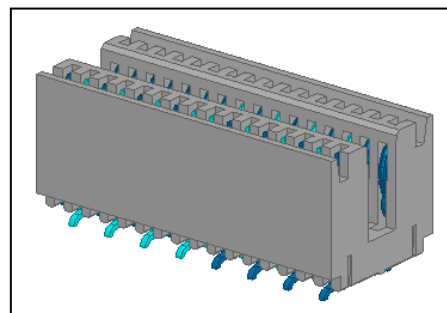




ELECTRICAL MODEL DOCUMENTATION

MODEL DESCRIPTION

This is an s-parameter model for DDR4 vertical through-hole DIMM connector without PCB effects.



APPLICABLE SERIES NUMBER:

78726

MODEL FILENAME: SP-78726-004_RevA.s24p	MODEL FORMAT: Touchstone (*.sNp)
MODEL TYPE: S-parameter	DATA FORMAT: Magnitude/Phase
MODEL BASIS: Analytical 3D Field Solution	MODEL SOURCE: Ansys HFSS ver. 15.0.0
BANDWIDTH: DC – 15 GHz	RESOLUTION: 10 MHz Steps
REFERENCE: 50 ohms	NUMBER OF POINTS: 1501 (1500 + 1 DC)
NUMBER OF PORTS : 24 Single-Ended	VALIDATION: No

DISCLAIMERS: Information contained in this document is simulated. Molex Incorporated does not guarantee the performance of the final product to the information provided in this document.

Molex does not represent, warrant or guarantee the accuracy of the information, expressly disclaims all warranties including the implied warranties of merchantability and fitness for particular purpose, and shall not be liable for any damages whatsoever arising from use of, or inability to use, the information contained in this document or accompanying electronic file.

The user is responsible for verifying the results of their use of this information, and assumes all risk of doing or not doing so. Use of the electronic file evidences user's agreement to the above terms.

Any charts or schematics in this report are only for general reference. The schematic allows the user to configure a similar simulation circuit in any simulation tool. The resulting charts provided allow a comparison of results to the Molex simulation using the stated schematic.

REVISION: A	ECN INFORMATION: EC No: S2015-0773 DATE: 2015/01/11	TITLE: 0.85mm Pitch DDR4 Vertical Through-Hole DIMM Connector MOLEX CONFIDENTIAL	SHEET No. 1 of 7
DOCUMENT NUMBER: EE-78726-004	CREATED / REVISED BY: CMWONG 2015/01/12	CHECKED BY: WHFOO 2015/01/12	APPROVED BY: WTCHUA 2015/01/12



ELECTRICAL MODEL DOCUMENTATION

TERMINAL TO MODEL PORT MAPPING TABLE

AVAILABLE MODEL SIGNAL PATHS

TERMINAL	INPUT PORT (MAIN BOARD ATTACHMENT SIDE)	DESCRIPTION	OUTPUT PORT (MODULE BOARD MATING SIDE)	DESCRIPTION
Front Side Outer Row P2	1	in_F1	13	out_F1
Front Side Outer Row P4	2	in_F2	14	out_F2
Front Side Outer Row P6	3	in_F3	15	out_F3
Front Side Outer Row P8	4	in_F4	16	out_F4
Front Side Inner Row P9	5	in_F5	17	out_F5
Front Side Inner Row P11	6	in_F6	18	out_F6
Front Side Inner Row P13	7	in_F7	19	out_F7
Front Side Inner Row P15	8	in_F8	20	out_F8
Back Side Inner Row P150	9	in_B1	21	out_B1
Back Side Inner Row P152	10	in_B2	22	out_B2
Back Side Inner Row P154	11	in_B3	23	out_B3
Back Side Inner Row P156	12	in_B4	24	out_B4

PRE-DEFINED MODEL RETURN PATHS

TERMINAL	DESCRIPTION
Front Side Inner Row P1	G
Front Side Inner Row P3	G
Front Side Inner Row P5	G
Front Side Inner Row P7	G
Front Side Outer Row P10	G
Front Side Outer Row P12	G
Front Side Outer Row P14	G
Front Side Outer Row P16	G

TERMINAL	DESCRIPTION
Back Side Outer Row P143	G
Back Side Inner Row P144	G
Back Side Outer Row P145	G
Back Side Inner Row P146	G
Back Side Outer Row P147	G
Back Side Inner Row P148	G
Back Side Outer Row P149	G
Back Side Outer Row P151	G
Back Side Outer Row P153	G
Back Side Outer Row P155	G
Back Side Outer Row P157	G
Back Side Inner Row P158	G

