

Am29F200B

Known Good Wafer

Data Sheet



July 2003

The following document specifies Spansion memory products that are now offered by both Advanced Micro Devices and Fujitsu. Although the document is marked with the name of the company that originally developed the specification, these products will be offered to customers of both AMD and Fujitsu.

Continuity of Specifications

There is no change to this datasheet as a result of offering the device as a Spansion product. Any changes that have been made are the result of normal datasheet improvement and are noted in the document revision summary, where supported. Future routine revisions will occur when appropriate, and changes will be noted in a revision summary.

Continuity of Ordering Part Numbers

AMD and Fujitsu continue to support existing part numbers beginning with "Am" and "MBM". To order these products, please use only the Ordering Part Numbers listed in this document.

For More Information

Please contact your local AMD or Fujitsu sales office for additional information about Spansion memory solutions.

Publication Number **30332** Revision **A** Amendment **+0** Issue Date **April 22, 2003**



Am29F200B Known Good Wafer

2 Megabit (256 K x 8-Bit/128 K x 16-Bit)

CMOS 5.0 Volt-only, Boot Sector Flash Memory, Die Revision 1

Note: This supplement contains information on the Am29F200B in Known Good Wafer form. Refer to the Am29F200B standard datasheet (publication 21526) for full electrical specifications.

DISTINCTIVE CHARACTERISTICS

- Top or bottom boot block configurations available
 - Minimum 1,000,000 write cycle guarantee per sector
 - 20-year data retention at 125°C
 - Tested to datasheet specifications at temperature
 - Quality and reliability levels equivalent to standard packaged components
 - Complies with JEDEC standards for wafer shipments
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GENERAL DESCRIPTION

The Am29F200B in Known Good Wafer (KGW) form is an 2 Mbit, 5.0 volt-only Flash memory. AMD defines KGW as standard product in wafer form, tested for functionality and speed. AMD KGW products have the same reliability and quality as AMD products in packaged form.

Electrical Specifications

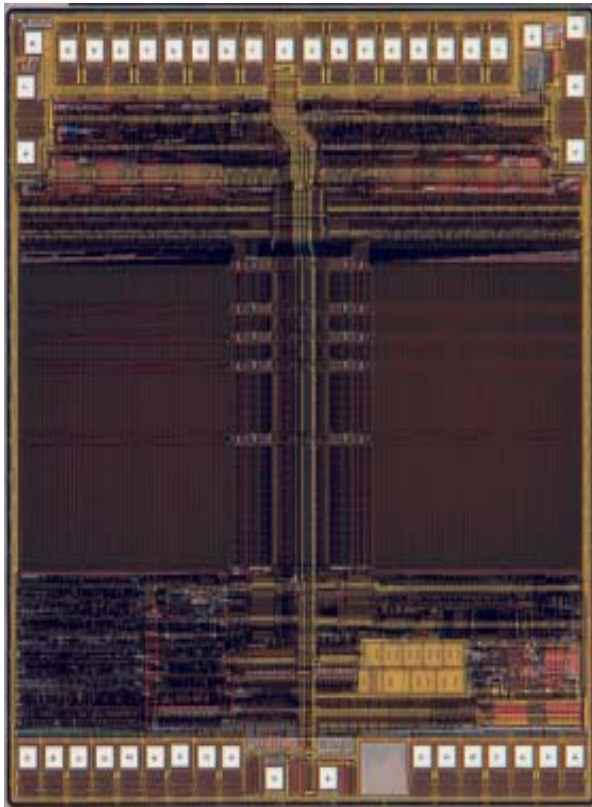
Refer to the Am29F200B data sheet, publication number 21526, for full electrical specifications on the Am29F200B in KGW form.

