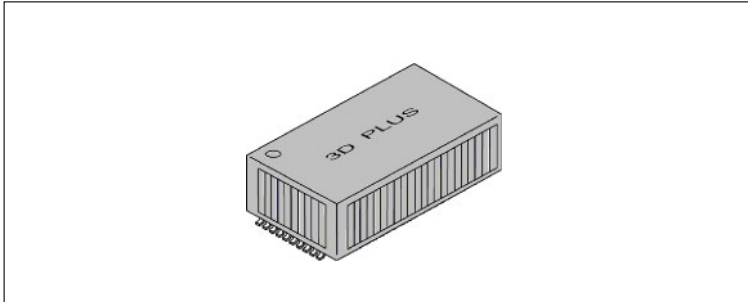


## Flash Memory MODULE

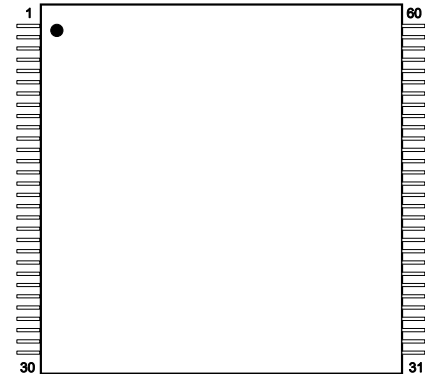
### 3D FO2G16VS4214

2Gbit FLASH Nor organized as 128Mx16, based on 32Mx16



### Pin Assignment (Top View)

SOP 60 - ( Pitch : 0.50 mm)



1	A23	21	A6	41	DQ1
2	A22	22	A5	42	DQ9
3	A15	23	A4	43	DQ2
4	A14	24	A3	44	DQ10
5	A13	25	A2	45	DQ3
6	A12	26	A1	46	DQ11
7	A11	27	NC	47	VCC
8	A10	28	NC	48	DQ4
9	A9	29	NC	49	DQ12
10	A8	30	NC	50	DQ5
11	A19	31	#CE3	51	DQ13
12	A20	32	#CE2	52	DQ6
13	#WE	33	Vio	53	DQ14
14	#RESET	34	#CE1	54	DQ7
15	A21	35	A0	55	DQ15/A-1
16	#WP/ACC	36	#CE0	56	VSS
17	RY/#BY	37	VSS	57	#BYTE
18	A18	38	#OE	58	A16
19	A17	39	DQ0	59	NC
20	A7	40	DQ8	60	A24

### Features

- Single Power Supply operation : 3.3V read, erase, and program operations.
- All input levels (address, control, and DQ input levels) and output are determined by voltage on Vio input Vio range is 3.0 to 3.6V.
- 100,000 erase cycles per sector typical.
- 20-year data retention typical.
- High performance.
  - 100ns access time.
  - 8-word/16byte page read buffer.
  - 25ns page read times.
  - 16-word/32-byte write buffer reduces overall programming time for multiple-word updates.
- Low power consumption.
- 60 pin SOP.
- Advanced Sector Protection.
- #WP/ACC input accelerates programming time.
- Hardware reset input.
- Ready/#Busy output detects program or erase cycle completion.

### General description

The 3D FOG16VS4214 is a 3.3V single power 2Gbit Flash memory. Organized as 134.217.728 words or 268.435.456 bytes. The device has a 16-bit wide data bus that can also function as an 8-bit wide data bus by using the #BYTE input.

It is organized in 4 banks with separate chip enable (#CE) controls. It requires only a single 3.3 volt power supply for both read and write functions. In addition to Vcc input, a high-voltage accelerated program(#WP/ACC) input provides shorter programming times through increased current.

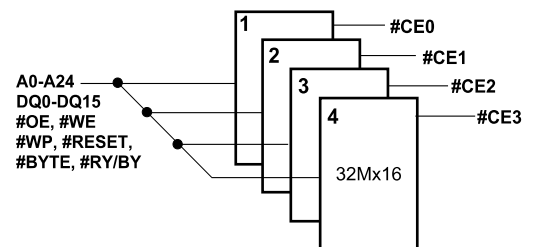
The sector erase architecture allows memory sectors to be erased and reprogrammed without affecting the data contents of other sectors.

