



## DuraFlash™

# XL+ | SD 3.01 | SD Card

SMART's DuraFlash high performance, industrial grade XL+ SD Cards support OEM markets such as networking, telecommunications and data communications, embedded computing, medical, automotive, and industrial applications. Offered in both SLC and MLC NAND Flash versions, the XL+ SD Cards are available in capacities from 512MB to 32GB for the SLC version and 8GB to 128GB for the MLC version.

SMART's XL+ SD Cards comply with SD v3.01 SDSC, SDHC and SDXC Standard. Incorporating onboard error detection and correction algorithms, and static and dynamic wear-leveling techniques, the XL+ SD Cards ensure years of reliable operation over a product's life.



## Features & Benefits

- Capacities:
  - SLC: 4GB to 32GB (SDHC), 512MB to 2GB (SDSC)
  - MLC: 64GB to 128GB (SDXC), 8GB to 32GB (SDHC)
- Low Power Dissipation
- Onboard Wear-Leveling
- RoHS Compliant
- Optional Industrial Temperature (-40°C to +85°C)

## Product Family Overview

Capacity	Sequential Performance
<b>XL+   SD 3.01   SD Card (SLC)</b>	
4GB to 32GB (SDHC)	Up to 49MB/s Read; Up to 38MB/s Write
512MB to 2GB (SDSC)	Up to 24MB/s Read; Up to 17MB/s Write
<b>XL+   SD 3.01   SD Card (MLC)</b>	
64GB to 128GB (SDXC)	Up to 98MB/s Read; Up to 76MB/s Write
8GB to 32GB (SDHC)	Up to 98MB/s Read; Up to 47MB/s Write

## Applications

- Airline Entertainment Systems
- Automotive Telematics, Navigation and Infotainment
- Defense
- Digital Commercial Camcorders
- Embedded Computing
- Gaming
- Industrial Meters and Industrial Control
- Networking
- Telecom and Communications

## Specifications

	XL+   SD 3.01   SD Card	
NAND Type	SLC	MLC
<b>Performance</b>		
Sequential Read (maximum)	Up to 49MB/s (4GB to 32GB) Up to 24MB/s (512MB to 2GB)	Up to 98MB/s (8GB to 128GB)
Sequential Write (maximum)	Up to 38MB/s (4GB to 32GB) Up to 17MB/s (512MB to 2GB)	Up to 76MB/s (64GB to 128GB) Up to 47MB/s (8GB to 32GB)
<b>Reliability</b>		
MTBF	> 1,000,000 hours	
Data Reliability	< 1 Non-Recoverable Error in 10 <sup>14</sup> bits read	
Data Retention	10 years >90% life remaining 1 year at the end of life	
Endurance	TBW up to 6TB per 1GB capacity TBW up to 0.2TB per 1GB capacity	
<b>Power</b>		
Vcc	2.7V – 3.6V	
Read	< 200mA at 3.6V	
Write	< 200mA at 3.6V	
Idle	150µA typical	
<b>Environmental</b>		
Shock (operational)	50G max. @ 11ms	
Vibration	15G peak to peak	
Operating Temperature	Commercial: 0°C to +70°C Industrial: -40°C to +85°C	
Storage Temperature	Commercial: -25°C to +85°C Industrial: -40°C to +85°C	
Humidity	5% to 95%	
Altitude	up to 80,000 ft.	
<b>Physical</b>		
Length	32.0mm	
Width	24.0mm	
Thickness	2.1mm	
Weight	2.0g	

## Ordering Information

Part Number	Density
<b>XL+   SD 3.01   SD Card (SLC)</b> <b>Commercial Operating Temperature (0°C to +70°C)</b>	
SH9SD032GSNIDSC02	32GB
SH9SD016GSNICSC02	16GB
SH9SD008GSNICSC02	8GB
SH9SD004GSMIASC02	4GB
SH9SD004GSMIBSC02	4GB
SH9SD002GSBIASC03	2GB
SH9SD002GSBI1SC03	2GB
SH9SD001GSBI9SC03	1GB
SH9SD512MSBI8SC03	512MB
<b>XL+   SD 3.01   SD Card (MLC)</b> <b>Commercial Operating Temperature (0°C to +70°C)</b>	
SH9SD128GSMKFC01	128GB
SH9SD064GSMKEMC01	64GB
SH9SD032GSMKDMC01	32GB
SH9SD016GSMKCMC01	16GB
SH9SD008GSMKCMC01	8GB
<b>XL+   SD 3.01   SD Card (SLC)</b> <b>Industrial Operating Temperature (-40°C to +85°C)</b>	
SH9SD032GSNIDSI02	32GB
SH9SD016GSNICSI02	16GB
SH9SD008GSNICSI02	8GB
SH9SD004GSMIASI02	4GB
SH9SD004GSMIBSI02	4GB
SH9SD002GSBIASI03	2GB
SH9SD002GSBI1SI03	2GB
SH9SD001GSBI9SI03	1GB
SH9SD512MSBI8SI03	512MB
<b>XL+   SD 3.01   SD Card (MLC)</b> <b>Commercial Operating Temperature (0°C to +70°C)</b>	
SH9SD128GSMKFMIO1	128GB
SH9SD064GSMKEMIO1	64GB
SH9SD032GSMKDMI01	32GB
SH9SD016GSMKCMIO1	16GB
SH9SD008GSMKCMIO1	8GB



**Headquarters/North America:**  
T: (+1) 800-956-7627 • T: (+1) 510-623-1231  
F: (+1) 510-623-1434 • E: info@smartm.com

**Latin America:**  
T: (+55) 11 4417-7200 • E: sales.br@smartm.com

**Asia/Pacific:**  
T: (+65) 6678-7670 • E: sales.asia@smartm.com

For more information, please visit: [www.smartm.com](http://www.smartm.com)

**EMEA:**  
T: (+44) 0 7826-064-745 • E: sales.euro@smartm.com

**Customer Service:**  
T: (+1) 510-623-1231 • E: customers@smartm.com