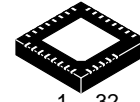


1.8 V Differential 2:1 M Input to 1.2 V/1.8 V 1:6 CML Clock/Data Fanout Buffer / Translator

Multi-Level Inputs w/ Internal Termination

NB7V586M

Description

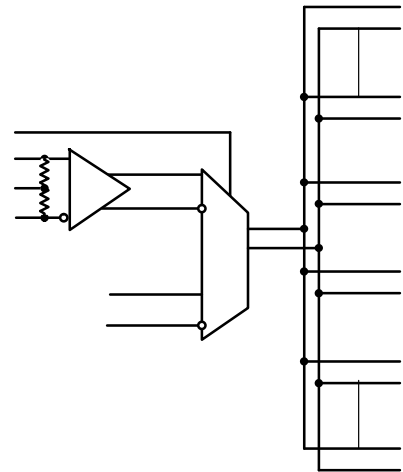


QFN32
 MN SUFFIX
 CASE 488AM

MARKING DIAGRAM*

*For additional marking information, refer to Application Note [AND8002/D](#).

SIMPLIFIED LOGIC DIAGRAM



ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 7 of this data sheet.

Features

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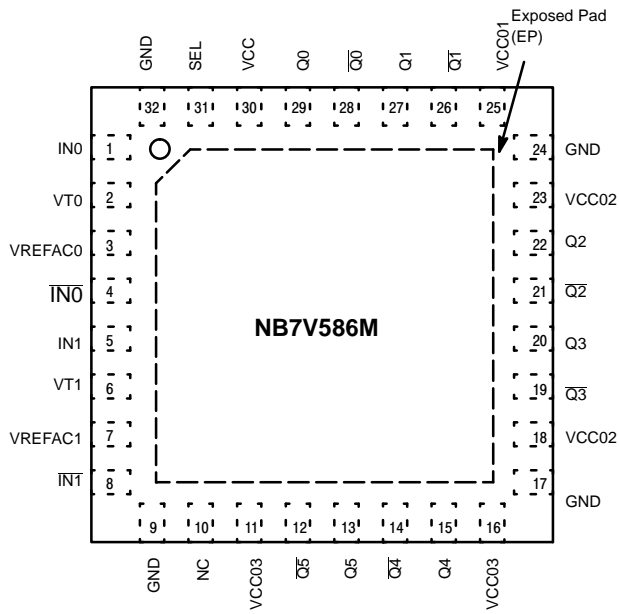


Figure 1. 32-Lead QFN Pinout (Top View)

Table 1. INPUT SELECT FUNCTION TABLE

SEL*	CLK Input Selected
0	IN0
1	IN1

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Table 3. ATTRIBUTES

Characteristics	Value
ESD Protection Human Body Model Machine Model	> 2 kV > 200 V
Input Pullup Resistor (R _{PU})	75 kΩ
Moisture Sensitivity (Note 3)	Level 1
Flammability Rating Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in
Transistor Count	308
Meets or exceeds JEDEC Spec EIA/JESD78 IC Latchup Test	

3. For additional information, see Application Note [AND8003/D](#).

Table 4. MAXIMUM RATINGS

Symbol	Parameter	Condition 1	Condition 2	Rating	Unit
V _{CC}	Positive Power Supply	GND = 0 V		3.0	V
V _{CCOx}	Positive Power Supply	GND = 0 V		3.0	V
V _{IO}	Input/Output Voltage	GND = 0 V	-0.5 ≤ V _{IO} ≤ V _{CC} + 0.5	-0.5 to V _{CC} + 0.5	V
V _{INPP}	Differential Input Voltage I _{Nx} - I _{Nx}			1.89	V
I _{IN}	Input Current Through R _T (50 Ω Resistor)			± 40	mA
I _{OUT}	Output Current	Continuous Surge		34 40	mA
I _{VREFAC}	V _{REFAC} Sink/Source Current			± 1.5	mA
T _A	Operating Temperature Range			-40 to +85	C
T _{stg}	Storage Temperature Range			-65 to +150	C
θ _{JA}	Thermal Resistance (Junction-to-Ambient) (Note 4)	0 lfpm 500 lfpm	QFN-32 QFN-32	31 27	C/W C/W
θ _{JC}	Thermal Resistance (Junction-to-Case) (Note 4)	Standard Board	QFN-32	12	C/W
T _{sol}	Wave Solder Pb-Free			265	C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these