The Enhanced control allows the host system to set the voltage levels that the device generates and tolerates on all input levels (address, chip control, and DQ input levels) to the same voltage level that is asserted on the Vio pin.

Hardware data protection measures include a low Vcc detector that automatically inhibits write operations during power transitions. Persistent Sector Protection provides in-system, command-enable protection of any combination of sectors using a single power supply at Vcc. Password Sector Protection prevents unauthorized write and erase operations in any combination of sectors through a user-defined 64-bit password.

The 3D FO2G16VS4214 is packaged in a 60 pin SOP and is available in commercial, Industrial or Military temperature range.

### FUNCTIONAL BLOCK DIAGRAM



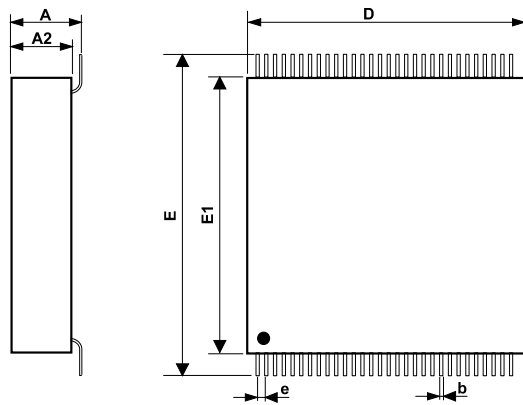
(All other signals are common to the four memories)

## Flash Memory MODULE

### 3D FO2G16VS4214

2Gbit FLASH Nor organized as 128Mx16, based on 32Mx16

#### Mechanical Drawing



Dimensions (mm)	
A	7.80 Max.
A2	6.20
D	16.50
E	20.60
E1	19.60
b	0.20 +/-0.03
e	0.50 Ref.

Max. weight : 5.00gr.

#### Test Tools

3D FO2G16VS4214

Modified by 3D PLUS

#### DC Operating conditions and characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage	V <sub>DD</sub>	3.0	3.3	3.6	V
Input logic high voltage	V <sub>IH</sub>	0.7V <sub>IO</sub>	-	V <sub>IO</sub> +0.3	V
Input logic low voltage	V <sub>IL</sub>	-0.1	-	0.3xV <sub>IO</sub>	V
Output logic high Voltage	V <sub>OH</sub>	0.85V <sub>IO</sub>	-	-	V
Output logic low voltage	V <sub>OL</sub>	-	-	0.15V <sub>IO</sub>	V

V<sub>IO</sub> = 3.0 - 3.6V

#### Absolute maximum ratings

Parameter	Symbol	Value	Unit
Voltage on any pin relative to VCC	V <sub>CC</sub> , V <sub>IO</sub>	-0.5 ~ +4.0	V
Storage temperature	T <sub>STG</sub>	-65 ~ +150	°C
Short circuit current	I <sub>OS</sub>	200	mA

#### DC Characteristics (max.) @ 5MHz

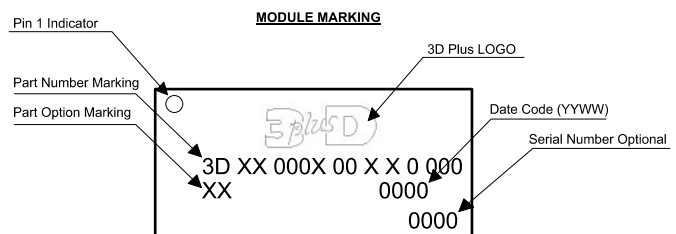
Parameter	Symbol	Value	Unit
VCC active read current at 5MHz	I <sub>CC1</sub>	55	mA
VCC Standby Current	I <sub>CC4</sub>	20	µA

#### 3D FO2G16VS4214

X X

Temperature Range  
**C** = (0°C to + 70°C)  
**I** = (-40°C to + 85°C)  
**M** = (-55° to +125°C)  
**S** = Specific

Quality Level  
**N** = Commercial Grade  
**B** = Industrial Grade  
**S** = Space Grade  
**C** = Custom



#### MAIN SALES OFFICE

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