DELKIN DEVICES
Rugged Controlled Storage.

microSD/SDHC/SDXC Cards

microSD cards have been mainstream for years as storage for mobile phones, action cameras and other consumer devices. More recently, the small, lightweight and rugged form factor has become one of the most popular storage media for industrial and OEM applications as well. For handheld devices and other real estate-constrained designs, across a wide range of applications including inventory management, telecommunications, medical devices, power and energy, infotainment and transportation, Delkin Devices offers a full menu of microSD cards, allowing the best product selection to match any use model. Delkin microSD products have many additional benefits over standard retail consumer-grade cards, including BOM control, life cycle management and outstanding applications support.

Whether the application calls for a few Megabytes of storage to launch an application, or several Gigabytes to store video data, Delkin has the solution.

For the most demanding applications, in terms of environmental conditions, write-intensive workload or the mission-critical nature of the stored data, Delkin offers true industrial SD controllers, high endurance SLC NAND flash, full industrial temperature range and long life cycles.

For more cost sensitive designs, Delkin offers lines of MLC/3D Industrial - based cards – the Utility family in standard (-25°C to +85°C) and Utility+ and Utility Endurance families offering full industrial (-40°C to +85°C) temperature ranges.

HIGHLIGHTS

Four microSD Product Families
- SLC, MLC and 3D Flash
- Commercial & Industrial Temp
- SD 3.0

Wide Range of Capacities from 128MB to 128GB

Support for SD and SPI Modes

Controlled BOM

Life Cycle Management

Regardless of the microSD product family, Delkin ensures consistent performance and host compatibility through managed configurations. Delkin locks the card configuration down to the specific controller, firmware and flash chips, with a change to any of these components dictating a new part number. When an unavoidable EOL occurs to any of these items, Delkin communicates the discontinuation in advance, providing the opportunity to place a last time buy as well as to qualify the replacement solution.

Additionally, since the Delkin Devices facility in Poway, California is the headquarters for our design, manufacturing and support teams, we can also provide customized microSD solutions. Options include pad printing, content or image loading, conformal coating or other mechanical modifications to meet a specific need. Contact us to ask how a card can be customized for your application.

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SD Product Family	U331C / U500 Series	Utility microSD	Utility+ microSD	Endurance
Connector	Standard microSD 8 pin			
Outline Dimensions	11 x 15 x 1 mm			
Flash Type	SLC	MLC / 3D Industrial		pSLC
Density Range	128MB – 2GB (SD) 4GB (SDHC)	4GB – 32GB (SDHC) 64GB – 128GB (SDXC)	4GB – 32GB (SDHC) 64GB (SDXC)	8GB – 32GB (SDHC) 64GB - 128GB (SDXC)
Data Retention	10 years - up to 10% of P/E cycles	5 years - up to 10% of P/E cycles		5 years - up to 10% of P/E cycles
	1 year - at end of life / 100% of cycles			
Endurance (Raw Flash Level)	60,000 P/E Cycles	3,000 P/E Cycles		30,000 P/E Cycles
Block Size	128KB – 2048KB	8MB – 84MB	8MB – 48MB	14MB – 84MB
Operating Temperature	-40°C to +85°C	-25°C to +85°C	-40°C to +85°C	-40°C to +85°C
Storage Temperature	-40°C to +85°C			
Performance				
Sequential Read (MB/s)	Up to 22 (*Random Perf. 6MB/s)	Up to 95		Up to 95
Sequential Write (MB/s)	Up to 22 (*Random Perf. 3.3MB/s)	Up to 90		Up to 85
MTBF	≥ 3,000,000 hours			
Shock*	1,500G for 0.5msec	500G for 0.5msec	1,500G for 0.5msec	1,500G for 0.5msec
Vibration*	20Hz ~80Hz/1.52mm displacement, 80Hz~2000Hz / 20G Acceleration			
Humidity	95% RH @ 55°C	95% RH @ 25°C	95% RH @ 55°C	95% RH @ 55°C
Voltage	2.7 – 3.6 V Normal			
Power Consumption	Read Maximum < 400 mA Write Maximum < 400 mA Idle Maximum < 1000 uA			
Features & Tools	Sophisticated Wear Leveling & Bad Block management Highest Endurance Longest Life Cycle	Sophisticated Wear Leveling & Bad Block management Limited Life Cycle Management Cost Effective		Sophisticated Wear Leveling & Bad Block management High Endurance Auto-Read Refresh
SMART Capability	CMD56, Libraries Available Delkin Dashboard (Windows)			
Part Numbers	**U331C** 128MB S312TLKJM-C1000-3 256MB S325TLMJM-C1000-3 512MB S351TLNJM-C1000-3 1GB S30GTLNJM-C1000-3 2GB S302TLNJM-C1000-3 4GB S304TLNJM-U1000-3 **U500*** 512MB S351TLNVE-C1000-3 1GB S30GTLNVE-C1000-3 2GB S302TLNVE-C1000-3 Contact Delkin for other options	4GB S404GSEMC-U3000-3 8GB S408GSEMB-U1000-3 16GB S416GSEMB-U3000-3 32GB S432FSTML-U3000-3 64GB S464FSTML-U3000-3 128GB S41HFSTML-U3000-3 Contact Delkin for other options	4GB S304GSEMC-U3000-3 8GB S308APGJP-U1000-3 16GB S316APGJP-U3000-3 32GB S332FQYFA-U1000-3 64GB S364FQYFA-U1000-3 Contact Delkin for other options	8GB S308FSTL2-U3000-3 16GB S316FSTL2-U3000-3 32GB S332FSTL2-U3000-3 64GB S364FSTL2-U3000-3 128GB S31HFSTL2-U3000 3 Contact Delkin for other options

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