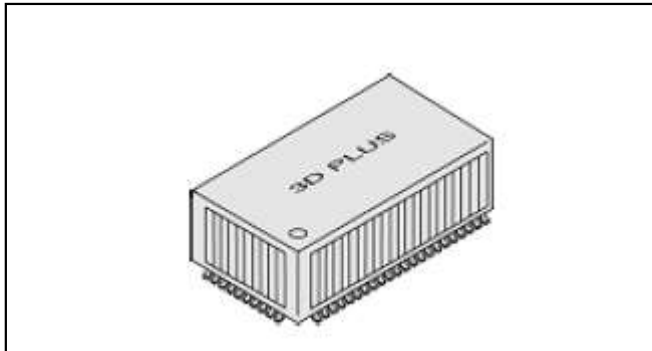


# DDR2 SDRAM MODULE

**3D2D6G48UQ3694**

6Gbit DDR2 SDRAM organized as 128Mx48, based on 128Mx8



## Features

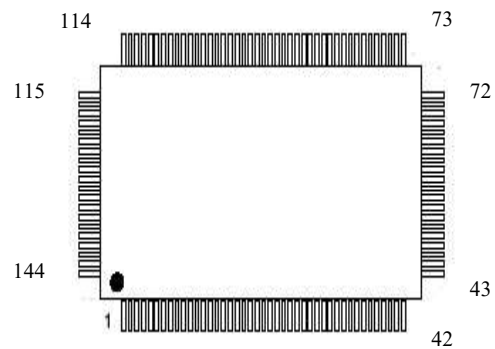
- Organized as 128Mx48
- Supply voltage 1.8V +/- 0.1V
- Jedec standard 1.8V I/O (SSTL\_18 compatible)
- Max Data rate = 233 MHz
- Differential data strobe per byte
- 4n-bit prefetch architecture
- DLL to align DQ and DQS transitions with CK
- 6 internal banks per die for concurrent operation
- Programmable CAS Latency
- Posted CAS Additive Latency
- Write Latency = Read Latency - 1Tck
- Programmable Burst Lengths: 4 or 8
- On-Die Termination
- Available temperature range :  
0°C to +70°C  
-40°C to +85°C  
Specific temperature range can be requested
- Available with screening option for high reliability application (Space, etc...)
- 3D PLUS DDR2 Radiation Harden Solution :
  - TID>100Krad (Si)
  - SEL immune > 68Mev.cm<sup>2</sup>/mg
  - SEU immune by design (3.8E<sup>-9</sup>upset/day/module with 3DIPMC700)
  - SEFI immune by design (with 3DIPMC700)

## General description

The 3D2D6G48UQ3694 is a high-speed highly integrated DDR2 Synchronous Dynamic Ram Memory. It is particularly well suited for use in high reliability, high performance and high density system applications. The 3D2D6G48UQ3694 is packaged in a 144 QFP.

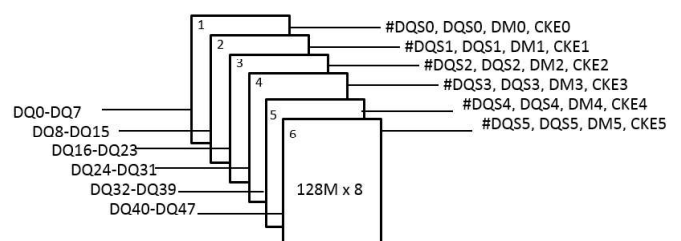
## Pin Assignment (Top View)

QFP 144 ( Pitch : 0.5mm)



1	GND	22	RAS#	43	GND	64	DQS2#	85	VCC	106	DQS5#	127	DQ42
2	VCC	23	CAS#	44	GND	65	DQS2	86	DQ17	107	DQS5	128	DQ34
3	GND	24	GND	45	VCC	66	GND	87	DQ6	108	GND	129	DQ26
4	CKB	25	ODT	46	CKA	67	DQS1#	88	DQ14	109	DQS4#	130	VCC
5	CKB#	26	A0	47	CKA#	68	DQS1	89	DQ22	110	DQS4	131	DQ44
6	VCC	27	A2	48	GND	69	VCC	90	GND	111	VCC	132	DQ36
7	A12	28	A4	49	DQ5	70	DQS0#	91	DQ4	112	DQS3#	133	DQ28
8	RFL/A14	29	VCC	50	DQ13	71	DQS0	92	DQ12	113	DQS3	134	GND
9	A7	30	A6	51	DQ21	72	GND	93	DQ20	114	GND	135	DQ43
10	A9	31	A8	52	DQ2	73	GND	94	DQ29	115	GND	136	DQ35
11	A3	32	A11	53	VCC	74	GND	95	VCC	116	DM5	137	DQ27
12	GND	33	A13	54	DQ10	75	VCC	96	DQ37	117	DM4	138	VCC
13	A5	34	GND	55	DQ18	76	DQ3	97	DQ45	118	DM3	139	GND
14	A10	35	CKE2	56	DQ0	77	DQ11	98	DQ24	119	DQ46	140	GND
15	BA1	36	CKE1	57	DQ8	78	DQ19	99	DQ32	120	VCC	141	CKE3
16	A1	37	CKE0	58	GND	79	DM0	100	GND	121	DQ38	142	CKE4
17	BA2	38	VCC	59	DQ16	80	GND	101	DQ40	122	DQ30	143	CKE5
18	VCC	39	VREF	60	DQ7	81	DM1	102	DQ31	123	DQ41	144	GND
19	BA0	40	VREF	61	DQ15	82	DM2	103	DQ39	124	DQ33		
20	WE#	41	VREF	62	DQ23	83	DQ1	104	DQ47	125	GND		
21	CS#	42	GND	63	VCC	84	DQ9	105	VCC	126	DQ25		

