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ALLOW ME: I AM A COLLECTOR OR TRIPLE USER

Wolfgang Endrich

You read correctly – I am a collector. My grandfather was a government inspector, that is the highest rank in the lowest class, above there were the "studied", but by profession he was a surveyor, who after the war in the rural area around Stuttgart was significant in the land consolidation, which had the goal to bring the fields of the individual farms, which were fragmented by the succession of the last centuries, together again reasonably, so that the travel distances for the farmers were not longer than the field work.

From this said grandfather I inherited a box, which I still own today. In it are old, rusted nails, a horseshoe, screws, nuts and the like. And when I asked him what he wanted with this old junk, he said laconically: "You never know if you can use it again".

And when I now see beautiful bottles or jars with caps in the supermarket, filled with food or ready meals, of course, I am heartily sorry to just throw them in the trash - much to the amazement of those around me.

Why I mention this: today we have completely lost the feeling of reusing articles of daily use, a throwaway mentality of "ex and hop" prevails.

Our highly industrialized society today wants beautiful, attractively packaged products, e.g. beverages or food, but they have only one purpose, to attract the customer and make him buy.

But exactly this should lead today in our generation to a change of mind, because one could change so much immediately, if one only wanted. E.g. collect the plastic parts or cardboard / paper, aluminium cans and glass consistently, possibly provide with a deposit and reuse. The same applies to all electronic waste from televisions, radios, cell phones, etc. This could successfully prevent the pollution of the world's oceans with plastic parts or thus waste dumps.

The sad thing is that the awareness of the value of these products has been lost in our generation. Yet tricky solutions could contribute a great deal to waste prevention.

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To name just a few examples: a general deposit requirement for all packaging containing glass or metal. A few decades ago, there were very imaginative solutions, e.g. numbering the crown corks of bottles for which prizes of some kind were offered, i.e. a lottery.

But you could print information on the inside of cardboard packaging, which is not printed anyway, for example for older people, e.g. puzzles of any kind or instructions for use or cooking recipes, explanations on how to operate or program your TV or cell phone properly. This is already done on Norwegian AQUAVIT bottles.

Decades ago, there were booklets, albums, comics or books on and about various topics that were eagerly collected. And today - as I said - ex and hop. TIKTOK, YouTube, Instagram send their regards.

I understand, of course, that our mass society is dependent on generating mass consumption, because otherwise the required turnover with corresponding profits would not be feasible or labour would be released. But - we also have to stop pollution and the consumption of resources!

Why is it not possible to develop a feeling for resource conservation in our schools, but unfortunately also among many adults?

Ideas are needed now to get us consumers to change our thinking in general.

I believe that only if it costs something, it does have some value for the consumer; admonitions are pretty ineffective. But resource conservation must now become the goal of our society. Clever ideas are needed!

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NEWS

M20 – COST-EFFECTIVE PRESSURE TRANSMITTER FROM MICRO SENSOR

Micro Sensor`s M20 pressure transmitter series is ideal for general industrial applications. With its high stability and measuring accuracy, this compact pressure transmitter offers an excellent price performance ratio. Moreover, with the M20 pressure transmitter, Micro Sensor has introduced a new, fully automated production line that enables short and flexible production with very high quality.

This manufacturing process is scalable and suitable for small orders as well for mass production. The M20 uses a pressure sensor with the isolating membrane made of stainless steel 316 L and special electronics to convert and output standard analog signals.

Different pressure measuring ranges (-1 bar ... 0 ~ 250 mbar ... 400 bar) and threads according to international standards are available.

It also includes a digital temperature compensation and calibration to ensure accuracy (±0.25 % FS and ±0.50 % FS) in the range of -10 °C to +80 °C. The operating temperature is from -30 °C to +85 °C.

Hence the product is perfect for diverse industrial use cases, e.g. water treatment, heat pumps, machinery, power plant, industrial automation and hydraulics.

