

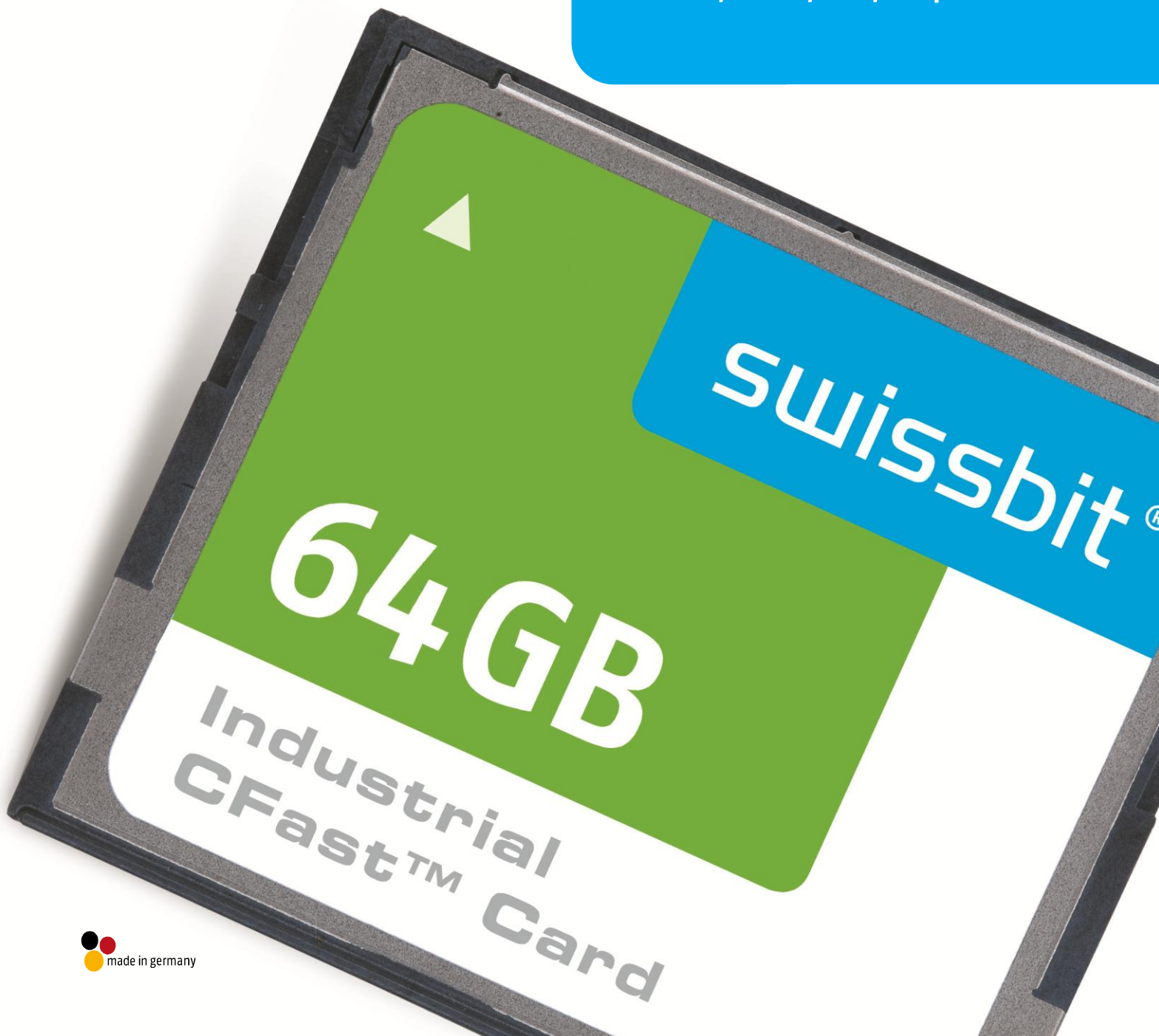
swissbit®

Product Fact Sheet

Industrial  
CFast™ Card

**F-240 Series**

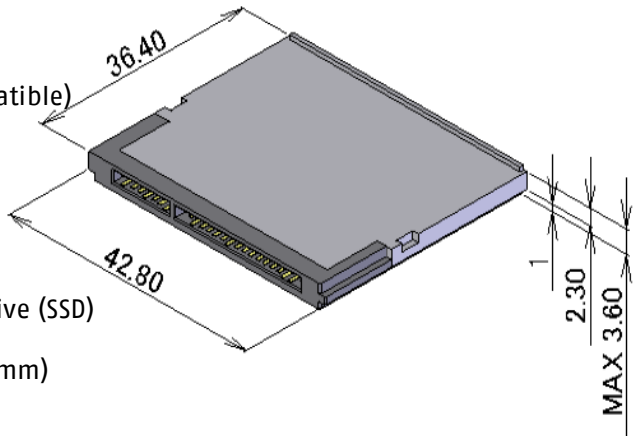
SATA II, UDMA6, TRIM, low power



# F-240 SERIES – INDUSTRIAL CFAST™ CARD WITH SATA INTERFACE

## 1 Features

- Highly-integrated memory controller
  - SATA Rev 2.6 – 3Gbit/s (1.5Gbit/s compatible)
  - max. UDMA6 MDMA2, PIO4, supported
  - Hardware BCH-code ECC (24bit correction per double sector or 6bit per sector)
  - 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
- 3.3V ± 5% power supply
- Very low Power, typical 140mA in transfer operation (CFAST Power level 0)
- Activity at LED1 and SATAlink LED output and LED2 pin
- write protect at connector IO1 pin
- Special features
  - S.M.A.R.T. support with additional vendor information, interpretation with Swissbit life time monitoring tool
  - TRIM command
  - NCQ queue depth 32
  - HPA (Host protected area)
  - Security mode feature set
  - LBA48 command set
  - host initiated power management requests
  - write protection with vendor command
- 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.
- Read disturb management (refresh data when flash often read)
- High reliability
  - Best available SLC NAND Flash technology
  - Designed for embedded market
  - MTBF > 2,500,000 hours
  - Data reliability: < 1 non-recoverable error per 10<sup>14</sup> 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 120MB/s (4channel)
  - Sustained Read Performance: up to 120MB/s (4channel)
- Available densities
  - 2GByte up to 64GByte (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



**Table 1: System Performance**

| System Performance              | typ       | max | Unit   |
|---------------------------------|-----------|-----|--------|
| Data transfer Rate (SATA burst) | 3.0 (1.5) | 3.0 | Gbit/s |