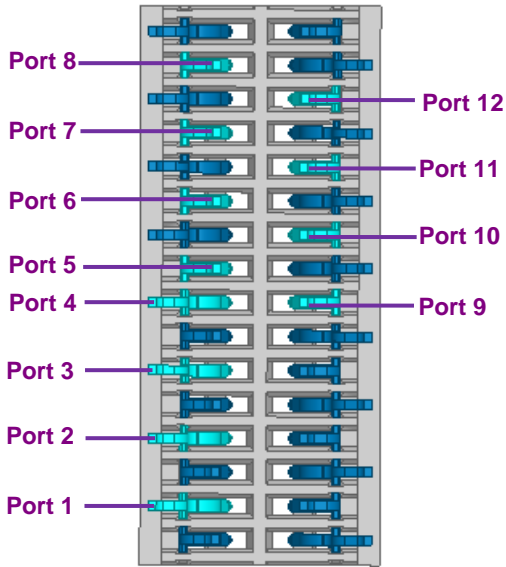
REVISION: A	ECN INFORMATION: EC No: S2015-0773 DATE: 2015/01/11	TITLE: 0.85mm Pitch DDR4 Vertical Through-Hole DIMM Connector	SHEET No. 2 of 7
DOCUMENT NUMBER: EE-78726-004		CREATED / REVISED BY: CMWONG 2015/01/12	CHECKED BY: WHFOO 2015/01/12
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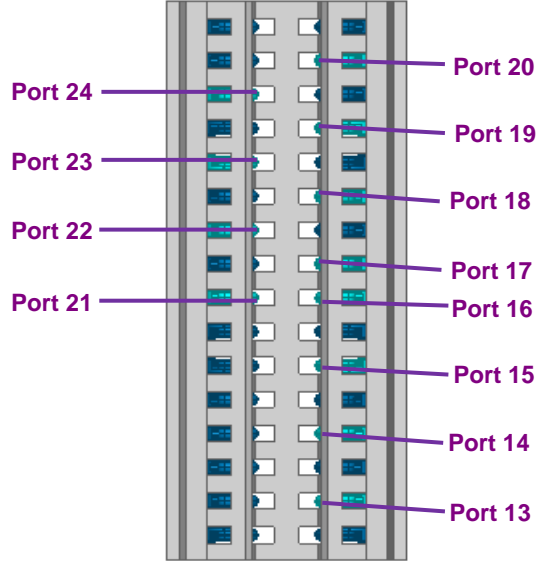
ELECTRICAL MODEL DOCUMENTATION

PART ILLUSTRATIONS

Connector (Bottom View)