PRODUCT SELECTOR GUIDE

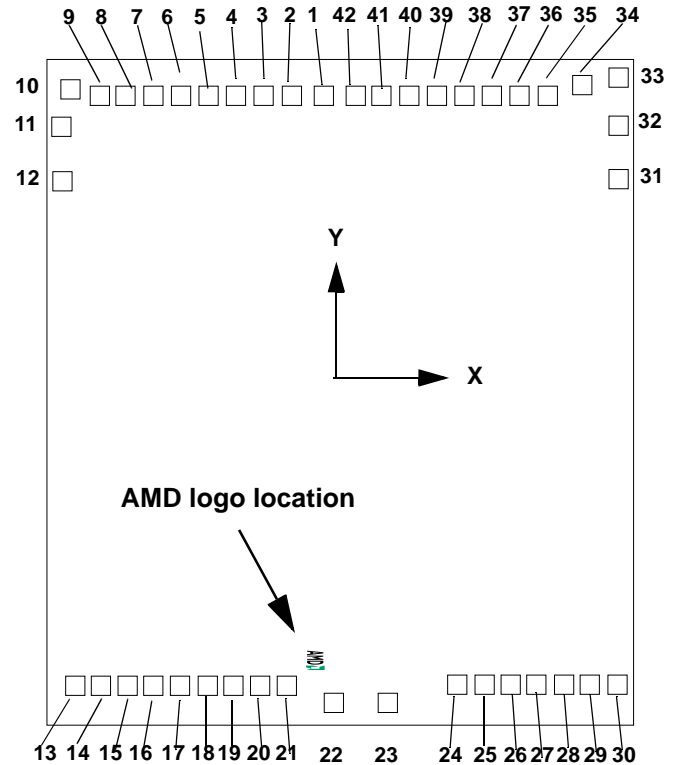
Family Part Number	Am29F200B KGW			
	-55 ($V_{CC} = 5.0\text{ V} \pm 5\%$)	-75 ($V_{CC} = 5.0\text{ V} \pm 5\%$)	-90	-120
Speed Option ($V_{CC} = 5.0\text{ V} \pm 10\%$)				
Max access time, ns (t_{ACC})	55	70	90	120
Max CE# access time, ns (t_{CE})	55	70	90	120
Max OE# access time, ns (t_{OE})	30	30	35	50

Note: Refer to "Test Conditions" for additional information related to speed options.

DIE PHOTOGRAPH



DIE PAD LOCATIONS



PAD DESCRIPTION

Pad locations relative to V_{CC} .

