

WiMAX and ClearONE® DDR Memory Termination

Introduction

WiMAX (World Interoperability for Microwave Access) enables wireless access at true broadband speeds for both fixed and mobile connectivity. Broadband Wireless Access (BWA) is gaining popularity as an alternative technology.

WiMAX – Expanding Technology

WiMAX mobile applications based on Orthogonal Frequency Division Multiple Access (OFDMA) is emerging as a lower cost solution for next generation 4G wireless technologies. It has inherent advantages in throughput, latency, spectral efficiency, and advanced antennae support that allows it to provide higher performance than today's wide area wireless technologies. Fixed WiMAX, as with mobile WiMAX, provides a cost effective solution for point-to-multipoint enabling of broadband wireless at a low cost to homes and businesses.

WiMAX networks are optimized for high speed data transmission and present an opportunity for new mobile devices. The demand for these new devices has also created an increased demand for memory modules. One key style of memory that is seeing extended life because of the new WiMAX applications is DDR memory.

DDR SDRAM is presently one of the memory platforms being used in both fixed and mobile WiMAX equipment solutions that are currently being delivered. Because DDR memory modules require signal line termination for clean data processing, WiMAX has established new platforms that benefit from the performance advantages of CTS ClearONE® terminators.

What is required for DDR signal-line termination?

The termination style required is based on the DDR memory application. Two classes of termination that meet the requirements of EIA/JEDEC Standard JESD8-9A for proper signal handling are shown in Figures 1 and 2. The 2.5V I/O memory bus standard operating in the logic switching range of 0.0 to 2.5 volts is SSTL_2. This standard is for high-speed DDR SDRAM interfaces.

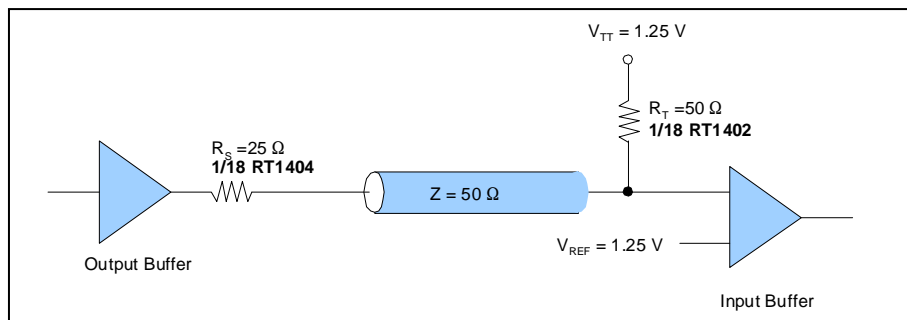


Figure 1. SSTL_2 Class I Termination

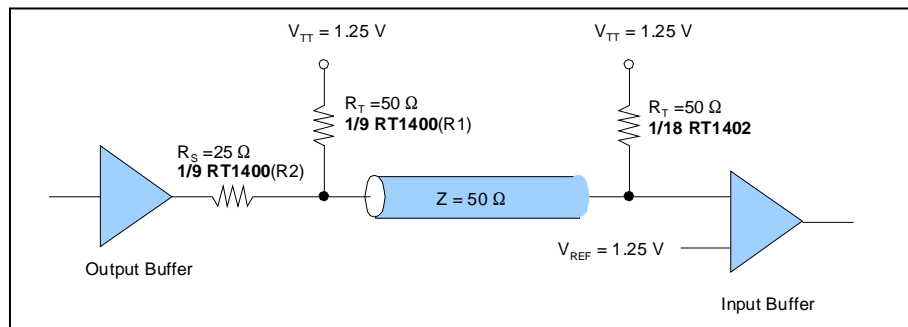


Figure 2. SSTL_2 Class II Termination

Either termination method takes advantage of compact routing made available with the BGA style package. It is recommended that the Class I resistor termination method be used for best performance.

The BGA ClearONE® terminator is a preferred solution as defined by the following features:

- It reduces signal and noise reflections (Compliant to JEDEC Std 8-9a).
- It significantly reduces component count and component placements compared to discrete solutions.
- It reduces board space required for terminations (either individual resistors or arrays).
- It provides clean and simple signal routing (Low channel capacitance < 0.25pf).
- It provides better bandwidth and settling than individual resistor elements.

WiMAX devices requiring DDR memory will obtain cost and performance advantages by utilizing ClearONE® terminators. Each ClearONE® device is available in either RoHS (lead-free) or non-RoHS (90/10 Pb/Sn termination) versions.

CTS ClearONE® Resistor Terminator Information:

Links to DDR SDRAM Terminator Data Sheet and Application Notes

<http://www.ctscorp.com/components/clearone.asp>

<http://www.ctscorp.com/components/clearone/appnotes.htm>

<http://www.ctscorp.com/components/clearone/AssemblyPrintedCircuit%20Board.pdf>



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