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Table 5. DC CHARACTERISTICS – CML OUTPUT $V_{CC} = 1.8\text{ V} \pm 5\%$, $V_{CCO1} = 1.2\text{ V} \pm 5\%$ or $1.8\text{ V} \pm 5\%$, $V_{CCO2} = 1.2\text{ V} \pm 5\%$ or $1.8\text{ V} \pm 5\%$, $V_{CCO3} = 1.2\text{ V} \pm 5\%$ or $1.8\text{ V} \pm 5\%$, $GND = 0\text{ V}$, $T_A = -40\text{ C}$ to 85 C (Note 5)

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

POWER SUPPLY CURRENT (Inputs and Outputs open)

I_{CC}	Power Supply Current for V_{CC} (Inputs and Outputs Open)		75	125	mA
I_{CCO}	Power Supply Current for V_{CCOx} (Inputs and Outputs Open)		95	105	

CML OUTPUTS (Note 6)

V_{OH}	Output HIGH Voltage	$V_{CC} = 1.8\text{ V}$, $V_{CCOx} = 1.8\text{ V}$ $V_{CC} = 1.8\text{ V}$, $V_{CCOx} = 1.2\text{ V}$	$V_{CCOx} - 40$ 1760 1160	$V_{CCOx} - 20$ 1780 1180	V_{CCOx} 1800 1200	mV
----------	---------------------	--	---------------------------------	---------------------------------	----------------------------	----

NB7V586M

Table 6. AC CHARACTERISTICS $V_{CC} = 1.8 \text{ V} \pm 5\%$, $V_{CCO1} = 1.2 \text{ V} \pm 5\%$ or $1.8 \text{ V} \pm 5\%$, $V_{CCO2} = 1.2 \text{ V} \pm 5\%$ or $1.8 \text{ V} \pm 5\%$, $V_{CCO3} = 1.2 \text{ V} \pm 5\%$ or $1.8 \text{ V} \pm 5\%$, $GND = 0 \text{ V}$, $T_A = -40 \text{ C}$ to 85 C (Note 11)

Symbol	Characteristic	Min	Typ	Max	Unit
f_{MAX}	Maximum Input Clock Frequency, $V_{OUTPP} \geq 200 \text{ mV}$	4.0	6.0		GHz
$f_{DATAMAX}$	Maximum Operating Input Data Rate (PRBS23)	10			Gbps
V_{OUTPP}	Output Voltage Amplitude (See Figures 4, Note 15) $f_{in} \leq 4.0 \text{ GHz}$	200	330		mV
t_{PLH} , t_{PHL}	Propagation Delay to Output Differential @ 1 GHz, I_{Nx}/I_{NmV}				

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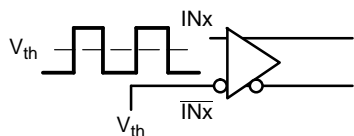


