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Die Sünden der Vergangenheit haben uns jetzt eingeholt



Liebe Leserinnen und Leser,

die letzten Wochen waren voller Dramatik. Das eigentliche Sommerereignis, das die Biergärten gefüllt und die Straßen leergefegt hätte, fand leider nicht statt – der Traum vieler deutscher Fußballfans zerplatzte wie eine Seifenblase. Schade um die vertane Chance, der Welt zu zeigen, dass man in Deutschland guten Fußball spielen kann. War es die Arroganz der Spieler und des Trainers? Der fehlende Kampfgeist? Oder der fehlende Teamgeist? Fakt ist nur, wir sind dieses Mal nicht Weltmeister!

Dafür rückte eine andere Nachricht in den Brennpunkt des Interesses – nämlich der Streit in der Koalition, ausgelöst durch den Altersstarrsinn eines Politikers. Dies ist mir als Wähler nicht mehr zu vermitteln. Fakt ist, dass durch nicht vorhandene Gesetze und jahrzehntelange Versäumnisse unserer Regierungen vernünftige Einwanderungs- und Asylgesetze nicht erlassen wurden, 2015 unerwartet schnell zu viele Flüchtlinge in unser Land kamen und sich leider in Berlin kein Mensch vorausschauend darüber sich den Kopf zerbrach, was wohl passieren würde, wenn zig-tausende von Menschen über das Mittelmeer direkt oder über den Landweg durch die Türkei nach Griechenland und Italien strömen. Was dann passierte, hätte man schon Wochen vorher voraussehen können: Dass Griechenland und Italien diese Mengen an Flüchtlingen, als Folge des Syrien Krieges, aus Afghanistan und zentral Afrika, nicht aufnehmen wollten und können, und deren eigentliches Ziel Deutschland ist, musste man erwarten. Ferner, dass man die sich in Seenot befindlichen Menschen, die man aus dem Mittelmeer fischt, irgendwie, schon aus Christen Pflicht, versorgen muss, sollte auch von jedem akzeptiert werden. Dass es für eine Bevölkerung, vor allem auf dem Lande, aber auch nicht angenehm sein könnte, wenn plötzlich Fremde, vor allem mit anderen Hautfarben, in ihren Dörfern herumlaufen, auf Misstrauen und Ablehnung stoßen würden, konnte auch nicht überraschen.

Seit Jahrzehnten haben wir ein Entwicklungs-Hilfe-Ministerium und ein Wirtschafts-Ministerium. Das eine gibt etwas Geld aus humanitären Gründen in diese Länder und das andere Ministerium versucht Handel zu treiben und verkauft überschüssige Nahrungsmittel und getragene Kleidung zu Schleuderpreisen in diese Länder, ohne deren Wirkung zu beachten: Bauern, Schneider oder Schuhmacher haben keine Chance, wenn billige Import-Produkte ins Land strömen. Dies ist wirklich ein Trauerspiel! Man hätte Entwicklungs-Projekte, wie z.B. Bewässerungs-Projekte für die Landwirtschaft schon vor Jahrzehnten entwickeln können, versuchen, eine wie auch immer primitive Industrie zu fördern, die stark manuell ausgerichtet ist und damit eine ertragreiche Infrastruktur aufzubauen, die sich selbst versorgen kann und nicht auf die Hilfe von außen angewiesen ist. Brunnen bohren, Wasserleitungen ziehen, Schulen zu bauen – all dies hätte wesentlich weniger Geld gekostet, als wir heute aufwenden müssen, um Analphabeten das Lesen und Schreiben beizubringen und die Bevölkerung dieser, noch im Mittelalter lebenden Menschen, auf die Neuzeit vorzubereiten. Vor rund 200 Jahren, vor Beginn der Industrialisierung, konnte sich die deutsche Landbevölkerung schon selbst ernähren und hat damit eine Landflucht verhindert. Wenn man schon Humanitäre Hilfe leistet, muss man auch das Prinzip der Hilfe zur Selbsthilfe fördern.

Was lernt man daraus? Wie beim Schachspiel sollte man nicht einen Zug machen, ohne zu bedenken, welche Züge man anschließend machen will und vor allem, wie der Gegner reagieren wird. Leider ist es bei uns Mode geworden, ad hoc zu reagieren, ohne zu bedenken, was dies für Auswirkungen haben könnte.