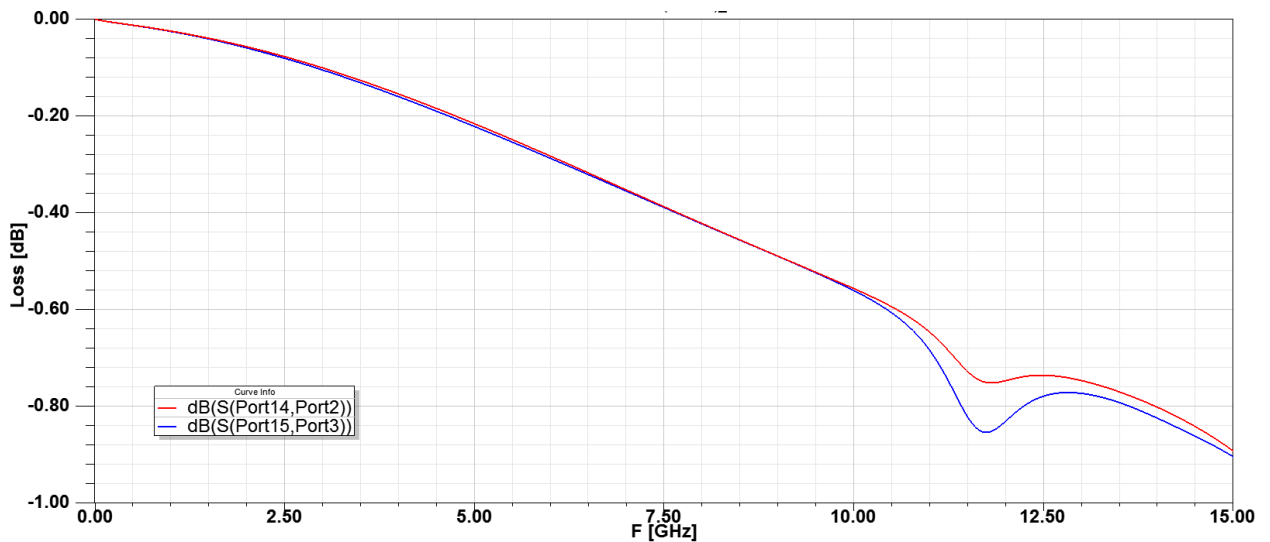


Connector (Top View)



REFERENCE RESULTS

Frequency Domain: Insertion Loss



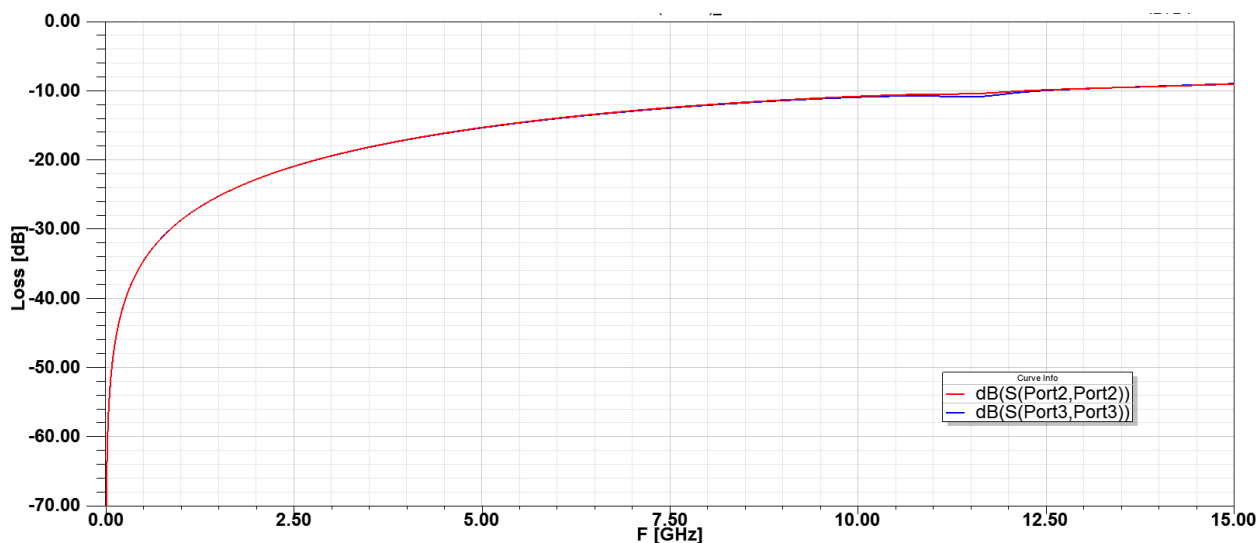
REVISION: A	ECN INFORMATION: EC No: S2015-0773 DATE: 2015/01/11	TITLE: 0.85mm Pitch DDR4 Vertical Through-Hole DIMM Connector	SHEET No. 3 of 7
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ELECTRICAL MODEL DOCUMENTATION