Figure 6. Differential Input Driven Single-Ended

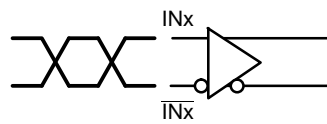


Figure 7. Differential Inputs Driven Differentially

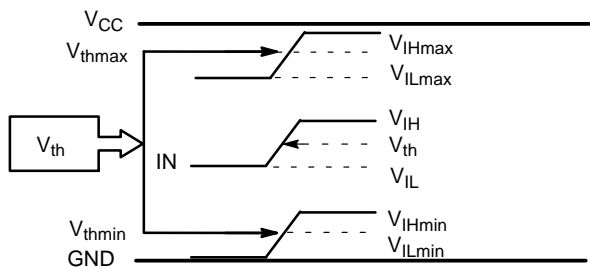


Figure 8. V_{th} Diagram

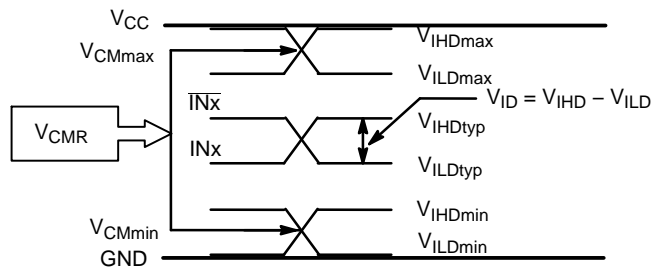
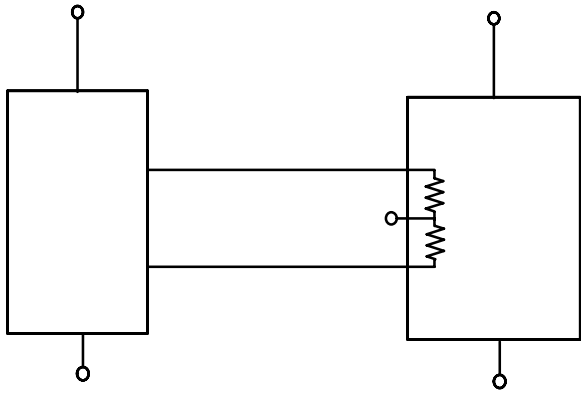
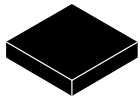


Figure 9. V_{CMR} Diagram

NB7V586M

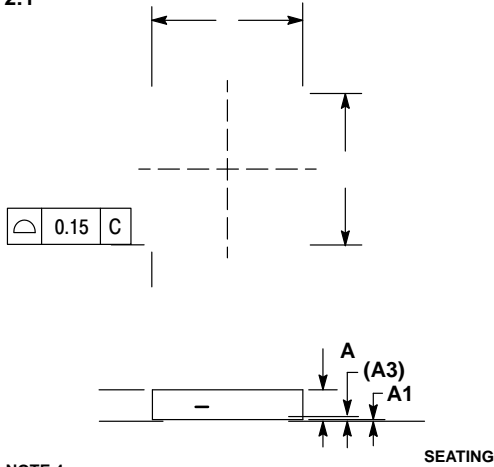




QFN32 5x5, 0.5P
CASE 488AM
ISSUE A

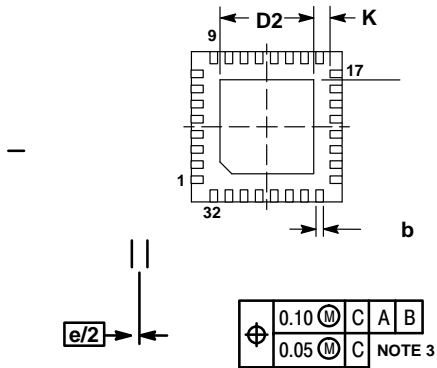
DATE 23 OCT 2013

SCALE 2:1



NOTE 4

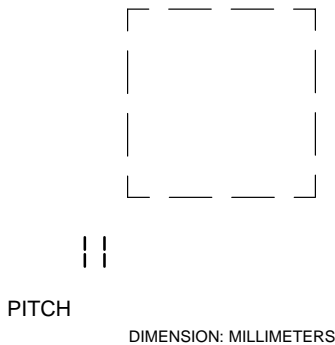
	MAX
A1	0.80 1.00
A3	0.20 REF 0.05
b	0.18 0.30
D	5.00 BSC
D2	2.95 3.25
E	5.00 BSC
E2	2.95 3.25
e	0.50 BSC
K	0.20
L	0.30 0.50
L1	0.15



XXXXXXXXXX
XXXXXXXXXX
AWLYYYWW■

■Free indicator, "G" or

RECOMMENDED



PITCH

DIMENSION: MILLIMETERS

DOCUMENT NUMBER:	98AON20032D	

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