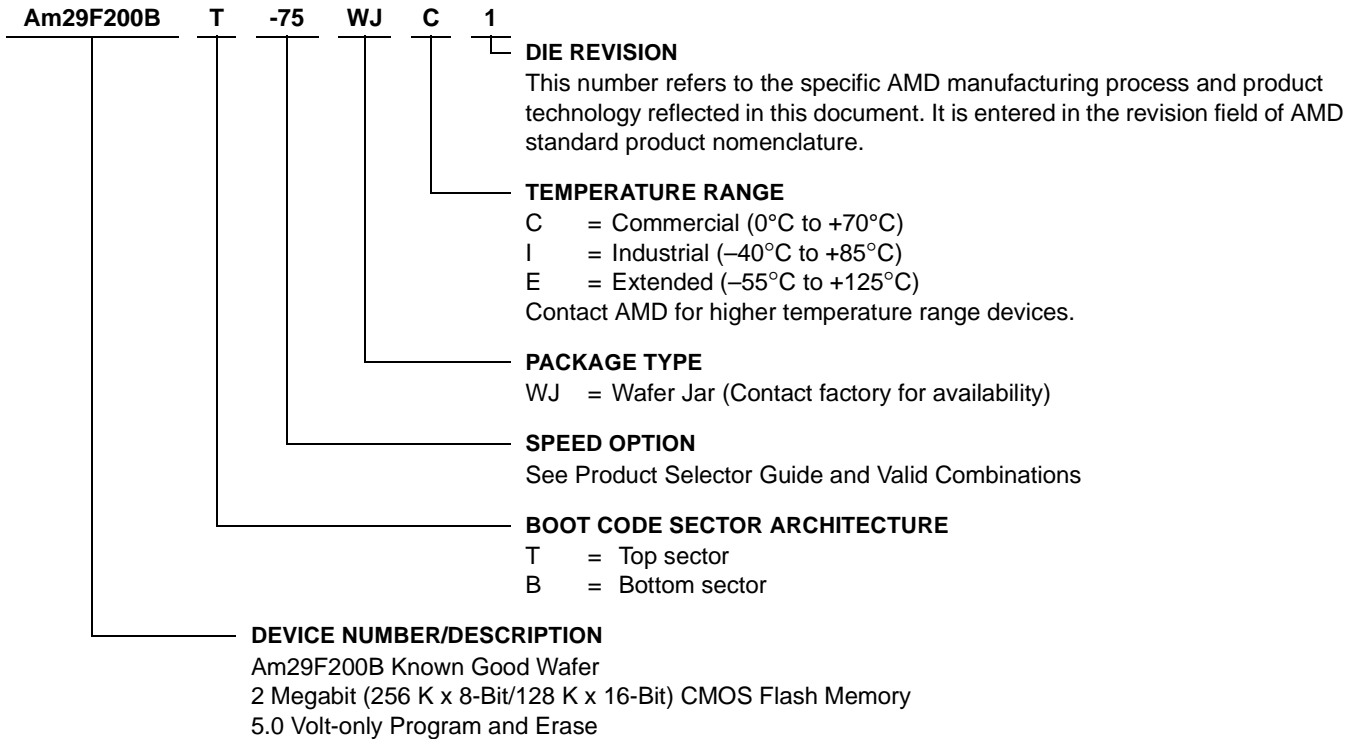
Pad	Signal	Pad Center (mils)		Pad Center (millimeters)	
		X	Y	X	Y
1	V_{CC}	0.00	0.00	0.0000	0.0000
2	DQ4	-6.80	0.00	-0.1727	0.0000
3	DQ12	-12.80	0.00	-0.3251	0.0000
4	DQ5	-18.60	0.00	-0.4724	0.0000
5	DQ13	-24.50	0.00	-0.6223	0.0000
6	DQ6	-30.30	0.00	-0.7696	0.0000
7	DQ14	-36.30	0.00	-0.9220	0.0000
8	DQ7	-42.10	0.00	-1.0693	0.0000
9	DQ15/A-1	-48.00	0.00	-1.2192	0.0000
10	V_{SS}	-55.70	1.40	-1.4148	0.0356
11	BYTE#	-57.50	-6.50	-1.4605	-0.1651
12	A16	-57.50	-18.00	-1.4605	-0.4572
13	A15	-57.10	-124.90	-1.4503	-3.1725
14	A14	-51.30	-124.90	-1.3030	-3.1725
15	A13	-45.90	-124.90	-1.1659	-3.1725
16	A12	-40.00	-124.90	-1.0160	-3.1725
17	A11	-34.60	-124.90	-0.8788	-3.1725
18	A10	-28.80	-124.90	-0.7315	-3.1725
19	A9	-23.30	-124.60	-0.5918	-3.1648
20	A8	-17.40	-124.90	-0.4420	-3.1725
21	WE#	-12.00	-124.90	-0.3048	-3.1725
22	RESET#	-2.40	-128.60	-0.0610	-3.2664
23	RY/BY#	9.50	-128.60	0.2413	-3.2664
24	A7	30.30	-124.90	0.7696	-3.1725
25	A6	35.80	-124.90	0.9093	-3.1725
26	A5	41.60	-124.90	1.0566	-3.1725
27	A4	47.00	-124.90	1.1938	-3.1725
28	A3	52.90	-124.90	1.3437	-3.1725
29	A2	58.30	-124.90	1.4808	-3.1725
30	A1	64.10	-124.90	1.6281	-3.1725
31	A0	64.50	-18.00	1.6383	-0.4572
32	CE#	64.50	-6.50	1.6383	-0.1651
33	V_{SS}	64.50	3.80	1.6383	0.0965
34	OE#	55.00	2.30	1.3970	0.0584
35	DQ0	47.40	0.00	1.2040	0.0000
36	DQ8	41.50	0.00	1.0541	0.0000
37	DQ1	35.60	0.00	0.9042	0.0000
38	DQ9	29.70	0.00	0.7544	0.0000
39	DQ2	23.90	0.00	0.6071	0.0000
40	DQ10	18.00	0.00	0.4572	0.0000
41	DQ3	12.10	0.00	0.3073	0.0000
42	DQ11	6.20	0.00	0.1575	0.0000