Mit freundlichen Grüßen

W. Endrich

HYBRID CONDUCTIVE POLYMER CAPACITORS HVBF SERIES

RS485 TRANSCEIVERS TDX21D485X SERIES IN DIP10 PACKAGE

HAVE A LOOK



Sun Electronic Industries (SEI), owner of the well known capacitor brand name SUNCON, introduces their newest generation of hybrid conductive polymer capacitor HVBF series. This series offers typically 4-5 times higher ripple current rating @ 125 °C than conventional high temperature electrolytic capacitors. With its voltage rating starting at 6.3V it is a good replacement for other capacitor technologies especially on 5V DC power supplies.

FEATURES

- Operating temperature range -55 / +125 °C
- Highest ripple current @ 125 °C
- Lowest ESR value – stable over the operating temperature range
- Compact and robust housing 6.3x6.0 mm to 10.0x10.5 mm
- AEC-Q200 qualified / produced on IATF16949 certified manufacturing line

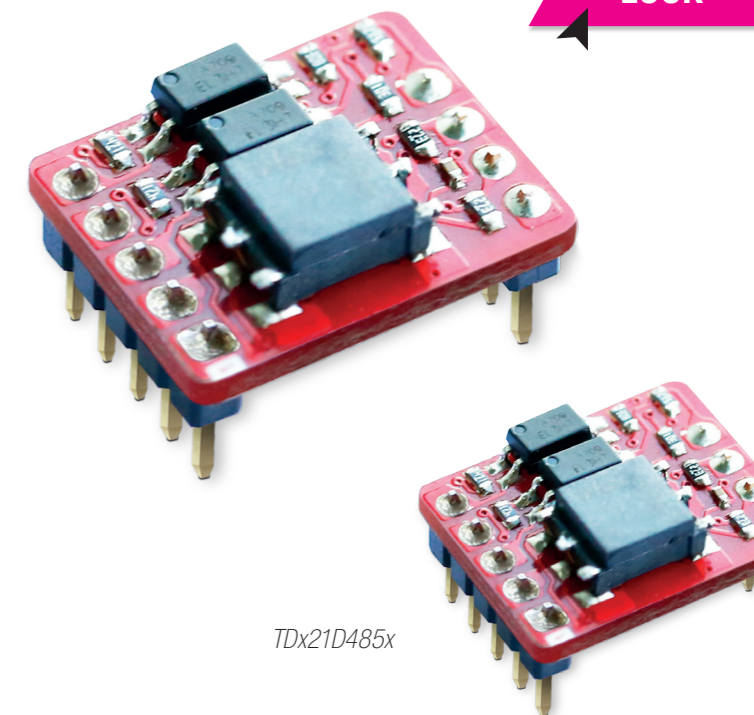
APPLICATIONS

- Automotive electronics such as ADAS, entertainment, chassis and safety
- Industrial application such as renewable energy, energy harvesting, IOT
- Medical such as blood sugar analyser
- Metering / white goods / General

ITEMS	CONDITION	SPECIFICATIONS		
Rated voltage (V)	-	6.3V	10V	16V
Surge voltage (V)	Room temperature	8.2V	13V	20V
Category temperature range	-	-55 °C to +125 °C		
Capacitance tolerance (%)	120Hz / 20 °C	M: ±20		
Dissipation Factor (tan δ)	tan δ (max) 120Hz / 20 °C	0.18	0.16	0.14
Leakage current (LC)	µA / after 2 minutes (max)	The greater value of either 0.2CV or 100		
Endurance	125 °C rated voltage applied (with the rated ripple current)	Test	Ø 6.3 : 1.500 hours. D ≥ Ø 8 : 2.000 hours	
		ΔC / C	Within ±30 % of the initial value	
		tan δ	Less than 200 % of the specified value	
		ESR	Less than 200 % of the specified value	
		LC	Less than the specified value	

