swissbit®

Product fact sheet

Industrial CFast™ Card

F-100 Series
SATA II – 3.0Gb/s
up to UDMA6 / MDMA2 / PIO4

Standard and industrial
temperature grade

BU: Swissbit Group
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F-100 Series – Industrial CFast™ Card with SATA interface

Feature summary

- Highly-integrated memory controller
  - SATA Rev 2.6 – 3Gbit/s (1.5Gbit/s compatible)
  - max. UDMA6 supported
  - max. PIO mode 4, MDMA2 supported
  - Hardware BCH-code ECC
    (8 Bit correction per sector for SLC)
  - Fix drive configuration
- Small form factor:
  - CompactFlash card sized Solid State Drive (SSD) with SATA interface
  - 42.8mm x 36.4mm x 3.3mm (max. 3.6mm)
- 7+17 pin (SATA+power) CFast connector
- Low-power CMOS technology
- 3.3V ± 10% power supply
- Low Power, less than 500mA (CFAST Power level 0)
- No mechanical noise
- Activity LED output
- Wear Leveling: active 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.
- High reliability
  - MTBF > 2,500,000 hours
  - Data reliability: < 1 non-recoverable error per 10^{14} bits read
  - Number of connector insertions/removals: >10,000
- High performance
  - Up to 300MB/s burst transfer rate in SATA II – 3.0Gb/sec
  - Sustained Write performance: up to 100MB/s   (4channel)
  - Sustained Read Performance: up to 120MB/s   (4channel)
- Available densities
  - 2GByte (2channel)
  - 4GByte up to 32GByte (SLC Nand Flash)
- 2 Temperature ranges
  - Commercial Temperature range   0 ... +70°C
  - Industrial Temperature range   -40 ... +85°C
- Life Cycle Management
- Controlled BOM
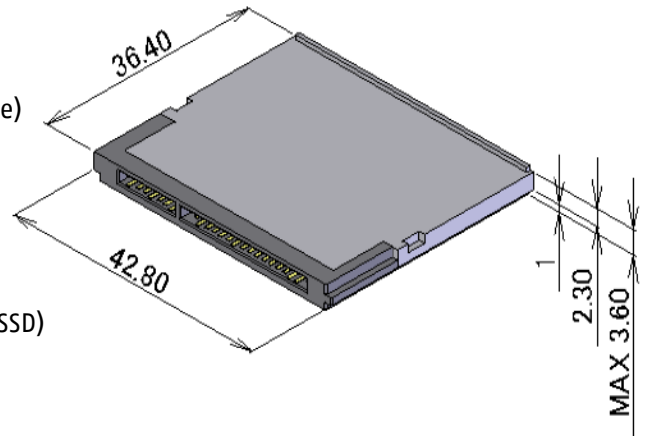- RoHS compatible
- S.M.A.R.T. support

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Table 1: System Performance

System Performance	8/16/32GB	4GB	2GB	Unit
Data transfer Rate (sATA burst)	3.0 (1.5)	3.0 (1.5)	3.0 (1.5)	Gbit/s
Sustained Read (max. measured)	116	100	56	MB/s
Sustained Write (max. measured)	93	54	24	

1. All values refer to 16GB card with Samsung 4x K9WBGFlash, SSD in UDMA mode 5, SATA 3.0Gbit/s, write/read file sequential.
2. Sustained Speed depends on flash type and number, file size, and burst speed

Table 2: Current consumption[1] at 3.3V ± 5%

Current Consumption	typical	max	Unit
Write (UDMA6)	290	380	mA
Read (UDMA6)	330	420	
Slumber	210	220	

1. All values are typical at 25° C and nominal supply voltage and refer to 16GByte CFAST card.

Table 3: Environmental Specifications

Environmental Specifications	Operating	Non Operating
Temperature (commercial)	0 to 70°C	-40 to 85°C
Temperature (industrial)	-40 to 85°C	-50 to 95°C
Humidity (non-condensing)	85% RH, at 85°C	max. 95% RH, at 85°C
Vibration (peak -to-peak)	20G Peak, 10…2000Hz	
Shock	1500G, 0.5ms duration, half sine wave	
Connector Durability	10,000 mating cycles, without exceeding low-level contact resistance	

Table 4: Physical Dimensions

Physical Dimensions		Unit
Width	36.4	mm
Height	42.8	
Thickness	3.6	
Weight (typ.)	10	g

Table 5: CFast capacity specification

Capacity	Default_cylinders	Default_heads	Default_sectors _track	Sectors_drive	Total addressable capacity (Byte)
2GB	3,866	16	63	3,896,928	1,995,227,136
4GB	7,732	16	63	7,793,856	3,990,454,272
8GB	15,498	16	63	15,621,984	7,998,455,808
16GB	16,383*)	16	63	31,277,056	16,013,852,672
32GB	16,383*)	16	63	62,586,880	32,044,482,560

*) The CHS addressing is limited to about 8GB. Larger drives should be used in LBA mode.

Table 6: System Reliability and Maintenance

MTBF (at 25°C)	> 2,500,000 hours
Data Reliability	< 1 Non-Recoverable Error per 10^{14} bits Read

(1) Dependent on final system qualification data.

The CFA logo and CFast are trademarks of the CompactFlash Association.
For more information on the CFast interface, please visit Compact Flash Organization at
www.compactflash.org
For more information on Serial ATA Revision 2.6, please visit Serial ATA International Organization at
www.serialata.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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