Note: The coordinates above are relative to the die center and can be used to operate wire bonding equipment.

ORDERING INFORMATION

Standard Products

AMD standard products are available in several packages and operating ranges. The order number (Valid Combination) is formed by a combination of the following:

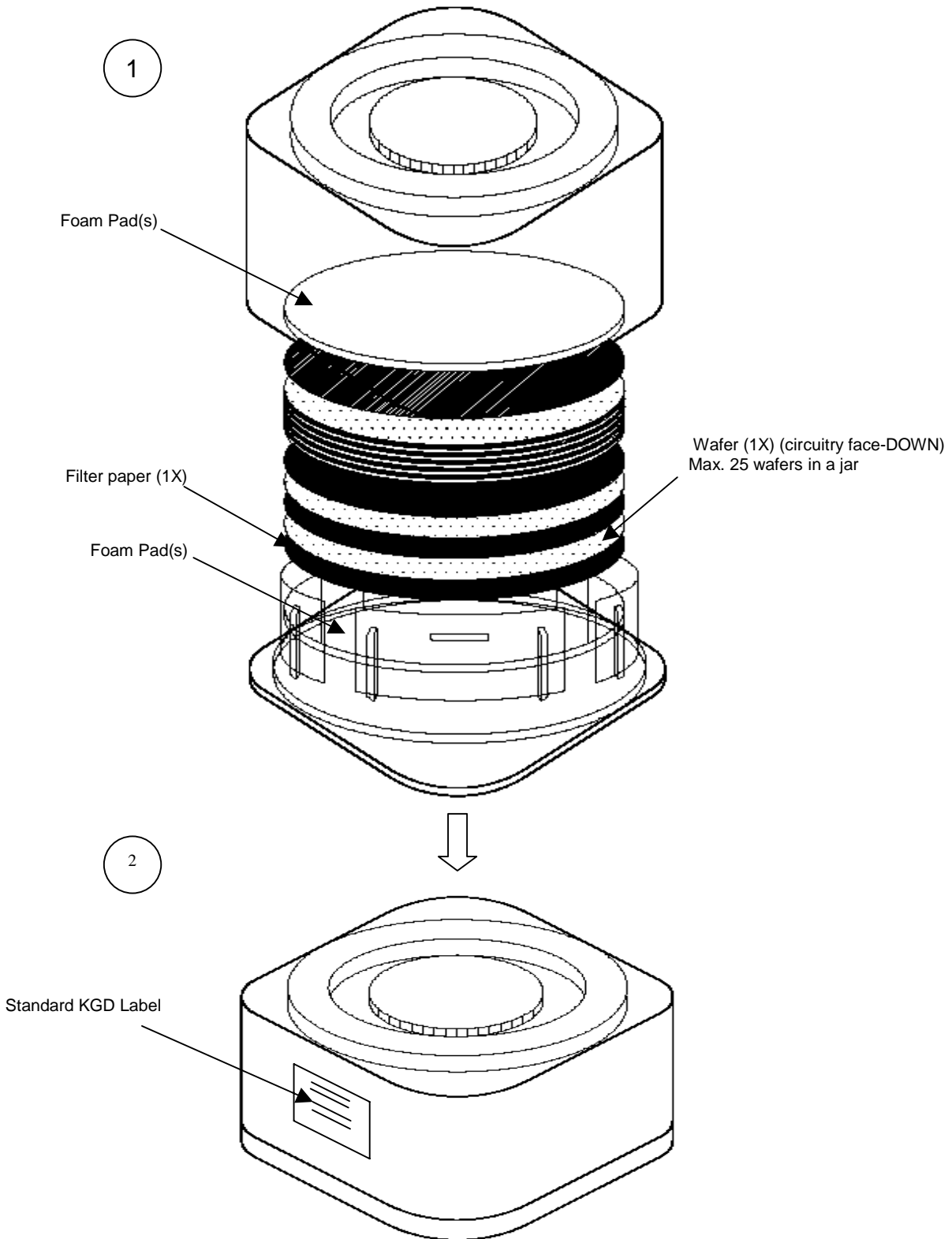


Valid Combinations	
AM29F200BT-55, AM29F200BB-55 (55 ns, V _{CC} = 5.0 V ±5%)	WJC1, WJI1, WJE1
AM29F200BT-75, AM29F200BB-75 (70 ns, V _{CC} = 5.0 V ±5%)	
AM29F200BT-90, AM29F200BB-90	
AM29F200BT-120, AM29F200BB-120	

Valid Combinations

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations and to check on newly released combinations.

WAFER JAR DIAGRAM



PRODUCT TEST FLOW

Figure 1 provides an overview of AMD's Known Good Wafer test flow. For more detailed information, refer to the Am29F200B product qualification database. AMD implements quality assurance procedures throughout the product test flow. These QA procedures also allow

AMD to produce KGW products without requiring or implementing burn-in. In addition, an off-line qualification maintenance program (QMP) guarantees AMD quality standards are met on Known Good Wafer products.