µF	6.3V			10V			16V		
	SIZE Ø DxL (mm)	ESR (mΩ)	RATED RIPPLE CURRENT (mArms)	SIZE Ø DxL (mm)	ESR (mΩ)	RATED RIPPLE CURRENT (mArms)	SIZE Ø DxL (mm)	ESR (mΩ)	RATED RIPPLE CURRENT (mArms)
33	-	-	-	-	-	-	6.3x6.0	54	640
47	-	-	-	6.3x6.0	40	850	6.3x7.7	45	830
68	-	-	-	6.3x6.0	40	850	-	-	-
100	6.3x6.0	36	920	6.3x7.7	35	1020	8.0x10.5	22	1300
150	6.3x6.0	36	920	-	-	-	10.0x10.5	20	1650
220	6.3x7.7	32	1140	-	-	-	-	-	-
330	-	-	-	8.0x10.5	18	1580	-	-	-
560	8.0x10.5	16	1780	10.0x10.5	18	2060	-	-	-
1000	10.0x10.5	15	2200	-	-	-	-	-	-

HAVE A LOOK



TDX21D485x

MORNSUN recently announced cost-effective, compact size RS485 transceivers TDX21D485x series, to assist fast signal response in industries of power grid, industrial control and instrumentation, etc. TDX21D485x series are designed with excellent performance, manufacturing process and reliability, as follows:

1. Excellent performance

- Baud rate of low-speed RS485 transceivers grows from 9.6 kbps to 19.2 kbps.
- Nodes of low-speed and high-speed transceivers are doubled, i.e. 64 nodes. Nodes of auto-switch interface increase by 4 times, i.e. 128 nodes.
- All series provide electrical isolation of 3000 VDC.
- All series output isolated 5V at the terminal of bus, easy for default configuration of the bus.
- Designed with advanced technology similar to MORNSUN fixed R3 DC/DC converters and highly integrated internal device, the series greatly improve in manufacturing process and reliability.

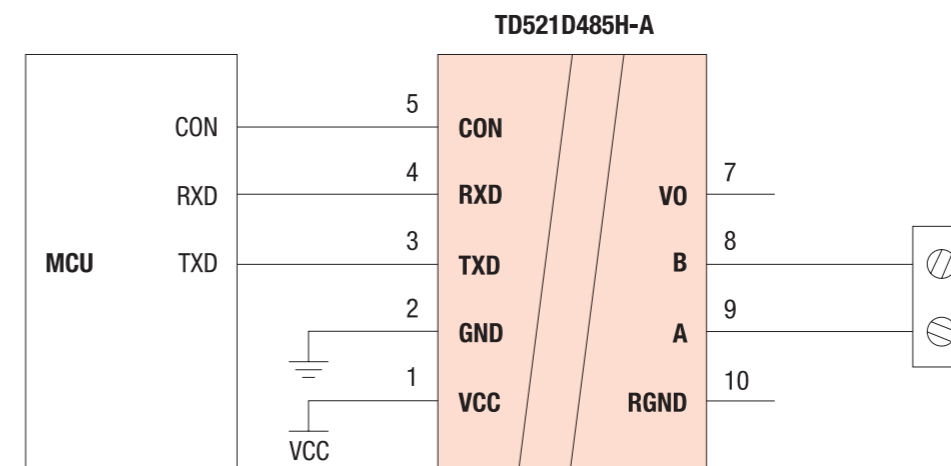
2. Reliable manufacturing process

- TDX21D485x series apply SMT to enhance product automation and reliability.
- Simply achieve plug-to-SMD process: Single output TDX21D485x series are in open frame using pin terminals to match corresponding female header, so that customers easily achieve automated processing, maintenance and replacement at the same time.

3. Patent protection

FEATURES

- Integrated power supply, bus isolation and ESD protection in one module
- Two-port isolation (3000 VDC)
- Baud rate up to 500 kbps
- Connect up to 256 nodes on one bus
- Operating temperature range: -40 °C to +85 °C
- Compact size, DIP10 package



Typical application of TD521D485H-A

OPEN FRAME CAN TRANSCEIVERS TDX21DCANX SERIES AND TDX22DCAN SERIES IN COMPACT SIZE

HAVE A LOOK

MORNSUN recently announced cost-effective, compact size CAN transceiver TDX21DCANx series and TDX22DCAN series, to assist fast signal response in industries of power grid, industrial control and instrumentation, etc. TDX21DCANx series and TDX22DCAN series are designed with excellent performance, manufacturing process and reliability, as follows:

1. Excellent performance

- All series provide excellent EMC performance.
- All series provide electrical isolation of 3000VDC.
- Designed with advanced technology similar to MORNSUN fixed R3 DC/DC Converters and highly integrated internal device, the series greatly improve in manufacturing process and reliability.

