



## **UM0405**

### **Ameba Flash AVL (NAND Flash)**

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This document lists the NAND Flashes available on Ameba-Smart/-Green2 platform.



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# 1 NAND Flash Test Notice

## 1.1 Special Attention

NAND Flash is available in various manufacturing process types, resulting in significant differences in endurance and data retention capabilities among different NAND Flash devices. Users should pay special attention to whether the number of program/erase (P/E) cycles and the data retention performance of the NAND Flash meet their product requirements.

## 1.2 Disclaimer

Since Realtek finished the functional test with limited Flash samples provided by Flash vendors, Realtek cannot guarantee the probability that some functional problems may occur due to the limited samples, the not long enough test time, and the variation of different batches of Flash.

Also, Realtek is not responsible for the quality assurance of Flash. All about quality and reliability of the Flash in mass production, please request the related test reports from the corresponding Flash vendor to guarantee.

## 1.1 NAND Flash Level Standard

Level	Standard	Remark
3	This level includes the Flash which has passed the functional test, and with very rigorous test report provided by the certified third party/Flash vendor to ensure the stability of Flash.	Recommended
2	This level includes the Flash which has passed the functional test, and with test report provided partly by the certified third party/Flash vendor to ensure the stability of Flash, but the test standard in test report isn't rigorous.	Users must evaluate and verify the quality of Flash by themselves.
1	This level includes the Flash which has passed the function test, but with no test report provided by Flash vendor.	The stability of Flash cannot be guaranteed. Users must ask for test report from Flash vendor to ensure the stability of Flash, and evaluate & verify the quality of Flash by themselves.

## 1.2 NAND Flash Test Report List

When submitting the Flash AVL requirement, in addition to the Flash-related documentations, Flash test reports must be provided together to ensure that this Flash has been strictly tested. Flash test reports must include the following test items at least, whether they are provided by the certified third party or Flash vendor.

Priority	Test item	Mandatory	Flash test report
1	Human Body Model (HBM)	Yes	Must be issued by one of the following organizations: <ul style="list-style-type: none"> <li>● Certified third-party</li> <li>● Flash vendor</li> </ul>
2	Charge Device Model (CDM)	Yes	
3	Machine Model (MM)	Yes	
4	Latch-up	Yes	
5	High Temperature Operating Life (HTOL)	Yes	

6	High Temperature Storage Life (HTSL)	Yes	
7	Endurance	Yes	
8	Uncycled High Temperature Data Retention (UCHTDR)	Yes	
9	Post-cycling High Temperature Data Retention (PCHTDR)	Yes	
10	Low Temperature Data Retention (LTDR)	Yes	
11	Early Life Failure Rate (ELFR)	Yes	
12	Low Temperature Operating Life (LTOL)	Yes	
13	Non-Volatile Memory Cycling Endurance (NVCE)	Yes	
14	Electromagnetic Interference (EMI)/ Electromagnetic Compatibility (EMC)	Yes	
15	Endurance long run test report with high/low temperature and high/low voltage	No	Flash vendor
16	CP/FT test	No	
17	Compatibility report with different host	No	

**i** NOTE

- If the test reports with priority 1~14 are issued by the certified third-party, the corresponding Flash is qualified to be listed in level 3; otherwise, level 2 in advance.
- The test reports with priority 15~17 are optional, and can be issued by Flash vendor directly. With them, the corresponding Flash is qualified to be listed in level 3.
- The availability of the test reports will affect the final test results and Flash level.

## 2 NAND Flash AVL

### 2.1 Ameba-Smart

The following sections list the Flashes of different vendors that have passed the test on Ameba-Smart platform. These Flashes are divided into three levels according to the Flash test result given by Realsil and the Flash test reports provided by the certified third-party or Flash vendor.

#### 2.1.1 Level 3

Based on the performance and quality, the Flashes of level 3 are recommended.

None.

#### 2.1.2 Level 2

All the Flashes of level 2 have passed the function test and the stability of them can be guaranteed, but you must evaluate and verify the quality of Flash by yourself. Refer to [NAND Flash Level Standard](#).

##### 2.1.2.1 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. STR	Supported by SDK?
GD5F1GM7UE	0xC8	128MB	3.3V	4O	133MHz	By default
GD5F2GM7UE		256MB	3.3V	4O	133MHz	

#### 2.1.3 Level 1

All the Flashes of level 1 have only passed the function test, the stability of them cannot be guaranteed. Refer to [NAND Flash Level Standard](#).

None.