 <div data-bbox="522 92 571 247"> I Q R </div>	IBIS QUALITY REPORT	date	1 (8)
		12-Sep-24	

## IBIS Quality Report

Company:	STMicroelectronics
IBIS file name	m24m01x_scs_5d0.ibs
IBIS Version:	4.0

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## 1. MODELING

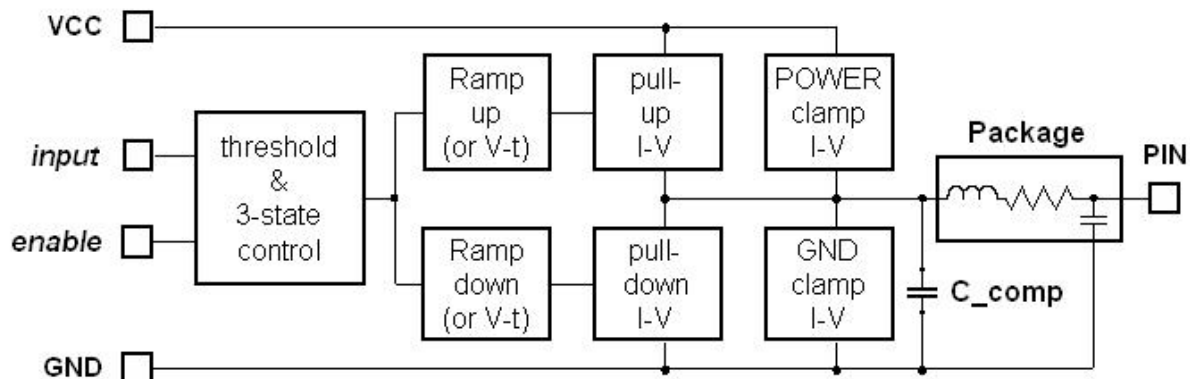
IBIS (I/O, Buffer, Information, Specification) provide a standardized way, officially EIA standard 656-A-1999 and IEC 62014-1, to model behaviorally a digital component input, output and I/O buffers.

### 1.1 Component description

Component name	Technology	Component description
M24M01X-F	CMOS	The M24M01X-F is a 1-Mbit serial I2C bus EEPROM delivered in WLCSP 4ball.

### 1.2 Modeling conditions

Simulator used	AMS 2018.2 (Mentor Graphics)
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**Figure 1:** IBIS model generic structure

conditions	Typical	Minimum	Maximum
Temperature [C°]	25	-40	85
Voltage Supply [Volt]	5.00	4.50	5.50
Process setting	nom	weak	strong

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<b>Model names</b> (of Component)	<b>Model Type</b>	<b>C_comp (typ, min, max)</b>
mod_scl	Input	2.925pF (typ), 2.793pF(min) , 3.063pF(max)
mod_sda	I/O_Open_Drain	4.427pF (typ), 4.228pF (min) , 4.636pF(max)

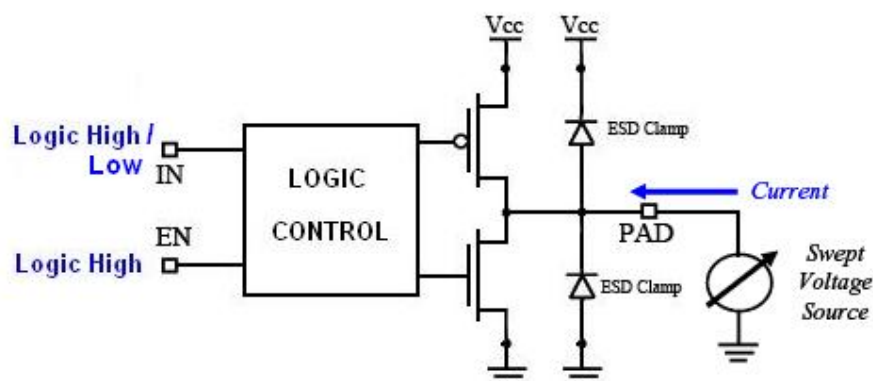
<b>Model names</b> (of Component)	<b>Threshold and Vmeas</b>	<b>Timing parameters (if used)</b>
mod_scl	Vinl=1.500V , Vinh=3.500V (typ)	
mod_sda	Vmeas=2.500V (typ)	Cref=30pF Rref=500 Vref=5.0V

<b>Package</b>	<b>Description</b>
SCS Package	4 balls WLCSP SCS

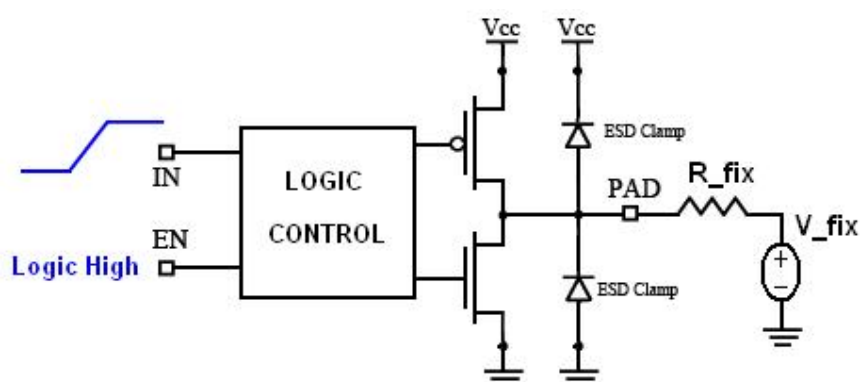
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### 1.3 Circuit for data extraction

The I-V data are extracted by simulations using the simulation setup shown in figure 2 below. This model is an I/O model, other model type derived from this structure. For more accurate modeling, certain combinations of V-T tables are recommended (with exception of Input-only model types) using the simulation setup shown in figure 3, with load conditions specified.



