

## Brief Specification Mobile HDD (1.8-type)

MK2239GSL / MK2039GSL / MK1639GSL

ITEM	MK2239GSL	MK2039GSL	MK1639GSL
<b>Basic specification</b>			
Interface	Serial ATA 2.6 / ATA8	Serial ATA 2.6 / ATA8	Serial ATA 2.6 / ATA8
Interface speed	1.5Gb/s	1.5Gb/s	1.5Gb/s
Formatted Capacity	220GB	200GB	160GB
Number of data heads	2	2	2
Number of disks	1	1	1
Number of User data cylinders	160,379 (typ.)	160,379 (typ.)	144,539 (typ.)
Bytes per sector (HOST)	512	512	512
Bytes per sector (DISK)	4096	4096	4096
Logical Blocks (LBA)	429,792,048	390,721,968	312,581,808
Maximum areal density	1001Mbit/mm <sup>2</sup> (646Gbit/in <sup>2</sup> )	912Mbit/mm <sup>2</sup> (588Gbit/in <sup>2</sup> )	728Mbit/mm <sup>2</sup> (469Gbit/in <sup>2</sup> )
Environmental compliance	RoHS compliant	RoHS compliant	RoHS compliant
<b>Performance</b>			
Buffer size	16MB	16MB	16MB
Rotation speed	4,200rpm	4,200rpm	4,200rpm
Average Latency time	7.14 ms	7.14 ms	7.14 ms
Internal transfer rate	317 - 689 Mb/s	293 - 636 Mb/s	259 - 564 Mb/s
Average seek time	15ms	15ms	15ms
Track to track seek time	3ms	3ms	3ms
Max. seek time	26ms	26ms	26ms
<b>Reliability</b>			
Load/Unload	600,000 times	600,000 times	600,000 times
Error rate non-recoverable	1/10 <sup>13</sup> bit read	1/10 <sup>13</sup> bit read	1/10 <sup>13</sup> bit read
<b>Supply Voltage</b>			
Allowable Voltage	3.3V (3.0V min to 3.3V+5%)	3.3V (3.0V min to 3.3V+5%)	3.3V (3.0V min to 3.3V+5%)
<b>Power consumption</b>			
Start	2.30W (max.)	2.30W (max.)	2.30W (max.)
Seek	1.30W (typ.)	1.30W (typ.)	1.30W (typ.)
Read/Write	1.30W (typ.)	1.30W (typ.)	1.30W (typ.)
Low power Idle	0.35W (typ.)	0.35W (typ.)	0.35W (typ.)
Stand-by	0.12W (typ.)	0.12W (typ.)	0.12W (typ.)
Sleep	0.10W (typ.)	0.10W (typ.)	0.10W (typ.)
Energy Consumption Efficiency	0.0016	0.0018	0.0022
/Category name	K	K	K
<b>Dimension</b>			
Height	5.0mm	5.0mm	5.0mm
Width	54.0mm	54.0mm	54.0mm
Depth	71mm	71mm	71mm
Weight	48g (max.)	48g (max.)	48g (max.)
<b>Temperature</b>			
Operating	0°C to 65°C	0°C to 65°C	0°C to 65°C
Non-Operating	-20 to 65°C	-20 to 65°C	-20 to 65°C
Shipping	-40 to 70°C	-40 to 70°C	-40 to 70°C
<b>Vibration/Shock</b>			
Vibration (op)	19.6m/s <sup>2</sup> (2.0G)	19.6m/s <sup>2</sup> (2.0G)	19.6m/s <sup>2</sup> (2.0G)
Vibration (non-op)	49m/s <sup>2</sup> (5.0G)	49m/s <sup>2</sup> (5.0G)	49m/s <sup>2</sup> (5.0G)
Shock (op)	5,880m/s <sup>2</sup> (600G) (2ms half sine)	5,880m/s <sup>2</sup> (600G) (2ms half sine)	5,880m/s <sup>2</sup> (600G) (2ms half sine)
Shock (non-op)	14,700m/s <sup>2</sup> (1500G) (1ms half sine)	14,700m/s <sup>2</sup> (1500G) (1ms half sine)	14,700m/s <sup>2</sup> (1500G) (1ms half sine)
<b>Acoustics</b>			
Idle (ave.)	14dB	14dB	14dB
Seek (ave.)	15dB	15dB	15dB

\*Energy Consumption Efficiency: Energy consumption efficiency is calculated based on power consumption divided by formatted capacity, as defined by Japanese law.

\*Definition of Capacity: TOSHIBA defines a megabyte (MB) as 1,000,000bytes, and a gigabyte (GB) as 1,000,000,000 bytes.