

## DDR4 SDRAM 2400/2666/2933/3200 260-PIN SO\_DIMM 4GB 512MBx16

### DESCRIPTION:

This document describes Aplus 512MBx 64-bit 4GB DDR4 SDRAM (Synchronous DRAM) Dual In-Line Memory Module. The components on this module include four 512MB x 16-bit DDR4 SDRAMs in FBGA packages and a 2048-bit serial EEPROM. Those components were mounted on a 260-pin printed circuit board. This 260-pin SO\_DIMM is used to be mounted into 260-pin edge connector sockets and data I/O transactions could be apply on both edges of DQS. The electrical and mechanical specifications are as follows:

### Features

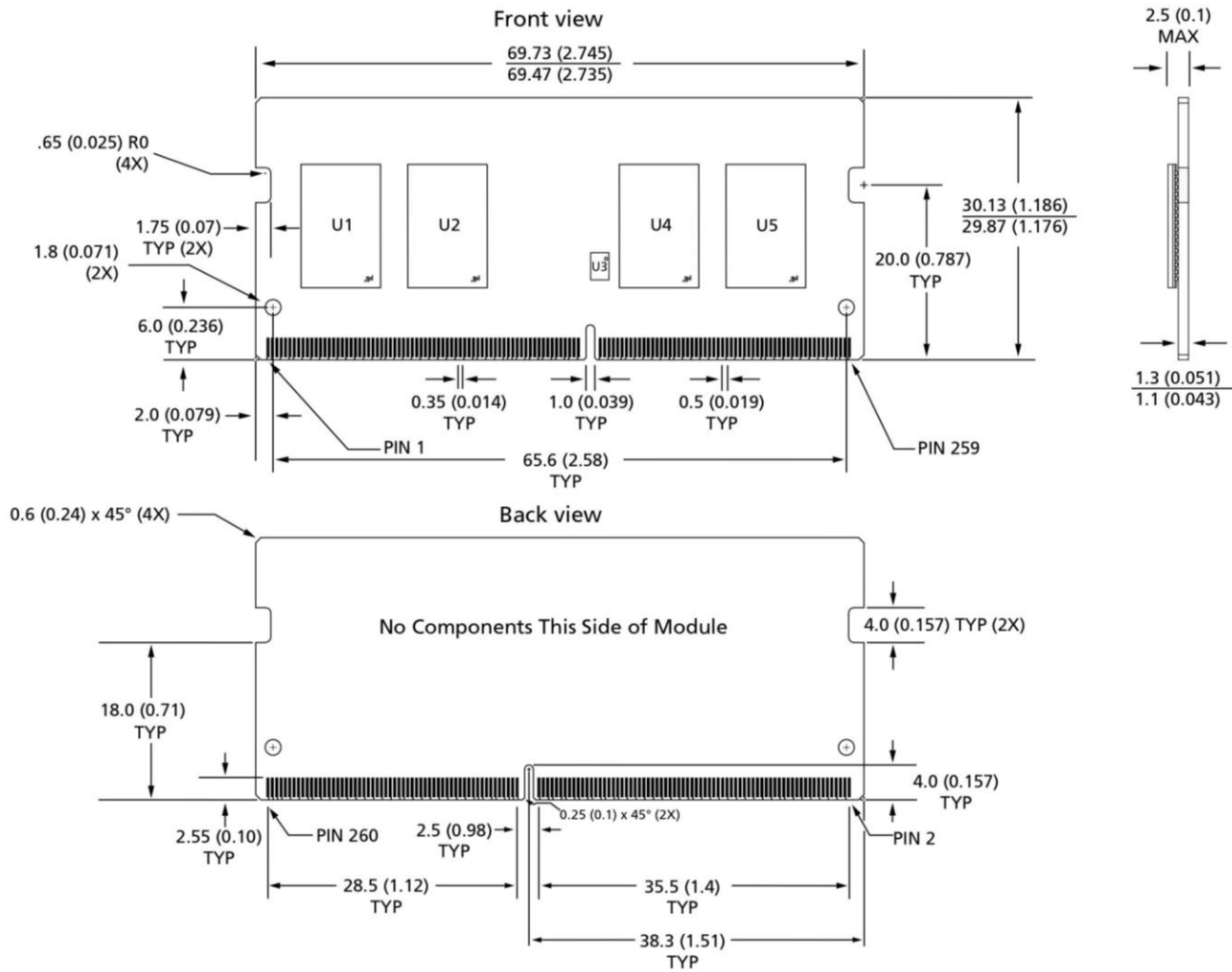
- DDR4 functionality and operations supported as defined in the component data sheet
- 260-pin, small-outline dual in-line memory module (SODIMM)
- Fast data transfer rates: PC4-3200, PC4-2933, PC4-2666 or PC4-2400
- 4GB (512 Meg x 64)
- $V_{DD} = 1.20V$  (NOM)
- $V_{PP} = 2.5V$  (NOM)
- $V_{DDSPD} = 2.5V$  (NOM)
- Nominal and dynamic on-die termination (ODT) for data, strobe, and mask signals
- Low-power auto self refresh (LPASR)
- Data bus inversion (DBI) for data bus
- On-die  $V_{REFDQ}$  generation and calibration
- Single-rank
- On-board I<sup>2</sup>C serial presence-detect (SPD) EEPROM
- 8 internal banks; 2 groups of 4 banks each
- Fixed burst chop (BC) of 4 and burst length (BL) of 8 via the mode register set (MRS)
- Selectable BC4 or BL8 on-the-fly (OTF)
- Gold edge contacts
- Halogen-free
- Fly-by topology
- Terminated control command and address bus

### Options

- Operating temperature
  - Commercial ( $0^{\circ}C \leq T_{OPER} \leq +95^{\circ}C$ )
- Frequency/CAS latency
  - 0.62ns @ CL = 22 (DDR4-3200)
  - 0.68ns @ CL = 21 (DDR4-2933)
  - 0.75ns @ CL = 19 (DDR4-2666)
  - 0.83ns @ CL = 17 (DDR4-2400)

Industry Nomenclature	Data Rate (MT/s)					tRCD (ns)	tRP (ns)	tRC (ns)	tRAS (ns)	Memory Clock/ Data Rate	Clock Cycles (CL-tRCD-tRP)
	CL=24	CL=22	CL=21	CL=20 CL=19	CL=18 CL=17						
PC4-3200	3200	3200	2933	2666	2400	13.75	13.75	45.75	32	0.62ns/3200 MT/s	22-22-22
PC4-2933			2933	2666	2400	14.32	14.32	46.32	32	0.68ns/2933 MT/s	21-21-21
PC4-2666				2666	2400	14.25	14.25	46.25	32	0.75ns/2666 MT/s	19-19-19
PC4-2400					2400	14.16	14.16	14.16	32	0.83ns/2400 MT/s	17-17-17

### 260-Pin DDR4 SODIMM



- Notes:
1. All dimensions are in millimeters (inches); MAX/MIN or typical (TYP) where noted.
  2. Tolerance on all dimensions 0.15mm unless otherwise specified.
  3. The dimensional diagram is for reference only.