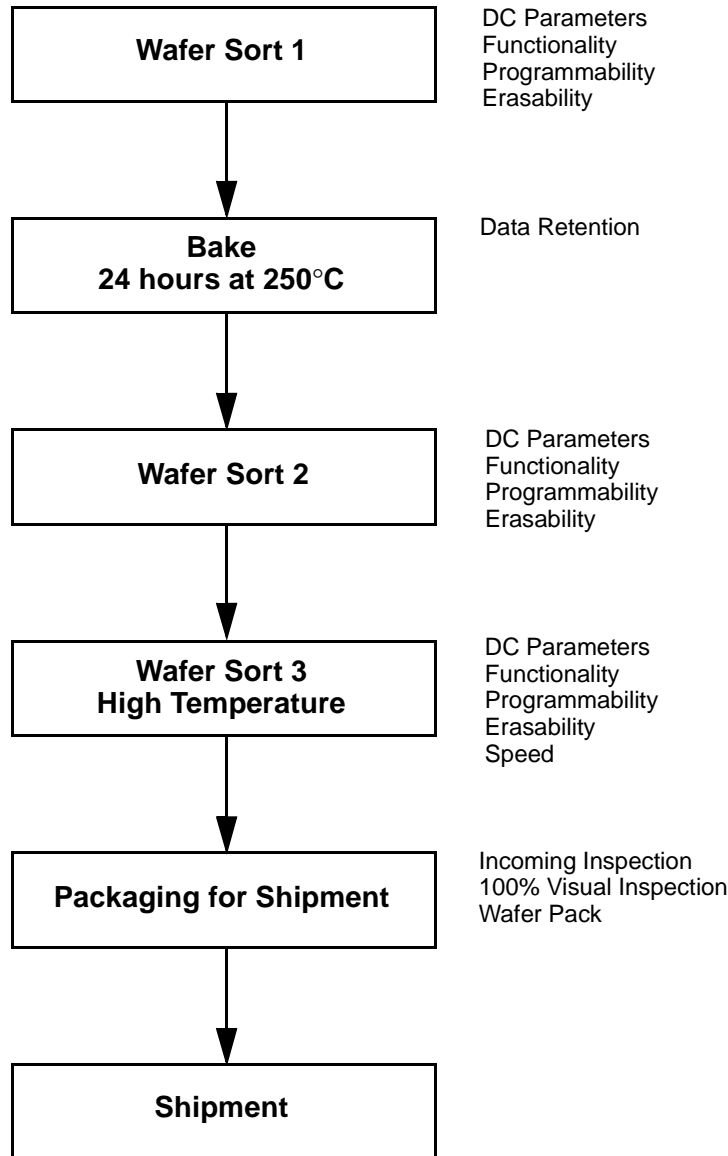


Figure 1. AMD KGW Product Test Flow

PHYSICAL SPECIFICATIONS

Wafer Size	200 mm
Active Die	x = 3328.8 μ m; y = 3594.8 μ m
	x = 131 mils; y = 141.5 mils
Scribe width	x = 91.2 μ m; y = 225.2 μ m
	x = 3.59 mils; y = 8.87 mils
Step	x = 3.42 mm; y = 3.82 mm
	x = 134.6 mils; y = 150.4 mils
Wafer Thickness	483 +/-51 μ m
Bond Pad Size	3.74 mils x 3.74 mils
	95 μ m x 95 μ m
Minimum pad pitch	137.8 μ m
	5.42 mils
Pad Area Free of Passivation	13.99 mils ²
	9,025 μ m ²
Pads Per Die	42
Bond Pad Metalization	Al/Cu
	Minimum thickness: 10500 Å
Die Backside	No metal, may be grounded with Back-grind type finish (optional)
Passivation	Nitride/SOG/Nitride
	Minimum thickness: 14700 Å
Ink dot height	.08 mils max
	20.3 μ m max
Ink dot diameter	.15 mils min
	381 μ m min
Edge die Inked	Yes

DC OPERATING CONDITIONS

V _{CC} (Supply Voltage)	4.5 V to 5.5 V
Junction Temperature Under Bias:	
Commercial, Industrial, and	
Extended Temperature Range	T _J (max) = 130°C
Operating Temperature	
Commercial	0°C to +70°C
Industrial	-40°C to +85°C
Extended	-55°C to +125°C
Contact AMD for higher temperature range devices.	

MANUFACTURING INFORMATION

Manufacturing	FASL
Test	Penang, Malaysia
Manufacturing ID (Top Boot)	98480AK
(Bottom Boot)	98480ABK
Preparation for Shipment	Penang, Malaysia
Fabrication Process	CS39S
Die Revision	1

SPECIAL HANDLING INSTRUCTIONS**Processing**

Do not expose KGW products to ultraviolet light or process them at temperatures greater than 250°C. Failure to adhere to these handling instructions will result in irreparable damage to the devices. For best yield, AMD recommends assembly in a Class 10K clean room with 30% to 60% relative humidity.

Storage

