

***RoHS Compliant***

32GB DDR4 SDRAM SO-DIMM

Industrial / Halogen free

***Product Specifications***

**September 18, 2020**

*Version 0.5*



***Apacer Technology Inc.***

1F., No.32, Zhongcheng Rd., Tucheng Dist., New Taipei City 236, Taiwan

Tel: +886-2-2267-8000 Fax: +886-2-2267-2261

[www.apacer.com](http://www.apacer.com)

## Table of Contents

General Description .....	2
Ordering Information .....	2
Key Parameters .....	2
Specifications: .....	3
Features: .....	4
Pin Assignments .....	5
Pin Descriptions .....	7
Functional Block Diagram .....	8
Absolute Maximum Ratings .....	9
DRAM Component Operating Temperature Range .....	10
Operating Conditions .....	11
Environmental Requirements .....	12
IDD Specifications .....	13
Mechanical Drawing .....	16

## General Description

Apacer **D21.27308S.001** is a 4096M x 64 DDR4 SDRAM (Synchronous DRAM) SO-DIMM. This high-density memory module consists of 16 pieces 2048M x 8 bits DDR4 synchronous DRAMs in FBGA packages and a 4K Bits EEPROM. The module is a 260-pins dual in-line memory module and is intended for mounting into a connector socket. The following provides general specifications of this module.

## Ordering Information

Part Number	Bandwidth	Speed Grade	Max Frequency	CAS Latency
D21.27308S.001	25.6 GB/sec	3200 Mbps	1600 MHz	CL22

Density	Organization	Component	Rank
32GB	4096M x 64	2048M x8*16	2

## Key Parameters

MT/s	DDR4-2400	DDR4-2666	DDR4-2933	DDR4-3200	Unit
Grade	-CL17	-CL19	-CL21	-CL22	
tCK (min)	0.83	0.75	0.68	0.62	ns
CAS latency	17	19	21	22	tCK
tRCD (min)	14.16	14.25	14.32	13.75	ns
tRP (min)	14.16	14.25	14.32	13.75	ns
tRAS (min)	32	32	32	32	ns
tRC (min)	46.16	46.25	46.32	45.75	ns
CL-tRCD-tRP	17-17-17	19-19-19	21-21-21	22-22-22	tCK

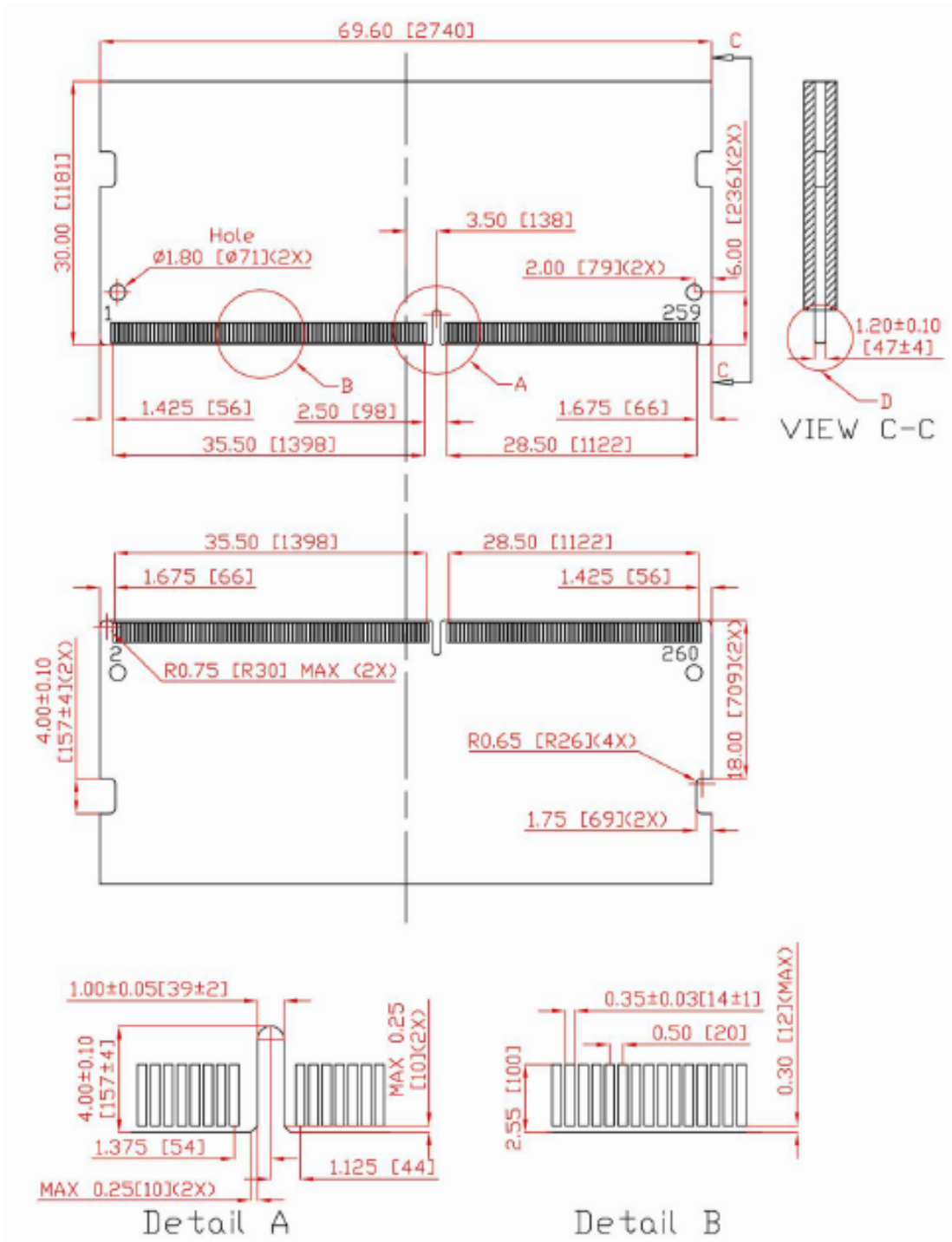
## Specifications:

- ◆ On-DIMM thermal sensor : No
- ◆ Organization: 4096 words x 64 bits, 2 ranks
- ◆ Integrating 16 pieces of 16G bits DDR4 SDRAM sealed FBGA
- ◆ Package: 260-pin socket type small outline dual in-line memory module (SO-DIMM)
- ◆ PCB: height 30.00 mm, lead pitch 0.50 mm (pin),
- ◆ Serial Presence Detect (SPD)
- ◆ Power Supply: VDD=1.2V (1.14V to 1.26V)
- ◆ VDDQ = 1.2V (1.14V to 1.26V)
- ◆ VPP = 2.5V (2.375V to 2.75V)
- ◆ VDDSPD = 2.2V to 3.6V
- ◆ 16 internal banks
- ◆ CAS Latency (CL): 10, 11, 12, 13, 14, 15,16,17,18,19, 20, 21, 22,24
- ◆ CAS Write Latency (CWL): 16,20
- ◆ Support Industrial Temp ( -40°C~95°C )
  - tREFI 7.8us at -40 °C ≤ TCASE ≤ 85°C
  - tREFI 3.9us at 85 °C < TCASE ≤ 95°C
- ◆ Lead-free (RoHS compliant)
- ◆ Halogen free
- ◆ PCB: 30μ inch gold finger

## Features:

- ◆ Functionality and operations comply with the DDR4 SDRAM datasheet
- ◆ Bank Grouping is applied, and CAS to CAS latency (tCCD\_L, tCCD\_S) for the banks in the same or different bank group accesses are available
- ◆ Bi-Directional Differential Data Strobe
- ◆ 8 bit pre-fetch
- ◆ Burst Length (BL) switch on-the-fly BL8 or BC4(Burst Chop)
- ◆ Per DRAM Addressability is supported
- ◆ Internal Vref DQ level generation is available
- ◆ Write CRC is supported at all speed grades
- ◆ DBI (Data Bus Inversion) is supported(x8)
- ◆ CA parity (Command/Address Parity) mode is supported

# Mechanical Drawing



30 $\mu$  inch gold finger

(All dimensions are in millimeters with  $\pm 0.15$ mm tolerance unless specified otherwise.)

## Revision History

Revision	Date	Description	Remark
0.1	5/5/2014	Initial release	
0.2	11/2/2015	Updated VDDSPD	
0.3	03/15/2017	Add Environmental Requirements	
0.4	09/04/2017	Remove TOPR (Operating Temperature (ambient))	
0.5	07/23/2020	Updated DRAM Component Operating Temperature Range	

## Global Presence

### **Taiwan (Headquarters)**

**Apacer Technology Inc.**

1F., No.32, Zhongcheng Rd., Tucheng Dist.,  
New Taipei City 236, Taiwan R.O.C.

Tel: +886-2-2267-8000

Fax: +886-2-2267-2261

[amtsales@apacer.com](mailto:amtsales@apacer.com)

### **U.S.A.**

**Apacer Memory America, Inc.**

46732 Lakeview Blvd., Fremont, CA 94538

Tel: 1-408-518-8699

Fax: 1-510-249-9568

[sa@apacerus.com](mailto:sa@apacerus.com)

### **Japan**

**Apacer Technology Corp.**

5F, Matsura Bldg., Shiba, Minato-Ku

Tokyo, 105-0014, Japan

Tel: 81-3-5419-2668

Fax: 81-3-5419-0018

[jpservices@apacer.com](mailto:jpservices@apacer.com)

### **Europe**

**Apacer Technology B.V.**

Science Park Eindhoven 5051 5692 EB Son,  
The Netherlands

Tel: 31-40-267-0000

Fax: 31-40-290-0686

[sales@apacer.nl](mailto:sales@apacer.nl)

### **China**

**Apacer Electronic (Shanghai) Co., Ltd.**

Room D, 22/FL, No.2, Lane 600, JieyunPlaza,

Tianshan RD , Shanghai , 200051, China

Tel: 86-21-6228-9939

Fax:86-21-6228-9936

[sales@apacer.com.cn](mailto:sales@apacer.com.cn)

### **India**

**Apacer Technologies Pvt Ltd.**

1874, South End C Cross,9th Block Jayanagar,

Bangalore-560069,INDIA.

Tel: 91-80-4152-9061/62

Fax: 91-80-4170-0215

[sales\\_india@apacer.com](mailto:sales_india@apacer.com)