APPLICATIONS

- General pressure measurement
- Water treatment
- Heat pumps
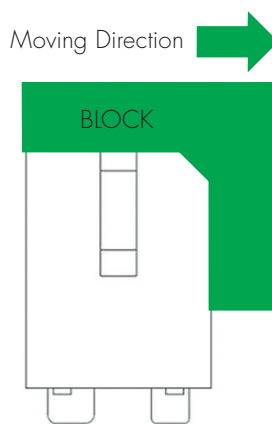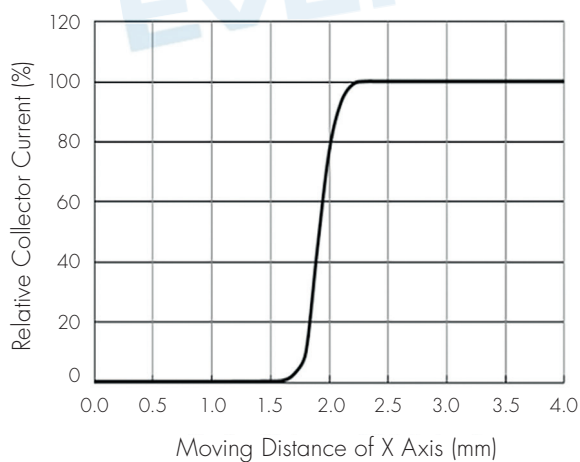- Power plant
- Industrial automation
- Machinery
- Hydraulics

FEATURES

- Output: 4 – 20 mA, Voltage Output
- Pressure Range:
  -1 bar ... 0 ~ 250 mbar ... 400 bar
- Accuracy: ±0.25 % FS, ≥0.50 % FS
- Pressure Type: Gauge & Absolute
- Digital temperature compensated
- High integrated electrical structure
- High cost-effective while achieving high reliability

MICROSENSOR

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SMD INTERRUPTER
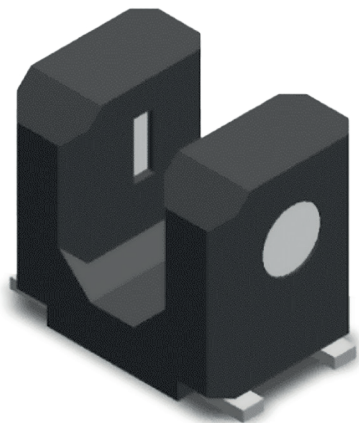## with 3 mm gap distance

Output Current vs Moving Distance of X Axis

Moving Direction

BLOCK

The ITR2006ST30A/TR is an optical fork interrupter in surface mount technology and consists of an infrared emitting diode and a silicon phototransistor encased in a black plastic housing. The main benefits are the small outline housing and the fact, that the gap width of 3 mm is still wide enough to allow reasonable mechanical tolerances for the barrier moving inside the gap. The SMD device is automatically mountable and reflow solderable.

Electro-Optical Characteristics (Ta=25°C)

PARAMETER		CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Input	Forward Voltage	$I_F = 20\,mA$	V_F	---	1.23	1.6	V
	Peak Wavelength	$I_F = 20\,mA$	λ_P	---	940	---	nm
Output	Collector Dark Current	$V_{CE} = 20\,V$ $Ee = 0\,mW/cm^2$	I_{CEO}	---	---	100	nA
Transfer Characteristics	On State Collector Current	$V_{CE} = 5\,V$ $I_F = 20\,mA$	$I_{C(ON)}$	0.2	---	5.0	mA

APPLICATIONS

- Non-contact switching
- Optical encoder
- Position detection
- Movement detection

FEATURES

- Fast response time
- Small SMD package
- 3mm gap distance
- Pb free
- RoHS compliant
- Compliance with EU REACH
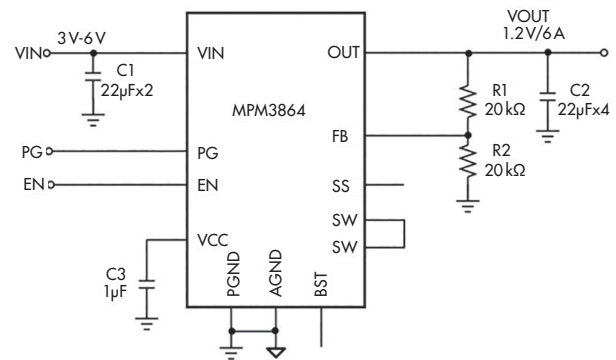- Compliance Halogen Free(Br < 900 ppm, Cl < 900 ppm, Br+Cl < 1500 ppm)