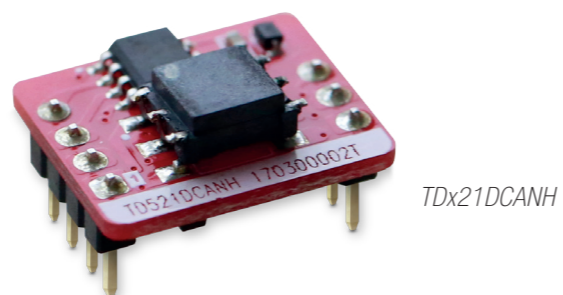
2. Reliable manufacturing process

- TDX21DCANx series apply SMT to enhance product automation and reliability.
- Simply achieve plug-to-SMD process: Single output TDX21DCANx series are in open frame using pin terminals to match corresponding female header, so that customers easily achieve automated processing, maintenance and replacement at the same time.

3. Patent protection

4. Dual channel isolation

TDX22DCAN series provide dual channel isolation and dual signal outputs which mutually isolate from each other.



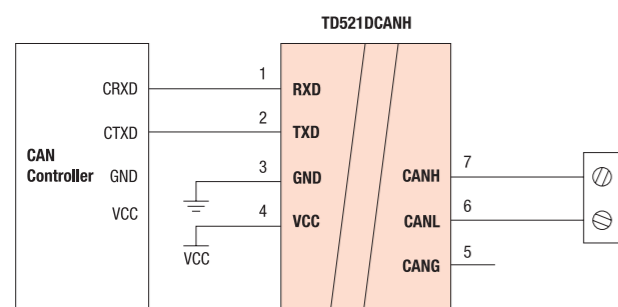
TDX21DCANH



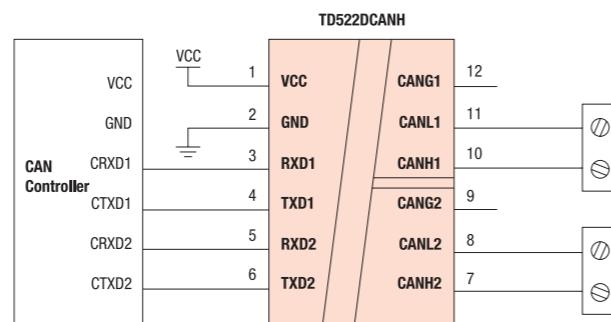
TDX22DCAN

FEATURES

- Integrated power supply, bus isolation and ESD protection in one module
- Isolation:
 - TDX21DCANx: Two- port isolation (3000 VDC)
 - TDX22DCAN: Two- port isolation (2500 VDC) / Channel isolation (1500 VDC)
- Baud rate up to 1 Mbps
- Connect up to 110 nodes on one bus
- Operating temperature range: -40 °C to +105 °C
- Compact size, DIP8 package



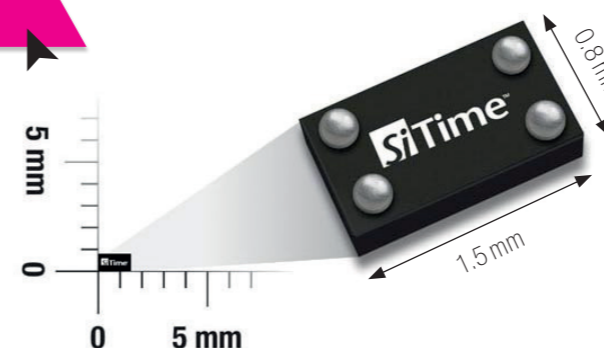
Typical application of TD521DCANH



Typical application of TD522DCANH

SIT8021 – WORLD'S SMALLEST, LOWEST POWER MHZ OSCILLATOR

HAVE A LOOK



40% smaller
70% lighter
90% lower power

APPLICATIONS

- Tablets
- Fitness bands
- Health and medical monitoring
- Wearables
- Portable audio
- Input devices
- IoT devices

FEATURES

- 90% lower power than MHz quartz XO
- 1.5 × 0.8 mm CSP – 40% smaller than quartz
- 70% lighter than quartz
- < 5 MHz output in small packages (not available from quartz)
- Pricing is very competitive
- Shortest lead time supply continuity
- Expands MEMS timing portfolio for wearables, mobile, IoT

The SiT8021 is the first device in SiTime's new μPower family of ultra-low-power, ultra-small MHz oscillators targeted at wearables, IoT and mobile products.