Store at a maximum temperature of 30°C in a nitrogen-purged cabinet or vacuum-sealed bag. Observe all standard ESD handling procedures.

TERMS AND CONDITIONS OF SALE FOR AMD NON-VOLATILE MEMORY DIE

All transactions relating to unpackaged die or unpackaged wafer(s) under this agreement shall be subject to AMD's standard terms and conditions of sale, or any revisions thereof, which revisions AMD reserves the right to make at any time and from time to time. In the event of conflict between the provisions of AMD's standard terms and conditions of sale and this agreement, the terms of this agreement shall be controlling.

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This limited warranty does not extend beyond the first purchaser of said Die or Wafer(s).

Buyer assumes full responsibility to ensure compliance with the appropriate handling, assembly and processing of KGD or KGW (including but not limited to proper Die preparation, Die attach, backgrinding, singulation, wire bonding and related assembly and test activities), and compliance with all guidelines set forth in AMD's specifications for KGD or KGW, and AMD assumes no responsibility for environmental effects on KGD or KGW or for any activity of Buyer or a third party that damages the Die or Wafer(s) due to improper use, abuse, negligence, improper installation, improper backgrinding, improper singulation, accident, loss, damage in transit, or unauthorized repair or alteration by a person or entity other than AMD ("Limited Warranty Exclusions")

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REVISION SUMMARY**Revision A (April 22, 2003)**

Initial release.

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