**Figure 2:** Simulation Setup to extract I/V data from I/O model type



**Figure 3:** Simulation Setup to extract V/T data from I/O model type  
(see also Table 1)

V/T data condition extractions	Load conditions
Rising waveform	R_fix=50 Ohm, V_fix= 5.0 V
Rising waveform	R_fix=200 Ohm, V_fix= 5.0 V
Falling waveform	R_fix=200 Ohm, V_fix= 5.0 V
Falling waveform	R_fix=50 Ohm, V_fix= 5.0 V

**Table 1:** V/T curve extraction load conditions

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## 2. IBISCHK6 CHECK

The created IBIS model must be checked using IBISCHK6 parser to ensure that the syntax is correct. The result of the check is showed in the next section with some comments (optional).

### 2.1 Result Check by IBISCHK6

*IBISCHK6 V6.0.1*

*Checking m24m01x\_scs\_5d0.ibs for IBIS 4.2 Compatibility...*

*Errors: 0*

*File Passed*

<b>Adding comments about the Warning or Note:</b>
The output check contains no Warnings and no Notes.

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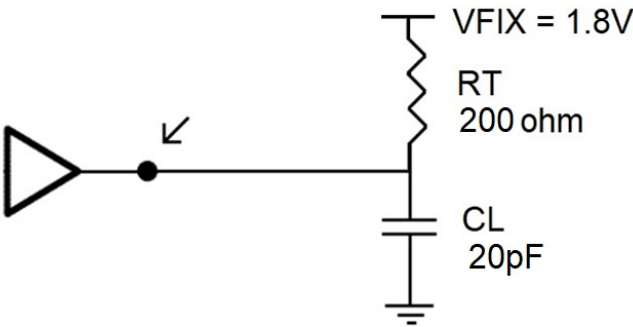
### 3. FUNCTIONAL CHECK

The created IBIS model must be compared with the Original Buffer circuit. The signal outputs, in the same load conditions ( Figure 4), must match. These output comparisons are presented in TYP, MIN and MAX condition. This section cannot be defined for Input and Terminator model type, because they are input-only model types.

How well results are matched?	Put “X” into the right filed
Curves shape match correctly, but there is a little time translation.	
Curves shape match correctly, but there is a mismatch into the Overshoot and/or Undershoot regions.	
Curves match well.	<b>X</b>

#### 3.1 Functional verification

Circuit used for output comparison results is illustrated in figure 4.



**Figure 4:** Circuit used for functional check

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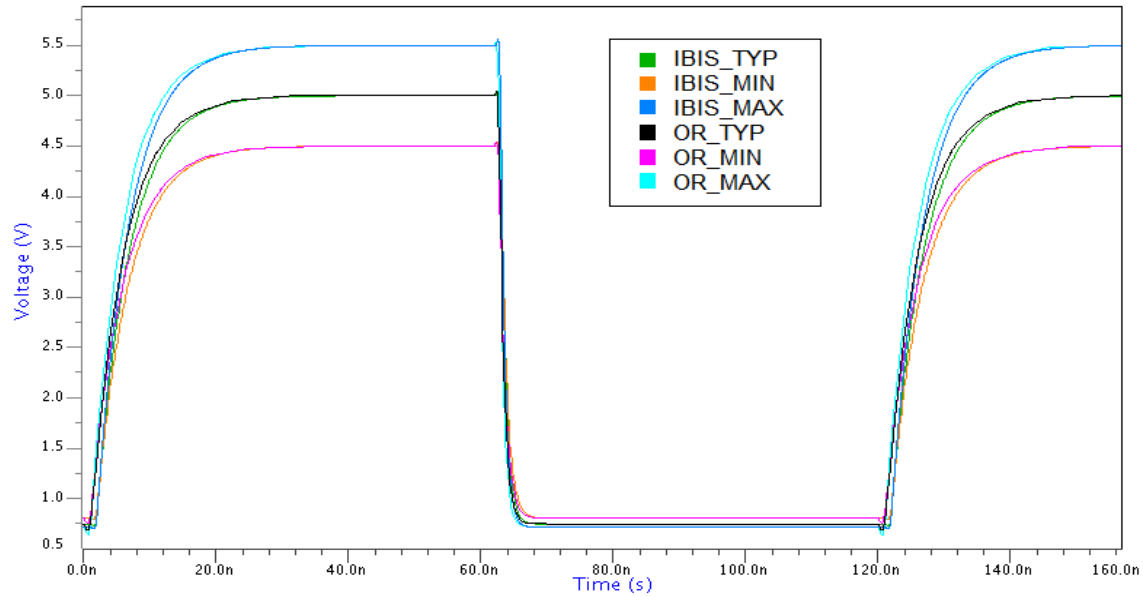


Figure 5: IBIS vs Eldo (original) comparison results of “mod\_sda” Model

Output Comparisons:

<b>Adding comments about the comparison:</b>

4. EXTRA INFORMATION

This section can contain other extra information, to explain some other features of peculiar IBIS model

Other specifications	description