The SiT8021 is primarily used to replace a quartz-based XO by offering 90% lower power consumption and 40% smaller footprint. The SiT8021 can also be used to replace an XTAL for size reduction. Wearable products use low frequency clocks which are not available in very small sizes. The SiT8021 enables very small size at low frequencies ranging from 1 to 26 MHz.

To generate a MHz frequency from an oscillator, one can use a kHz reference or a MHz reference. The benefit of using a kHz reference is that it consumes much lower power. The SiT8021 uses a 524 kHz MEMS resonator and utilizes a highly optimized PLL to attain excellent performance.

The resonator in the SiT8021 is based on TempFlat MEMS™ technology.

The SiT8021 is ideal for battery-operated products where low power and small size are absolutely critical. Examples include

fitness bands, health monitoring devices, smart watches, tablets, portable audio players, portable speakers, and wireless IP cameras.

The SiT8021 is available in a CSP measuring 1.5 × 0.8 mm which is the industry's smallest oscillator package and also because the SiT8021 is composed of two all-silicon die mounted together, it can be integrated into a SIP module.

The SiT8021, at 1.28 mg, is 70% lighter than the lightest quartz-based oscillator. This gives designers of wearable devices a new way to reduce the overall product weight.

FREQUENCY RANGE	FREQUENCY STABILITY	SUPPLY VOLTAGE	PACKAGE	ACTIVE CURRENT	RESUME TIME	OUTPUT	OPERATING TEMP.
1 ... 26 MHz	100 ppm	1.8 V	1.5 × 0.8 mm CSP	60 μA @ 3.072 MHz (no load)	5 ms	LVCMOS	-40 °C ... +85 °C
		2.25 V to 3.63 V		110 μA @ 6.144 MHz (no load) 230 μA @ 6.144 MHz (10 pF load) 140 μA @ 6.144 MHz (no load)			

JUNO® FAMILY OF VELOCITY & TORQUE CONTROL ICs

HAVE A
LOOK

Ultra-efficient powerful motor control in a compact IC

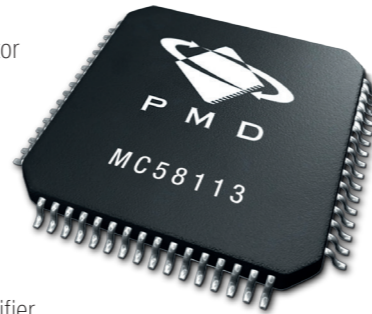
The Juno MC78113 family of ICs provide high performance IC-based control for medical, scientific, liquid pumping, and industrial applications. The Juno MC78113 ICs are single IC, single axis, programmable devices which provide velocity and torque control for brushless DC, DC Brush, and Step motors.

Powerful features

Juno provides four quadrant motor control and directly inputs quadrature encoder, index, and Hall sensor signals. It interfaces to external bridge-type switching amplifiers utilizing Performance Motion Devices' proprietary current- and switch signal technology for ultra smooth, ultra quiet, motor operation. Juno ICs are commanded directly by analog or digital signals, or through an SPI (Serial Peripheral Interface), serial, or CANbus interface using highlevel commands sent by a microprocessor.