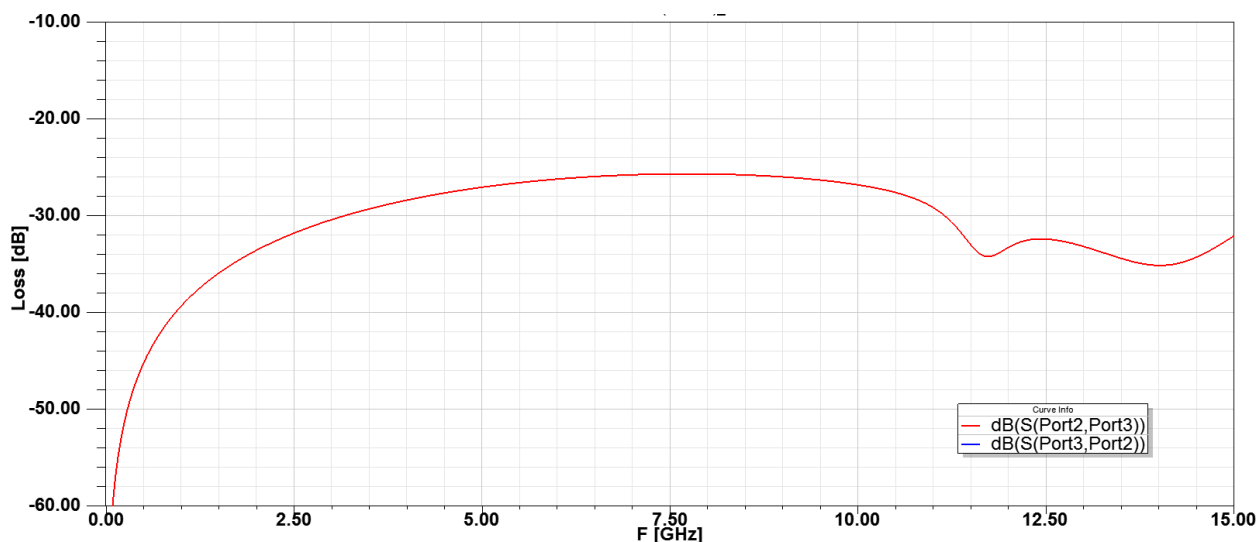
REFERENCE RESULTS

Frequency Domain: Return Loss



Frequency Domain: Near End Crosstalk

- 1:1 S/G ratio
- Both victim and aggressor located at outer row



REVISION: A	ECN INFORMATION: EC No: S2015-0773 DATE: 2015/01/11	TITLE: 0.85mm Pitch DDR4 Vertical Through-Hole DIMM Connector	SHEET No. 4 of 7
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		APPROVED BY: WTCHUA 2015/01/12	

