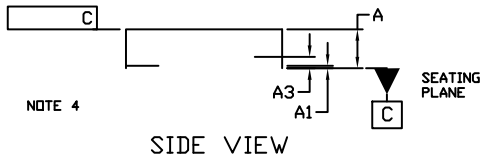
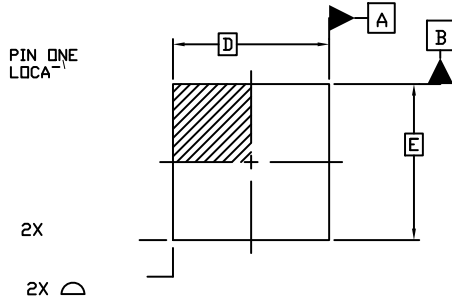
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging



1
SCALE 2:1

QFN16 3x3, 0.5P
CASE 485G
ISSUE G

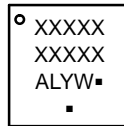
DATE 08 OCT 2021



NOTE 3

BOTTOM VIEW

GENERIC MARKING DIAGRAM*



- XXXXX = Specific Device Code
- A = Assembly Location
- L = Wafer Lot
- Y = Year
- W = Work Week
- = Pb-Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

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