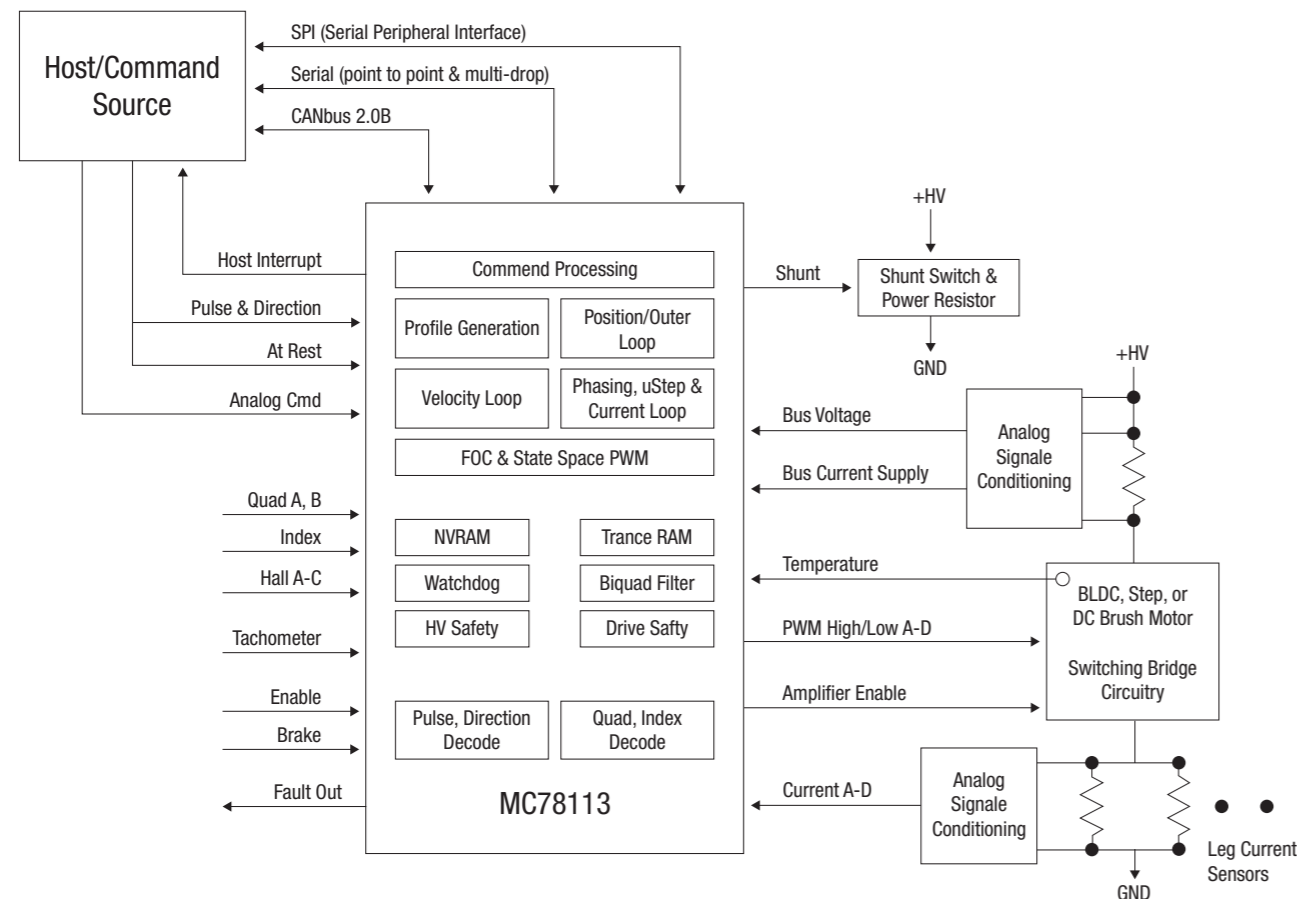
System on a chip

Depending on the type of motor controlled, Juno MC78113 ICs provide commutation, microstep generation, pulse & direction input, and internal profile generation. Juno ICs are equipped with advanced amplifier management features, such as overcurrent, over/under voltage, and overtemperature sense. A special outer control loop allows a wide range of motor-related control applications, including pressure control, flow rate control, and temperature control.



Flexibility

Internal profile generation provides acceleration and deceleration with 32-bit precision. Additional Juno features include performance trace, programmable event actions, FOC (field oriented control), and external shunt resistor control.