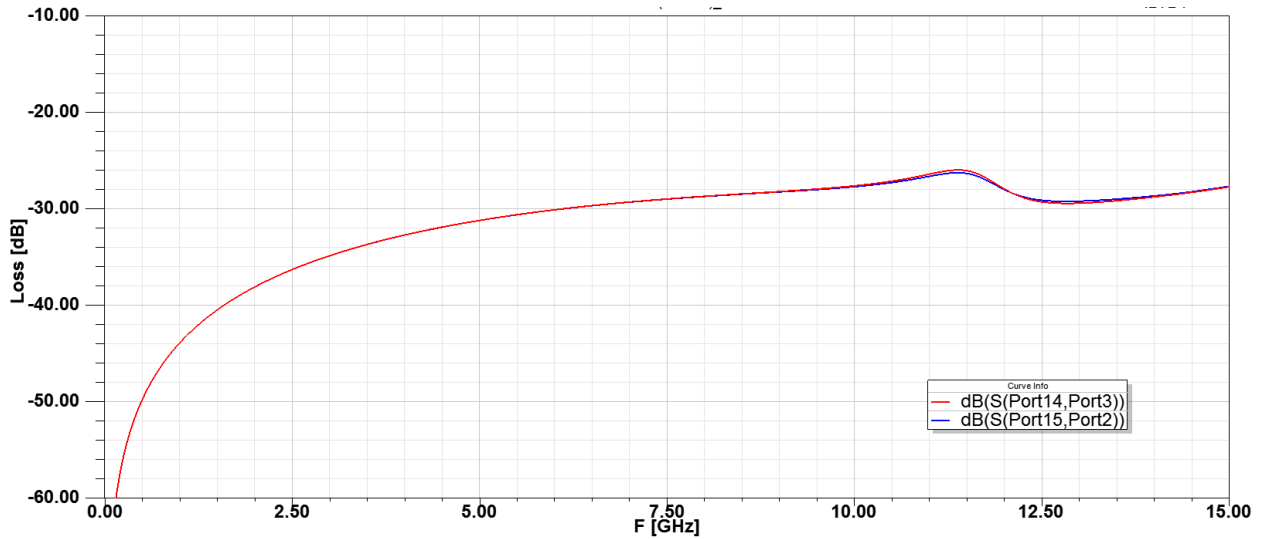


ELECTRICAL MODEL DOCUMENTATION

REFERENCE RESULTS

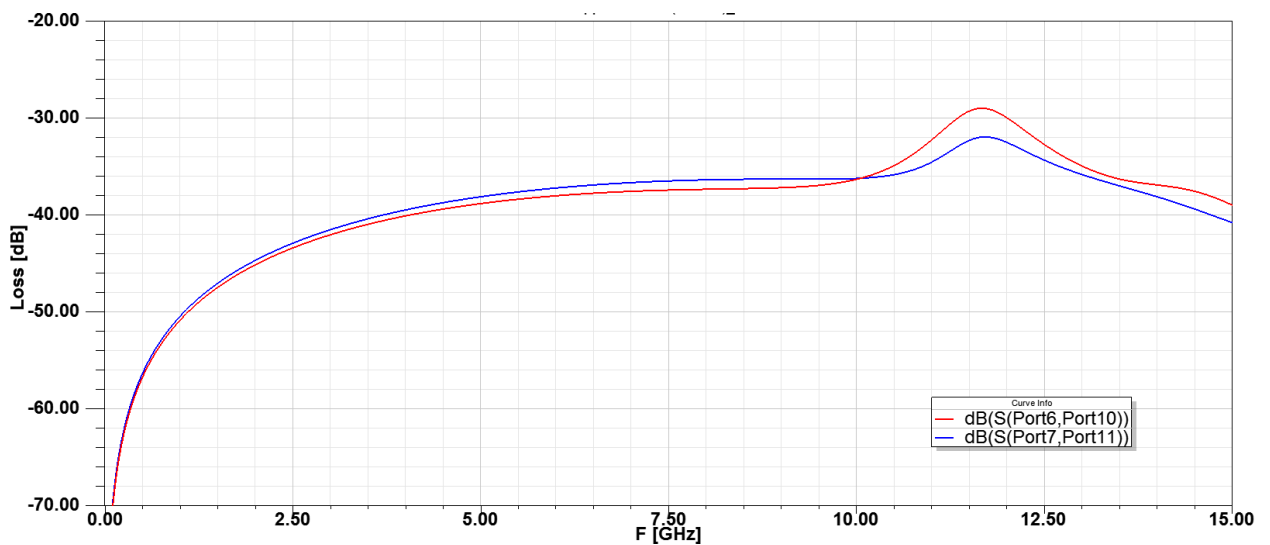
Frequency Domain: Far End Crosstalk

- 1:1 S/G ratio
- Both victim and aggressor located at outer row



Frequency Domain: Near End Crosstalk

- 1:1 S/G ratio
- Victim locates at inner row from front side
- Aggressor locates at inner row from back side.



REVISION: A	ECN INFORMATION: EC No: S2015-0773 DATE: 2015/01/11	TITLE: 0.85mm Pitch DDR4 Vertical Through-Hole DIMM Connector	SHEET No. 5 of 7
DOCUMENT NUMBER: EE-78726-004		CREATED / REVISED BY: CMWONG 2015/01/12	CHECKED BY: WHFOO 2015/01/12
		APPROVED BY: WTCHUA 2015/01/12	
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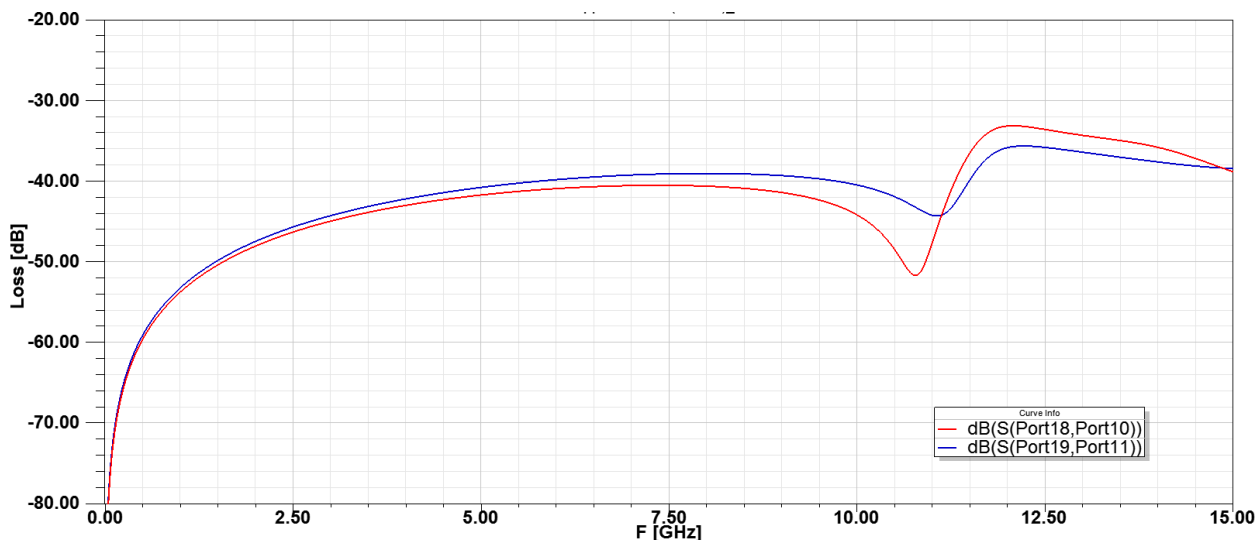


