



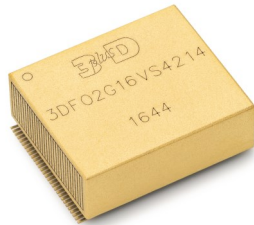
# MEMORY MODULE

## FLASH NOR

3DFO2G16VS4214

2 Gbit: 16-bit bus width, NOR Flash based on 32M x 16

### 3DFO2G16VS4214



## GENERAL DESCRIPTION

The 3DFO2G16VS4214 is a 3.0 V single power 2 Gbit Flash memory. The device has a 16-bit wide data bus that can also function as an 8-bit wide data bus by using the input #BYTE.

The memory is organized in 4 banks with separate chip enable (#CE) controls. In addition to  $V_{CC}$  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.

Hardware data protection measures include a low  $V_{CC}$  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  $V_{CC}$ . Password Sector Protection prevents unauthorized write and erase operations in any combination of sectors through a user-defined 64-bit password

The module packaged in a SOP 60 is available for Commercial, Industrial or Military temperature range. It is also available with screening options up to space grade level.

## KEY FEATURES

Single Power supply: 3.0 V for all operations

All input levels (address, control, DQ) and output are determined by  $V_{IO} = V_{CC}$ .

Endurance: 100 k Program/Erase Cycles per sector

Data Retention: 20 Years

High Performance

- 100 ns access time

- 8-word/16 byte page read buffer

- 25 ns page read time

- 16-word/32-byte write buffer reduces overall programming time for multiple-word updates

Advanced sector protection

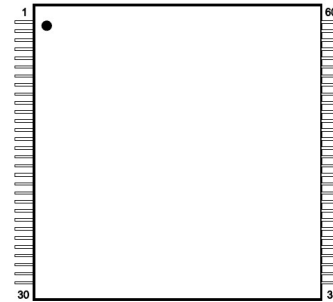
#WP/ACC input accelerates programming time

Hardware reset input

Ready/#Busy pin

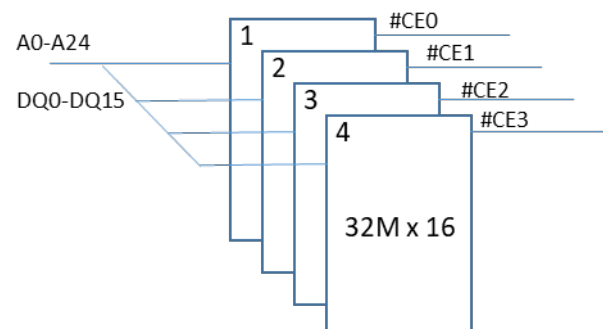
## PIN ASSIGNMENT (top view)

SOP 60 Pitch 0.50 mm



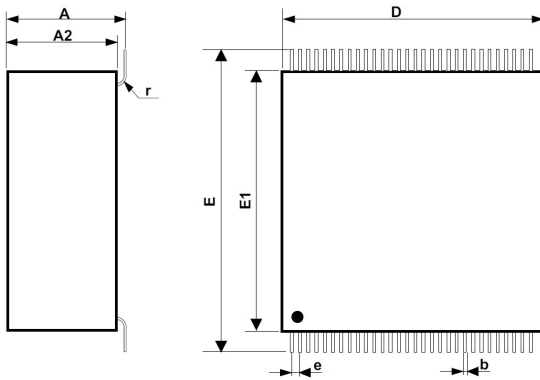
1	A23	21	A6	41	DQ1
2	A22	22	A5	42	DQ9
3	A15	23	A4	43	DQ2
4	A14	24	A3	44	DQ10
5	A13	25	A2	45	DQ3
6	A12	26	A1	46	DQ11
7	A11	27	NC	47	VCC
8	A10	28	NC	48	DQ4
9	A9	29	NC	49	DQ12
10	A8	30	NC	50	DQ5
11	A19	31	#CE3	51	DQ13
12	A20	32	#CE2	52	DQ6
13	#WE	33	VIO	53	DQ14
14	#RESET	34	#CE1	54	DQ7
15	A21	35	A0	55	DQ15/A-1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

## FUNCTIONAL BLOCK DIAGRAM



All other signals are common to all memories

## MECHANICAL DRAWING



Dimensions (mm)

	Min	Max
A	7.10	7.80
A2	6.00	6.40
D	16.30	16.70
E	20.30	20.70
E1	19.50	19.70
b	0.20	
e	0.50	

Max. weight: 5.00 g

## DC Operating Conditions and Characteristics

Parameter	Symbol	Min	Max	Unit
Supply Voltage core	$V_{CC}$	3.00	3.60	V
Input logic High Voltage	$V_{IH}$	$0.70 \times V_{CC}$	$V_{CC} + 0.30$	V
Input logic Low Voltage	$V_{IL}$	-0.10	$0.30 \times V_{CC}$	V

## Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply voltage relative to $V_{SS}$	$V_{CC}, V_{IC}$	-0.5 to +4.0	V
Storage temperature	$T_{STG}$	-65 to +150	°C
Short circuit current	$I_{OS}$	200	mA


## DC Characteristics

Parameter	Symbol	Value	Unit
$V_{CC}$ active read current @ 5MHz	$I_{CC1}$	55	mA
Typical Standby Current ( $V_{CC}$ )	$I_{CC4}$	80	µA

**Note:** Permanent device damage may occur if "Absolute maximum ratings" are exceeded. Functional operation should be restricted to recommended operating condition.

Exposure to higher than recommended voltage for extended periods of time could affect device reliability.

## MODULE MARKING



PART NUMBER MARKING → 3DXX000X00XX0 000

PART OPTION MARKING → XX

PIN 1 INDICATOR

DATE CODE (YYWW) ← 0000

SERIAL NUMBER (optional) ← 0000

**3DFO2G16VS2414** X X

Temperature Range

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

Quality Level

**N** = Commercial Grade  
**B** = Industrial Grade  
**S** = Space Grade

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