JUNO® FAMILY OF VELOCITY & TORQUE CONTROL ICs

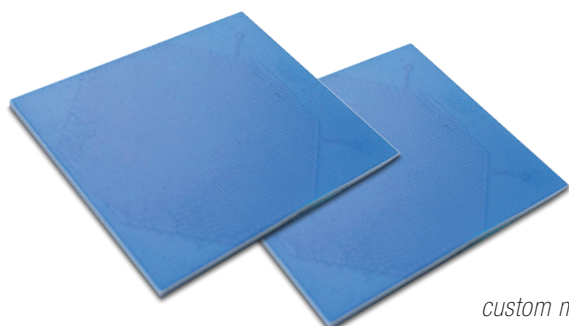
FEATURES

- Controls 3-phase brushless DC, DC Brush or Step motors
- High performance digital current
- Velocity loop with encoder or tachometer feedback
- Internal profile generator and estimator
- Sinusoidal or 6-step commutation
- Field oriented control and state space PWM
- Hall sensor input
- 8-signal PWM output with shoot-through protection
- Direct analog signal input
- Point-to-point and multidrop serial up to 416 kBaud
- Quadrature encoder input up to 40 Mcounts/sec
- CANbus 2.0B
- Onboard NVRAM for custom configuration
- High speed index input & capture
- SPI (Serial Peripheral Interface) command input
- Brake input
- 10 kHz velocity loop
- 20 kHz commutation rate
- 20, 40, 80, or 120 kHz PWM selectable output rate
- 64-pin (TQFP), or 56-pin (VQFN) package options
- i²t current feedback protection
- Over and under-voltage protection; over current protection
- Over temperature sensor
- Pulse and direction input position command
- Shunt control output
- Outer loop capability allows control of pressure, temperature, liquid levels

PARAMETER	VALUE	PARAMETER	VALUE
Motors supported	3-phase brushless DC, DC Brush, 2-phase Step motor	Control/status signals	Enable, FaultOut, HostInterrupt, Brake
Operating modes	Standalone: direct command input via external circuitry (on-board NVRAM holds configuration) Host command: microprocessor command input via SPI, serial, or CANBus 2.0	Velocity & torque command options	Analog signal (12-bit A/D resolution) Digital SPI (16-bit resolution) Host command via microprocessor
Control loops	Position/outer loop, velocity loop, current loop	Position command options	Pulse & direction signals (with AtRest signal) Digital SPI (16-bit resolution)
Commutation modes	6-step (using Hall sensors) Sinusoidal (with quadrature encoder input)	Motor drive signals	PWM High/LowA-D, Amplifier Enable, Current A-D
Current control modes	FOC (Field Oriented Control) Third Leg Floating Single Phase Voltage mode (no current control)	DC Bus safety signals	Shunt, BusVoltage, BusCurrentSupply, Temperature
Motor output modes	Individual high / low PWM Sign / Magnitude PWM	Motor feedback signals	QuadA, QuadB, Index, HallA-C, Tachometer
Microstep per full step	Programmable up to 256 microsteps per second	Max. quadrature rate (A, B, Index)	40 Mcounts / sec
Profile generator parameters	Velocity, Acceleration, Deceleration	Quadrature capture sources	Index signal
Serial communication modes	Point-to-point asynchronous Multi-drop asynchronous	Temperature signal input format	Analog
Serial baud rate range	1,200 to 416,667 baud	Max. SPI input rate	10 MHz
CANbus baud rate range	10,000 to 1,000,000 baud	Position/outer loop rate	Programmable up to 10 kHz
Internal trace RAM	6,144 16-bit words	Velocity loop rate	Programmable up to 10 kHz
Internal NVRAM	1,024 1-bit words	Current loop rate	20 kHz
Velocity feedback options	Quadrature encoder, Hall sensors, Analog tachometer signal (12-bit A/D resolution)	Commutation rate	20, 40, 80, 120 kHz

CAPACITIVE RAIN SENSOR

HAVE A LOOK



custom made

AUR°EL S.p.A has developed a capacitive sensor-component able to notice the presence of water on its surface. It's realized on ceramic substrate and thanks to its sensitivity area is able to change the capacity depending on the ratio water accumulated on it.

The technology (glassy coverage of substrate) guarantees high reliability due to the great stability of the support and the inalterability of the surface "sensitive", also after cleaning with solvents and/or heavy external conditions of employment.

A double layer of a dielectric material has been screen printed for giving an higher immunity against weathering problems.

Moreover in presence of the water, the capacitance goes to high values compared to dry conditions and the ratio changing is over 400 %.

On the back side of the capacity sensor it is available a NTC temperature sensor is available with a nominal resistance value of 100 KOhm at 25 °C.

The NTC components can be used to monitor the environment temperature and to control the heater against hard environmental condition such as frost and dump deposits on the capacity area.

NOTE: Depending on quantities, it's possible to receive the capacitive sensor with cabling and connector, under customer request

APPLICATIONS

- Control systems in home automation: awnings, venetian blinds
- Irrigation systems for agriculture & monitoring
- Weather stations
- Control systems in industrial automation

For the NTC component values refer to EPCOS/TDK P/N: B57471V2104J062 datasheet.

CAPACITIVE RAIN SENSOR

Voltage supply	12 VDC
Consumption	0.25 mA
NTC	100 KOhm / 25 °C
Dimension	30.50 x 35.56 x 2.00 mm

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