swissbit®

Product Fact Sheet

Industrial SDHC Memory Card

S-220 Series

SPI, SDHC compliant, class 6 & 10 compliant

made in germany

S-220 Series
SDHC Memory Card

1 Feature summary

- Custom-designed, highly-integrated memory controller
  - Fully compliant with SD Memory Card specification 2.0
  - Four integrated 4KByte Sector Buffers for fast data transfer
  - SPI Mode support
- Standard SD Memory Card form factor
  - 32.0mm x 24.0mm x 2.1mm
  - Write Protect slider
- 2.7...3.6V normal operating voltage
- 2.0...3.6V basic communication (CMD0, 15, 55 ACMD41) voltage
- Low-power CMOS technology
- Patented power-off reliability
  - No data loss of older sectors
  - Max. 32 sectors data loss (old data kept) if power off during writing before card status is ready
- 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" (OS) data is stored.
  Example: If the average file size is 10MByte and the total capacity is 8GByte, 80Mio write cycles can be performed.
- High reliability
  - Best available SLC NAND Flash technology
  - Designed for embedded market
  - MTBF > 4,000,000 hours
  - 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
- Hot swappable
- High performance
  - SD burst up to 25MB/s
  - SD Low speed 0...25MHz clock rate
  - SD High speed 25...50MHz clock rate
  - 2 channel flash
  - Flash burst up to 40MB/s per channel
  - Swissbit S-220 SDHC memory cards are specified as SD 2.0 compliant.
  - Compliant with the highest speed "class 6" according SD2.0 2.0 standard & **speed "class 10"** as defined in SD Specification 3.0.
- Available densities
  - 4GByte and 8GBytes (lower densities are in the SDHC S-200 Series)
- Controlled BOM
- Life Time Monitoring SD/SPI with standard or vendor commands

System Performance

System Performance		typ	max	Unit
Burst Data transfer Rate (max clock 50MHz)			25	MB/s
Sustained Sequential Read	4/8GB	19	21	
Sustained Sequential Write	4/8GB	17	18	

Current Consumption @3.3V	typ	max	Unit
Write	80	90	mA
Read	45	60	
Sleep Mode	0.3	0.4	

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 Temperature Conditions

Parameter	min	typ	max	Unit
Extended Operating Temperature	-25	25	85	°C
Industrial Operating Temperature	-40	25	85	°C
Storage Temperature	-40	25	100	°C

Humidity and ESD

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

Durability

Parameter	Operating	Non Operating
Salt water spray	3% NaCl/35°C; 24h acc. MIL STD Method 1009	
Solar Exposure / Impermeability	1000W/m2 @ 400°C / IP67	
UV Light Exposure	UV: 254nm, 15Ws/cm2	
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 Memory card Spec 2.0, please visit SD association (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.

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