

# swissbit®

Product fact sheet

## Industrial Secure Digital Card

### S-220 Series

4/8GB SDHC Card (SPI/SD)

Extended and industrial  
temperature grade

BU: Swissbit Group  
Date: 31 August 2010  
Revision: 1.01

S-220\_fact\_sheet\_SD-LxBN\_Rev101.doc



# S-220 SERIES

## 4/8GBYTE CLASS 6(10) – INDUSTRIAL SD/SDHC CARD

### Main Feature

- Fully compliant with SD Card specification 2.0
- SD and SPI Mode supported
- SDHC class 6 compliant
- High performance
  - SD burst up to 25MB/s
  - SD Low speed 0...25MHz clock rate
  - SD High speed 25...50MHz clock rate
  - Flash burst up to 40MB/s per channel
  - Up to 22MByte/sec sequential data rate
- Power Supply: (Low-power CMOS technology)
  - 2.7...3.6V normal operating voltage
  - 2.0...3.6V basic communication (CMD0, 15, 55 ACMD41) voltage
- Standard SD card form factor
  - 32.0mm x 24.0mm x 2.1mm
  - Write Protect slider
- Patented power-off reliability
  - No data loss of older sectors
  - Max. 32 sectors data loss (old data kept) if power off during writing
- Wear Leveling  
Equal wear leveling of static and dynamic data. The wear leveling assures that dynamic data as well as static data is balanced evenly across the memory. With that the maximum write endurance of the device is guaranteed.
- Write Endurance  
Due to intelligent wear leveling an even use of the entire flash is guaranteed, regardless how much "static" (0S) data is stored.
- High reliability
  - Designed for embedded market
  - Number of card insertions/removals: >10,000
  - Extended Temperature range -25° up to 85°C
  - Optional industrial Temperature range available -40° up to 85°C
- Controlled BOM & PCN process
- Life time monitoring like S.M.A.R.T. over SD Interface supported



## System Performance

System Performance		Typ.	Max.	Unit
Burst Data transfer Rate (max clock 50MHz)			25	MB/s
	8GB	19	22	
	8GB	17	20	

Current Consumption @3.3V		typ	max	Unit
Write		80	90	mA
Read		50	60	
Sleep Mode		0.3	0.4	

## Capacity specification

Capacity	Sectors_card	Total addressable capacity (Byte)
8GB	16,226,304	8,307,867,648

## Physical Dimensions

Physical Dimensions	Value	Unit
Length	32.00±0.10	mm
Width	24.00±0.10	
Thickness	2.10±0.15	
Weight (typ.)	2	g

## Recommended Storage Conditions

Parameter	Min	Typ	Max	Unit
Extended Storage Temperature	-40	25	85	°C
Industrial Storage Temperature	-40	25	100	°C

## Humidity and ESD

Parameter	Operating	Non Operating
Humidity (non-condensing)	max 95%	
ESD according to IEC61000-4-2	<b>Non Contact Pads area:</b> ±8 kV (coupling plane discharge) ±15 kV (air discharge) Human body model according to IEC61000-4-2	<b>Contact Pads:</b> ±4 kV, Human body model according to IEC61000-4-2
Human body model		
±4 kV 100 pf/1.5 kOhm		
Machine model		
±0.25 kV 200 pf/0 Ohm		

## Durability

Parameter	Operating	Non Operating
Salt water spray	3% NaCl/35°C; 24h acc. MIL STD Method 1009	
Solar Exposure / Impermeability	1000W/m <sup>2</sup> @ 400°C / IP67	
UV Light Exposure	UV: 254nm, 15Ws/cm <sup>2</sup>	
Insertions / Drop test	>10,000/ 1.5m free fall	
Bending / Torque / Bump	10N / 0.15Nm or ±2.5deg / 25g; 6ms; ±3 x 4000 shocks	
Shock / Vibration (peak -to-peak)	1000 g max. / 15G max.	
Minimum moving force of WP slider	0.4N	

For more information on SD card Spec 2.0, please visit SD association ([www.sdcard.org](http://www.sdcard.org))

## Why Swissbit?

Swissbit strives to create innovative technologies for future market opportunities utilizing a highly skilled in-house product research and development team. Swissbit maintains a marketing edge by continuing to manufacture world-class high quality memory products and providing customers with both high value and low cost of ownership achieved through efficient processes and procedures.