ELECTRICAL MODEL DOCUMENTATION

REFERENCE RESULTS

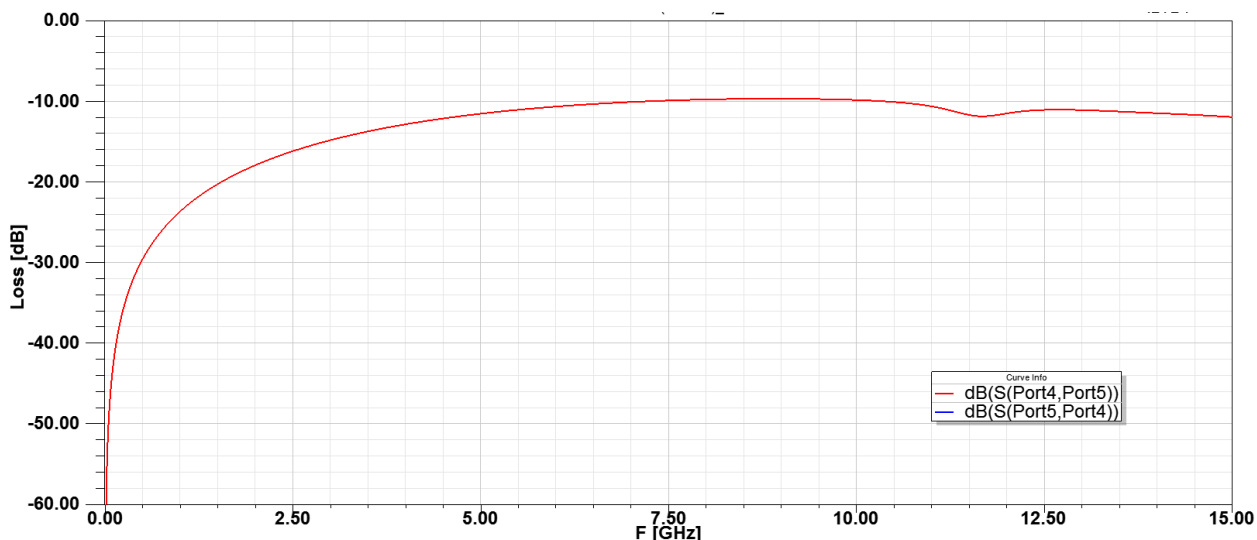
Frequency Domain: Far End Crosstalk

- 1:1 S/G ratio
- Victim locates at inner row from front side
- Aggressor locates at inner row from back side.



Frequency Domain: Near End Crosstalk

- 2:1 S/G ratio



REVISION: A	ECN INFORMATION: EC No: S2015-0773 DATE: 2015/01/11	TITLE: 0.85mm Pitch DDR4 Vertical Through-Hole DIMM Connector	SHEET No. 6 of 7
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		APPROVED BY: WTCHUA 2015/01/12	

