

## CIR-V4DESZ2904G

DDR4 DIMM 2933MHz 4GB with ECC

### Description

This specification defines the electrical and mechanical requirements for 288 pin, 1.2 V (VDD), Double Data Rate, Synchronous DRAM Dual In-Line Memory Modules (DDR4 SDRAM ECC U-DIMM). This DDR4 ECC U-DIMMs is intended for use as main memory when installed in PCs, laptops and other systems.

Reference design examples are included which provide an initial basis for DDR4 ECC U-DIMM designs. Modifications to these reference designs may be required to meet all system timing, signal integrity and thermal requirements for DDR4-2933 support.

All DDR4 ECC U-DIMM implementations must use simulations and lab verification to ensure proper timing requirement and signal integrity in the design.

### Specifications

Density	4GB
Pin Count	288pin
Type	Unbuffered
Dimensions	133.35mm x 31.25mm
ECC	with ECC
Component Config	512M x 8 bit
Data Rate	2933 MHz
CAS Latency	21
Voltage	1.2V
PCB Layers	8
Operating Temp.(TCASE)	0°C~+85°C
Module Ranks	Single Rank

### Features

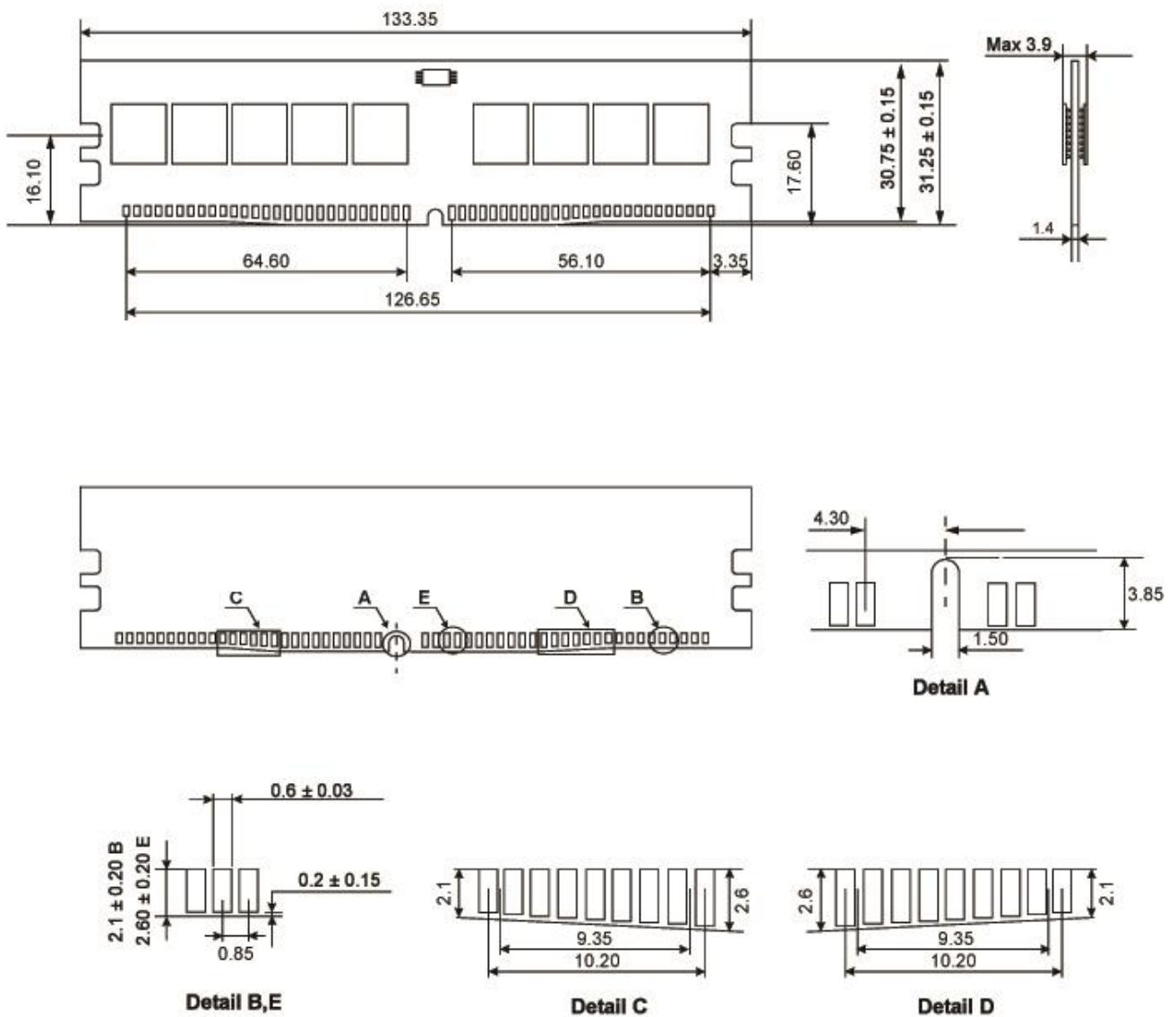
- JEDEC Standard 288-pin Dual In-Line Memory Module
- VDD=VDDQ = 1.2V±0.06V (1.14V~1.26V)
- Programmable CAS Latency(posted CAS): 11,12,13,14,15,16,17,18,19,20,21
- Low-Power auto self-refresh (LPASR)
- SDRAMs have 16 internal banks for concurrent operation (4 Bank Group of 4banks each)
- Normal and Dynamic On-Die Termination for data, strobe and mask signals.
- Data bus inversion (DBI) for data bus
- Fixed burst chop (BC) of 4 and burst length (BL) of 8 via the MRS
- Selectable BC4 or BL8 on-the fly (OTF)
- ECC Function
- On-die VREFDQ generation and Calibration
- RoHs and Halogen free

### Speed Grade

Frequency Grade	Data Transfer Rate	CAS Latency Support											CL-tRCD-tRP
		CL11	CL12	CL13	CL14	CL15	CL16	CL17	CL18	CL19	CL20	CL21	
DDR4-2933	PC4-23466	1600	1600	1866	1866	2133	2133	2400	2400	2666	2666	2933	21-21-21

### Package Dimensions

Unit: mm



Tolerances : ± 0.15mm unless otherwise specified