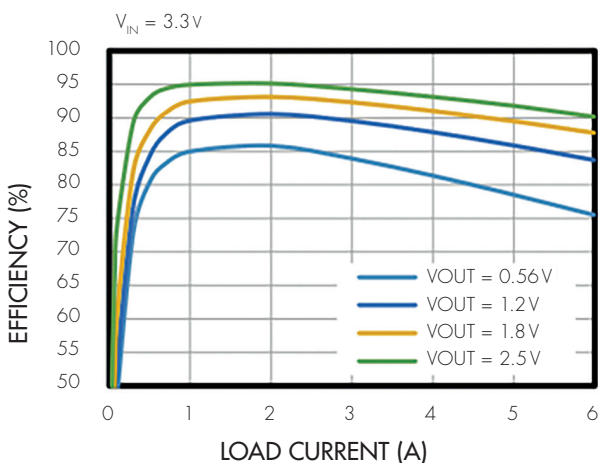**EVERLIGHT**

NEWS

MPM3864GPQ
1.2 MHZ, 2.75 V, to 7 V, 6 A, Synchronous Power Module

The MPM3864 is a fully integrated, high-frequency, synchronous, rectified step-down power module with an internal inductor. It offers a very compact solution that can achieve up to 6A of continuous output current (IOUT) across a wide input voltage (VIN) range, with excellent load and line regulation. Synchronous mode provides higher efficiency across the entire IOUT load range. Constant-on-time (COT) control operation provides fast transient response, easy loop design, and tight output regulation. Full protection features include short-circuit protection (SCP), over-current protection (OCP), under-voltage protection (UVP), and thermal shutdown. The MPM3864 requires a minimal number of readily available, standard external components, and is available in a space-saving ECLGA (3 mm x 3 mm x 1.85 mm) package.

Efficiency vs. Load Current
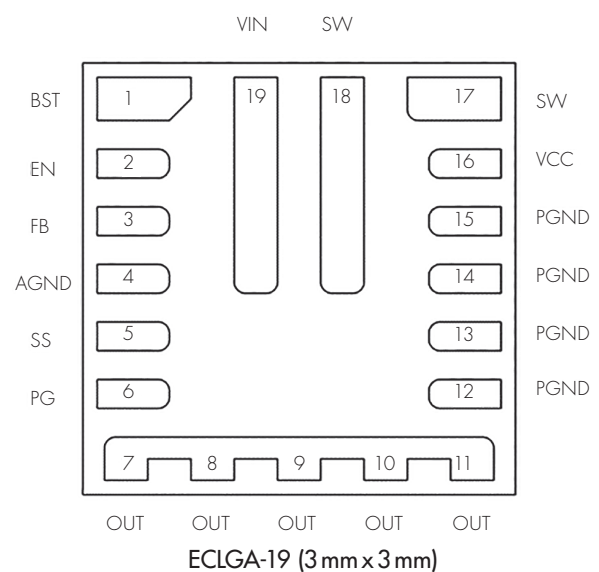
$V_{IN} = 3.3\,V$

EFFICIENCY (%) vs. LOAD CURRENT (A)

VOUT = 0.56 V
VOUT = 1.2 V
VOUT = 1.8 V
VOUT = 2.5 V

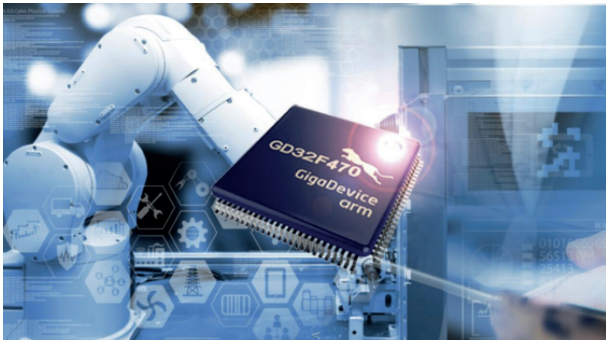## Package Reference
Top View

ECLGA-19 (3 mm x 3 mm)

APPLICATIONS

- FPGA Power System
- Optical Module
- Telecom
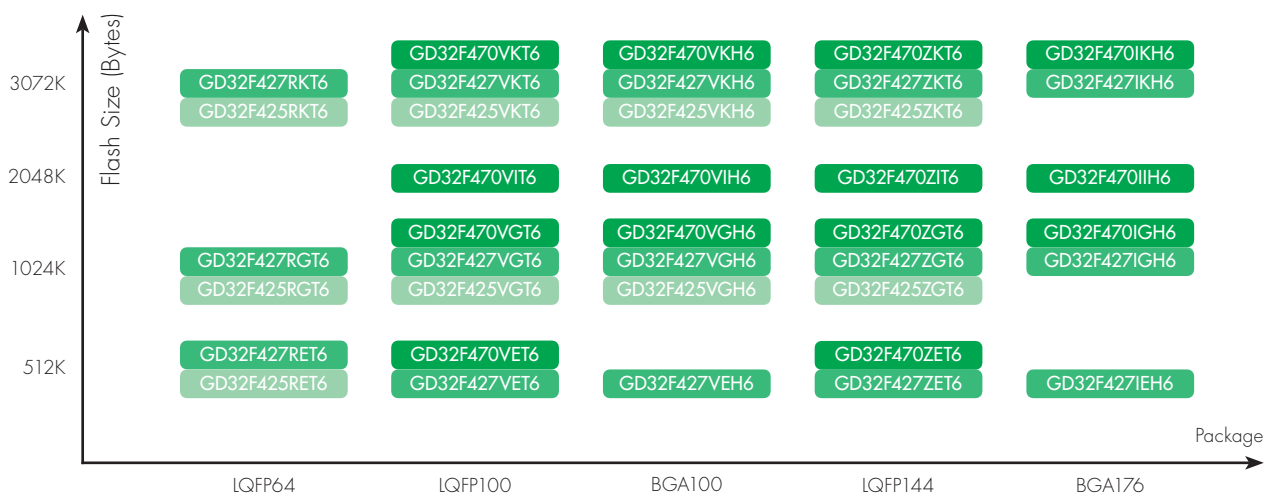- Networking