| Sustained Read (typ. measured)  | 116       | 120 | MB/s   |
| Sustained Write (typ. measured) | 114       | 120 |        |

- All values refer to 32GB card with Toshiba 4x TH58NVG6S2FTA20, SSD in UDMA mode 5, SATA 3.0Gbit/s, write/read data sequential.
- Sustained Speed depends on flash type and number, file size, and burst speed

**Table 2: Current consumption<sup>(1)</sup> at 3.3V ± 5%**

| Current Consumption (type) | 3.3V    | Unit |
|----------------------------|---------|------|
| Read (typ/max)             | 170/250 | mA   |
| Write (typ/max)            | 180/250 |      |
| Idle Mode (typ/max)        | 85/100  |      |

- 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 to 2000Hz  |                      |
| Shock                        | 1500G, 0.5ms duration, half sine wave                                   |                      |
| Connector Durability         | 10,000 mating cycles,<br>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<br>_track | Sectors_drive | Total addressable capacity<br>(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 <sup>*</sup> ) | 16            | 63                        | 30,788,352    | 15,763,636,224                       |
| 32GB     | 16,383 <sup>*</sup> ) | 16            | 63                        | 61,608,960    | 31,543,787,520                       |
| 64GB     | 16,383 <sup>*</sup> ) | 16            | 63                        | 125,304,832   | 64,156,073,984                       |

<sup>\*</sup>) 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 <sup>14</sup> 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](http://www.compactflash.org)

For more information on Serial ATA Revision 2.6, please visit Serial ATA International Organization at [www.serialata.org](http://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.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)