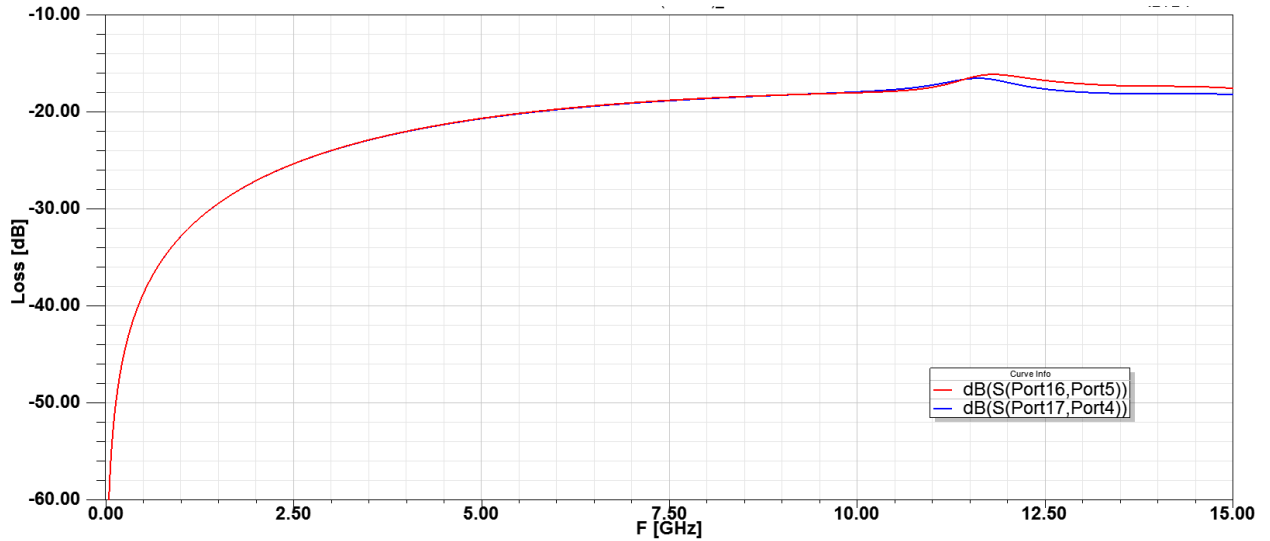


ELECTRICAL MODEL DOCUMENTATION

REFERENCE RESULTS

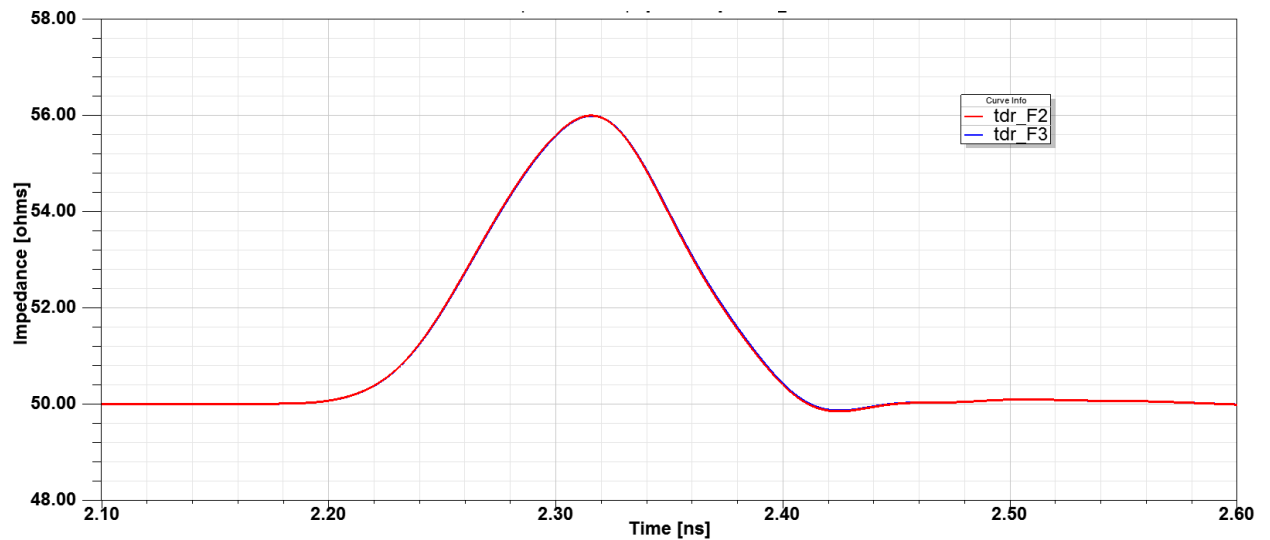
Frequency Domain: Far End Crosstalk

- 2:1 S/G ratio



Time Domain: TDR Impedance

- Rise-time of 100ps [10%~90%] at connector launch



REVISION: A	ECN INFORMATION: EC No: S2015-0773 DATE: 2015/01/11	TITLE: 0.85mm Pitch DDR4 Vertical Through-Hole DIMM Connector	SHEET No. 7 of 7
DOCUMENT NUMBER: EE-78726-004		CREATED / REVISED BY: CMWONG 2015/01/12	CHECKED BY: WHFOO 2015/01/12
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