GigaDevice's GD32F470/F427/F425

High-Performance MCUs Target High-End Market Needs

GD32F470/F427/F425 32-bit MCUs based on the 240 MHz Cortex®-M4 core offer high-end processing power, connectivity, power efficiency, and outstanding support for complex algorithms and security.

As the high-performance MCU series in the GD32 microcontroller family, the GD32F470/F427/F425 MCUs offer a choice of up to 38 different product configurations. It is backward compatible with mature GD32F450/F407/F405 MCU products. It provides excellent flexibility and a more competitive price-performance ratio to meet the challenges of various industrial and consumer applications such as advanced processing, communication networks, and human-machine interfaces.

GD32F470/ F427/ F425 Portfolio

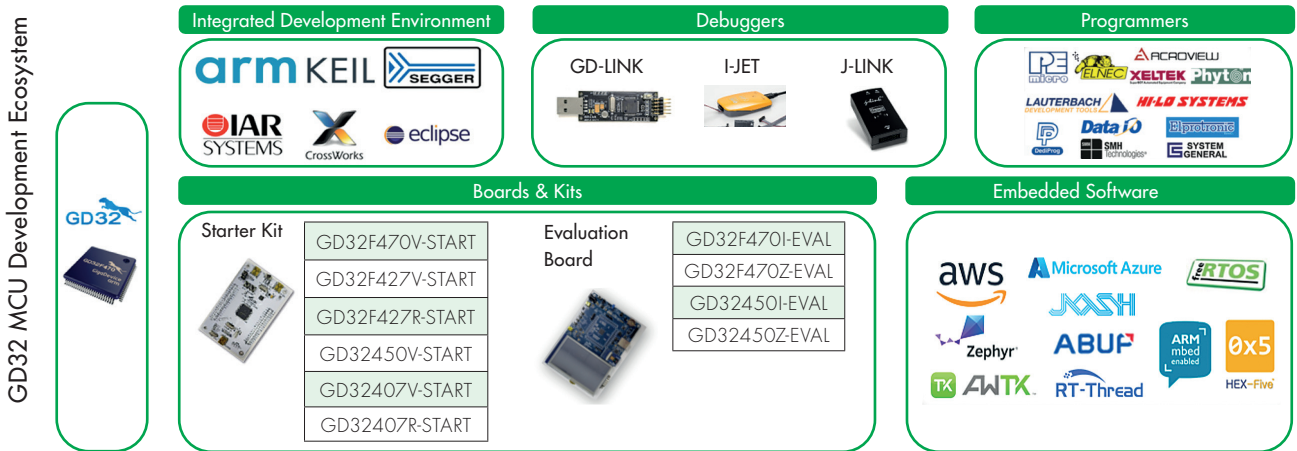| Flash Size (Bytes)	LQFP64	LQFP100	BGA100	LQFP144	BGA176
3072K	GD32F427RKT6 / GD32F425RKT6	GD32F470VKT6 / GD32F427VKT6 / GD32F425VKT6	GD32F470VKH6 / GD32F427VKH6 / GD32F425VKH6	GD32F470ZKT6 / GD32F427ZKT6 / GD32F425ZKT6	GD32F470IKH6 / GD32F427IKH6
2048K		GD32F470VIT6	GD32F470VIH6	GD32F470ZIT6	GD32F470IIH6
1024K	GD32F427RGT6 / GD32F425RGT6	GD32F470VGT6 / GD32F427VGT6 / GD32F425VGT6	GD32F470VGH6 / GD32F427VGH6 / GD32F425VGH6	GD32F470ZGT6 / GD32F427ZGT6 / GD32F425ZGT6	GD32F470IGH6 / GD32F427IGH6
512K	GD32F427RET6 / GD32F425RET6	GD32F470VET6 / GD32F427VET6	GD32F427VEH6	GD32F470ZET6 / GD32F427ZET6	GD32F427IEH6

Package

The GD32F470/F427/F425 MCUs offer five package types, including LQFP64, LQFP100, BGA100, LQFP144, and BGA176. Part numbers with an extended operating temperature range (up to 105°C) are available to meet more stringent application requirements.

