

Reliability Summary Report

Product Type: 4GB eMMC

Part Number: KTM4GH1AHI01

Package: 153 ball BGA

1. Product Information

Product No.	Dimensions	Package	JEDEC Standard
KTM4GH1AHI01	11.5 x 13.0 x 0.8mm	153 ball FBGA	eMMC v5.1

2. Test Summary

Product Test Result				
<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL				
	Test Items	Test Results		Notes
1	Performance	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	
2	Electrical Performance	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	
3	Reliability	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	

3. Performance

3.1. Crystal-Disk Mark Benchmark V3.0.2

Drive Capacity	Sequential		512K		4K		4K QD32	
	Read	Write	Read	Write	Read	Write	Read	Write
4GB	182.3	10.25	160.6	9.780	11.88	3.327	12.40	3.462

(Unit : MB/s)

3.2. TestMetrix_Performance

Drive Capacity	DDR52 Performance			
	Seq. Read (MB/s)	Seq. Write (MB/s)	Random RMB (IOPS)	Random WMB (IOPS)
4GB	93.783	9.826	4610.033	1072.180

Drive Capacity	HS200 Performance			
	Seq. Read (MB/s)	Seq. Write (MB/s)	Random RMB (IOPS)	Random WMB (IOPS)
4GB	158.466	9.758	4889.765	979.065

Drive Capacity	HS400 Performance			
	Seq. Read (MB/s)	Seq. Write (MB/s)	Random RMB (IOPS)	Random WMB (IOPS)
4GB	169.999	9.824	5344.870	986.268

3.3. IO-Meter Benchmark

IO-Meter 1GB Summary

Transfer Size	Sequential				Random			
	Write MBps	Read MBps	Write IOps	Read IOps	Write MBps	Read MBps	Write IOps	Read IOps
512B	0.49	2.15	995.24	4399.15	0.32	1.81	654.78	3708.37
1KB	0.97	4.18	994.35	4284.54	0.63	3.50	645.15	3584.93
2KB	1.95	8.34	998.23	4268.74	1.25	6.97	638.28	3567.77
4KB	4.14	16.09	1059.58	4119.92	2.34	13.53	598.50	3462.95
8KB	3.60	29.62	460.73	3790.94	2.18	21.74	278.62	2783.08
16KB	3.94	58.47	252.42	3741.90	2.74	35.93	175.08	2299.50
32KB	3.83	86.82	122.65	2778.31	3.68	53.58	117.86	1714.53
64KB	9.85	163.46	157.65	2615.29	4.78	68.59	76.51	1097.50
128KB	9.82	181.33	78.56	1450.66	5.88	82.33	47.04	658.61
256KB	9.86	185.47	39.46	741.88	6.53	93.23	26.13	372.90
512KB	9.90	188.25	19.79	376.50	7.07	103.20	14.14	206.41
1MB	9.90	187.62	9.90	187.62	6.33	110.51	6.33	110.51

4. Electrical Performance

4.1. Power Consumption

Test Item	Drive Capacity	ICCQ (mA)			ICC (mA)		
		DDR52	HS200	HS400	DDR52	HS200	HS400
Write Current	4GB	29.10	31.00	31.10	22.50	22.50	22.70
Read Current		33.90	39.30	48.40	22.30	37.40	37.30

5. Reliability

Num.	Item	Details	Sample	Result
7.1	Preconditioning (PC)	60°C, 70% RH, Time: 192hrs, J-STD-020	240	PASS
7.2	Temperature humidity bias (THB)	110°C, 85%RH, 264hrs, JESD22-A110	70	PASS
7.3	Unbiased HAST (UHAST)	130°C, 85%RH, 96hrs, JESD22-A118	70	PASS
7.4	High temperature storage life (HTSL)	150°C, 1000hrs, JESD22-A103	74	PASS
7.5	Electrostatic Discharge Human Body Model	HBM test: +/- 2KV according to JESD22-A114 100pf/1.5k ohms	15	PASS
7.6	Latch-Up (LU)	Refer to JESD78	6	PASS