## FUNCTIONAL BLOCK DIAGRAM

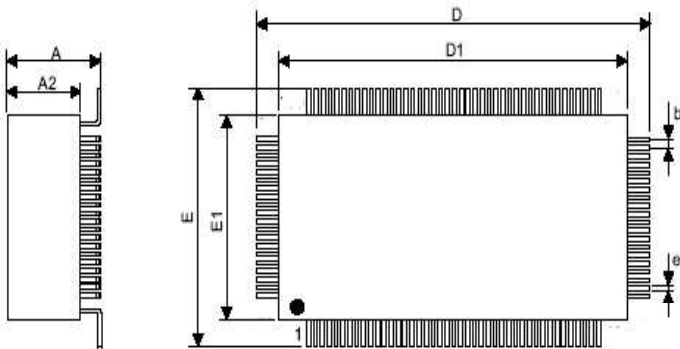


**DDR2 SDRAM**  
**MODULE**

**3D2D6G48UQ3694**

6Gbit DDR2 SDRAM organized as 128Mx48, based on 128Mx8

**Mechanical Drawing**



	Min	Max
A	7.95	8.65
A2	6.85	7.25
D1	26.80	27.20
D	30.40	30.80
E1	20.80	21.20
E	24.40	24.80
b	0.50	
e	0.30	
Dimension (mm)		

Max. weight : 9.50 gr.

**DC Operating conditions and characteristics**

Parameter	Symbol	Min	Max	Unit
Supply voltage	VDD	1.7	1.9	V
Input High Voltage	VIH	V <sub>REF</sub> -0.125	1.9	V
Reference voltage	VREF	0.49xV <sub>DDQ</sub>	0.51xV <sub>DDQ</sub>	V
Input Low Voltage	VIL	-0.3	V <sub>REF</sub> -0.125	V

**Absolute maximum ratings**

Parameter	Symbol	Value	Unit
Voltage on any pin relative to V <sub>SS</sub>	V <sub>T</sub>	-0.5 ~ +2.3	V
Storage temperature	TSTG	-55 ~ +150	°C
Power dissipation	PD	3	W
Power supply voltage	VDD	-0.5 to +2.3	V

**DC Characteristics**

Parameter	Symbol	Value	Unit
Operating Current (One bank active)	ICC1	690	mA
Precharge power down standby current	ICC2P	90	mA
Active power-down current	ICC3PF	230	mA

**3D2D6G48UQ3694**

X X

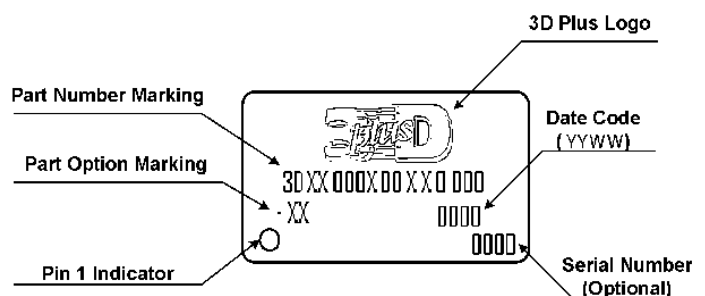
**Temperature Range**

C = (0°C ~ +70°C)  
I = (-40°C ~ +85°C)  
S = Specific (-40°C ~ +105°C)

**Quality Level**

N = Commercial Grade  
B = Industrial Grade  
S = Space Grade  
C = Custom

**Module Marking**



**Main Sales Office**

	3D PLUS			Web : <a href="http://www.3d-plus.com">www.3d-plus.com</a> e-mail : <a href="mailto:sales@3d-plus.com">sales@3d-plus.com</a>	DISTRIBUTOR
<b>FRANCE</b>	408, rue Hélène Boucher ZI. 78530 Buc	Tel : 33 (0)13 0 83 26 50	Fax : 33 (0)1 39 56 25 89		
<b>USA</b>	3D PLUS USA Inc. 151 Callan Avenue Suite #310 San Leandro, CA 94577	Tel : (510) 824-5591		e-mail : <a href="mailto:sales@3d-plus.com">sales@3d-plus.com</a>	