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NEWS

GigaDevice's GD32F470/F427/F425
High-Performance MCUs Target High-End Market Needs

Comprehensive Support by the GD32 Ecosystem

GD32 MCU Development Ecosystem

Integrated Development Environment	Debuggers	Programmers
arm KEIL · SEGGER · IAR SYSTEMS · CrossWorks · eclipse	GD-LINK · I-JET · J-LINK	PE micro · ELNEC · ACROVIEW · XELTEK · Phyton · LAUTERBACH · HI-LO SYSTEMS · DediProg · Data I/O · Elprotronic · SMH technologies · SYSTEM GENERAL

Boards & Kits

Starter Kit
- GD32F470V-START
- GD32F427V-START
- GD32F427R-START
- GD32450V-START
- GD32407V-START
- GD32407R-START

Evaluation Board
- GD32F470I-EVAL
- GD32F470Z-EVAL
- GD32450I-EVAL
- GD32450Z-EVAL

Embedded Software

aws · Microsoft Azure · RTOS · Zephyr · JMASH · ABUF · ARM mbed enabled · 0x5 HEX-Five · TK · AWTK · RT-Thread

APPLICATIONS

- GD32F470/F427/F425 MCUs provide high-performance computing and complex functionality development options for various consumer application needs, such as printers, drones, home appliances, gateways, POS, barcode scanners, LED display modules, and other IoT devices.
- In addition, the GD32F470/F427/F425 products can be integrated into photovoltaic inverters, AC/DC chargers, digital power applications, transducers, PLCs, HMIs, servo motors, industrial robots, distributed control systems, medical equipment, instrumentation, elevator controllers and many other industrial applications.

The GD32F470/F427/F425 MCUs are in mass production and support various development tools. They include the full-featured GD32EVAL boards (GD32470I-EVAL, GD32470Z-EVAL) and the entry-level development boards (GD32F470V-START, GD32F427H-START, GD32F427V-START, GD32F427R-START). These boards correspond to different GD32F4 MCU series packaged parts and have an integrated onboard GD-Link programmer, which makes testing easy and convenient.

FEATURES

- Main frequency up to 240 MHz based on Arm® Cortex®-M4 core, DSP and FPU
- Memory up to 3072 KB of Flash and 768 KB of SRAM
- Power supply range from 2.6 to 3.6 V
- Operating temperature from -40 to +85°C / 105°C
- 3 power-saving modes for maximum power consumption optimization
- 3 x 12-bit high-speed ADCs with a sampling rate of up to 2.6 MSPS, 2x 12-bit DACs, and multiple 16-bit and 32-bit timers
- Standard and advanced communication interfaces: 8 x USARTs/UARTs, 6 x SPIs, 3 x I2Cs, 2 x I2Ss, 2 x CAN 2.0B, 1 x SDIO, 1 x 10/100M Ethernet, USB FS, and USB HS
- Additional peripherals: Digital camera interface (DCI), EXMC interface with SDRAM extension support, TFT-LCD Interface (TLI), and Image Processing Accelerator (IPA)

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PORTFOLIO EXPANSION
with 5 G and LTE multiband antenna

The manufacturer Inpaq is now expanding its standard portfolio to include 5 G and LTE antennas. With the characteristics of high reliability, excellent coverage, high efficiency and performance, it can satisfy system integrators in deploying 5 G and LTE mobile communication routers in indoor or industrial automation equipment to provide flexible designed internet connection solutions.

DAM-D7-N1-N0-000-08-13

Ø 21,57 mm; L=196,00 mm

SMA male connector

APPLICATIONS

- Indoor use
- Industrial communication routers
- Mobile communication routers

BENEFITS

- Wide band antenna
- Flexible design
- Easy to install
- High performance

FEATURES

- Low profile
- Frequency:
  617~960 MHz, 1410~1610 MHz, 1710~2690 MHz, 3300~7125 MHz
- Antenna gain:
  4 dBi
- Bendable design
- SMA male connector
- RoHS compliant
- Waterproof version can be customized

PSA PASSIVE SYSTEM ALLIANCE INPAQ TECHNOLOGY CO. LTD.

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