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Product fact sheet

Industrial CompactFlash™ Card

C-300 Longevity Series

up to UDMA4 / MDMA4 / PIO6

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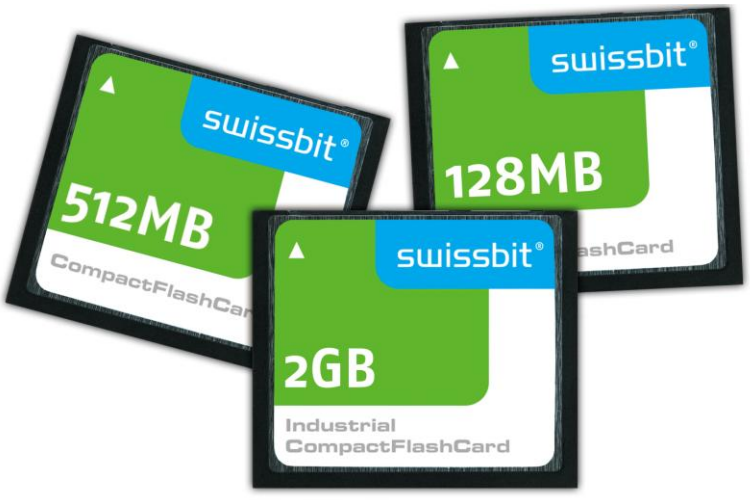

C-300 Longevity Series – UDMA CompactFlash™ Card, 128MByte up to 8GByte, 3.3/5V Supply

Main Features

- Highly-integrated memory controller
  - Fully compliant with CompactFlash™ specification 3.0, compatible with specification 4.1
  - Fully compatible with PCMCIA specification
  - PC Card ATA Interface supported
  - True IDE mode compatible
  - Up to PIO mode 6 supported
  - Up to MDMA4 supported
  - Up to UDMA4 supported
  - Hardware RS-code ECC (4 Bytes/528 Bytes correction)
  - Fix drive (IDE mode) & removable drive (PCMCIA mode) as default in the same card
- Small form factor
  - CFC Type I: 36.4mm x 42.8mm x 3.3mm
- Low-power CMOS technology
- 3.3V or 5.0V power supply
- Power saving mode (with automatic wake-up)
- S.M.A.R.T. support by *-SMA product type
- 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.
- Data Retention: 10 year (JESD47)
- Patented power-off reliability
  - No data loss of older sectors
  - Max. 16 sectors data loss (old data kept) for 2k Page flash respectively
  - All data written to the flash if card status is ready after write command
- High reliability
  - Best available SLC NAND Flash technology
  - Designed for embedded market
  - MTBF: > 3,000,000 hours
  - Data reliability: < 1 non-recoverable error per 10^{14} bits read
  - Number of insertions: > 10,000
- Hot swappable in PCMCIA modes
- High random performance
  - Up to 66MB/s burst transfer rate in UDMA4
  - Optimized for random access >150kB/s
  - Sustained Read/Write performance: up to 38/20MB/s (UDMA4)
- Available densities
  - 128MB to 8GBytes (SLC NAND Flash)
- Operating System support
  - Standard Software Drivers operation CompactFlash™
- 2 Temperature ranges
  - Commercial Temperature range 0 ... +70°C
  - Industrial Temperature range -40 ... +85°C
- Controlled BOM
- RoHS compliant
- Long term support

on request

System Performance

Parameter		Typ.	Max.	Unit
Sleep to write			5	ms
Sleep to read			5	
Power up to Ready		<500	1000	
Reset to Ready (IDE Master)			500	
Data transfer Rate (UDMA4 burst)			66 (440X)(1)	MB/s
Sustained Read/Write 128MB to 4GB (measured)		20/8.5(1)(2)	22/10(1)	MB/s (IOPS)
Sustained Read/Write 8GB (measured)		34/17(1)(2)	38/20 (1)	
4k Random Read/Write 128MB to 4GB (measured)		10/0.18 (45)(1)(2)	12/0.20(50)(1)	
4k Random Read/Write 8GB (measured)		12/0.16 (39)(1)(2)	13/0.17 (42) (1)	
Command to DRQ	Read	100	2000	µs
	Write	30	1000	

(1) All values refer to Micron Flash, CFC in UDMA mode 4, cycle time 30ns, write/read file sequential transfer 256 sectors/command or random 8 sector/command

(2) Sustained Speed depends on flash type and number, file size, and burst speed

Current Consumption(3) @ 3.3V	Typ.	Max.	Unit
Read (UDMA4)	100	140	mA
Write (UDMA4)	80	130	
Idle Mode	0.5	1.5	

(3) All values are typical at 25° C and nominal supply voltage and refer to 4GByte 2 channel CFC.

Physical Dimensions

Parameter	Value	Unit
Width	36.4	mm
Height	42.8	
Thickness	3.3	
Weight (typ.)	10	g

Environmental Specifications

Parameter	Operating	Non Operating
Temperature (commercial)	0 to 70°C	-40 to 85°C
Temperature (industrial)	-40 to 85°C	-50 to 100°C
Humidity (non-condensing)	85% RH 85°C, 1000 hrs (JEDEC JESD22, method A101-B)	
Vibration (peak -to-peak)	20 G peak, 20-2000Hz, 4 per direction (JEDEC JESD22, method B103), 5.35G RMS, 15 min per plane (IEC 68-2-6)	
Shock	1.5k G peak, 0.5ms 5 times (JEDEC JESD22, method B110) 30 G, 11ms 1 time (IEC 68-2-27)	

Capacity specification

Capacity	cylinders	heads	Sectors/track	Sectors_drive	Total addressable capacity (Byte)
128MB	937	8	32	239,872	122,814,464
256MB	980	16	32	501,760	256,901,120
512MB	993	16	63	1,000,944	512,483,328
1GB	1,986	16	63	2,001,888	1,024,966,656
2GB	3,970	16	63	4,001,760	2,048,901,120
4GB	7,964	16	63	8,027,712	4,110,188,544
8GB	15,880	16	63	16,007,040	8,195,604,480

System Reliability

System Reliability and Maintenance	
MTBF (at 25°C)	> 3,000,000 hours
Data Reliability	< 1 Non-Recoverable Error per 10^{14} bits Read

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.