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Einige Gedanken zur Gerechtigkeit

Es ist mal wieder Wahlzeit und das Schlagwort „Gerechtigkeit“ wird von allen Seiten gerne benutzt, um damit zu werben. Besonders die fehlende „soziale Gerechtigkeit“ wird oft

genannt. Es gibt ein Bonmot von Baron Rothschild aus Paris, aus dem 19. Jahrhundert, einem bekannten Bankier, der abends, als er seine Bank verließ, von einem Bettler angesprochen wurde und dieser verlangte einen Franc und Baron Rothschild sagte: „Frankreich hat 80 Millionen Einwohner, mein Vermögen ist 80 Millionen Franc, wenn ich gerecht sein will, müsste ich jedem Franzosen 1 Franc geben und mein Vermögen wäre Null“. Und er gab dem Bettler keinen Franc.

Ist es gerecht, wenn Kinder bereits mit einem Herzfehler auf die Welt kommen oder Mütter mit Familie in jungen Jahren an Krebs sterben oder oder oder? Es gibt so viele Beispiele, wo man sich wirklich fragt, ist das gerecht? Ich glaube, das Wort Gerechtigkeit ist das am meisten missbrauchte und für die eigenen Zwecke benutzte Wort, um seine Unzufriedenheit mit seinem Zustand des Lebens zu beklagen. In Finnland will man jetzt einen Versuch mit 2.000 Personen starten, die ein monatliches, staatliches Einkommen von 1.000 € bekommen sollen, ohne dafür arbeiten zu müssen, aber Zusatzverdienste werden nicht angerechnet. Man will damit erforschen, was diese Testpersonen mit dem monatlichen Einkommen, ohne Arbeiten zu müssen, daraus machen.

Wir Menschen haben neben den Wunsch nach Gerechtigkeit leider auch weniger schöne Eigenschaften wie Missgunst, Gier und weitere verwerfliche Eigenschaften, wie sie auch von den Weltreligionen angeprangert werden.

Bis vor 25 Jahren hatten wir noch die DDR, wo das ganze Vermögen dem Volk gehörte und der Einzelne trotzdem nichts hatte. Ich denke nur an die verfallenen Wohnungen und Hausfassaden, die uns Westler erschütterten, wenn wir durch Orte der „DDR“ fuhren. Von allgemeinem Wohlstand konnte man da weiß Gott nicht sprechen, aber das Eigentum war wohl

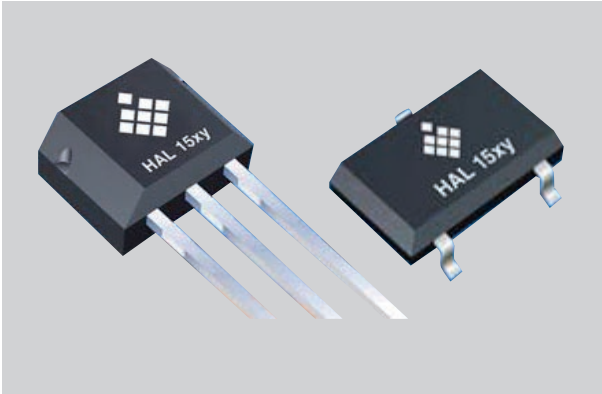
gerecht verteilt, denn keiner hatte etwas. War das gerecht? Ich persönlich bevorzuge mehr eine andere menschliche Eigenschaft, nämlich das persönliche Streben, Wissen und Vermögen von selbst anzusammeln und damit eine gewisse Unabhängigkeit zu erreichen. Schon die Natur macht uns dies vor, wenn Eichhörnchen z.B. nicht genügend Nüsse im Herbst sammeln, werden sie den Winter nicht überleben. Der Ruf nach staatlicher Hilfe ist mir zu bequem. Ich vermisse dabei das eigene Bestreben, sein Wissen und auch sein Vermögen nach Möglichkeit zu vermehren. Die einzige Ausnahme, die ich gelten lassen kann, sind Personen, die durch Krankheiten oder sonstige Gebrechen oder Unglücksfälle nicht in der Lage sind, sich selbst zu helfen und auf die Mildtätigkeit der Mitmenschen, der Kirchen und des Staates angewiesen sind.

Als Flüchtling ist meine Familie 1945 mit Nichts aus der Tschechei gekommen, mein Studium musste ich durch härteste Arbeit in einer Gießerei selbst verdienen, BAFÖG gab es damals nicht und mit 40 Jahren hatte ich den Mut, mich selbständig zu machen, ebenfalls mit Nichts, ohne Vermögen, ohne Kunden und ohne Lieferanten, und trotzdem ist es mir gelungen, eine mittelständische Firma zu ihrer heutigen Größe zu entwickeln. Oder ein anderes Beispiel, Norbert Blüm, der frühere Minister, der mit Volksschulbildung, Mechanikerlehre und Abendstudium promoviert hat und es dann sogar zum Minister brachte.

Der Ruf nach sozialer Gerechtigkeit ist mir zu bequem und zu einfach. Er erzeugt nur Missmut und Neid und verleitet dazu, den eigenen Antrieb, für sich selbst zu sorgen, Karriere zu machen und für seinen eigenen Wohlstand zu sorgen, zu unterdrücken. Das heißt „Eigeninitiative“ gleich Null! Den fürsorglichen Staat, der für alles sorgt, von der Wiege bis zur Bahre, der alles regelt und reglementiert, den gibt es nicht, und wenn es ihn gibt, dann nur zu dem Preis, die persönliche Freiheit zu verlieren. Und dies ist nach meiner Meinung das höchste Gut, welches wir in einer funktionierenden Demokratie haben.

Mit freundlichen Grüßen
W. ENDRICH

HAL 15xy – FIRST ISO 26262 COMPLIANT LOW-POWER HALL SWITCH



The **HAL 15xy family** consists of different Hall switches containing a temperature compensated Hall plate with active offset compensation and comparator, available optionally with open-drain or current output.

As global Hall switch supplier with long-term experience since 1993, 1.5 billion shipped automotive switches and leading expertise in high-quality Hall-effect sensor solutions, Micronas expands its large switch portfolio with the new HAL 15xy family.

All CMOS wafer processing is done in Micronas' facilities in Freiburg (Germany) to ensure best quality control and highest flexibility.

As improved successor of the well-known HAL 5xy family, the HAL 15xy is available as 3-wire version with short-circuit protected open-drain output and 2-wire version with current output. HAL 15xy is available in the smallest SOT23 package and provides lowest power consumption, fast response times, and special safety features like a unique power-on self-test for greater customer benefit at an excellent price-performance ratio.

With different switching-point versions, the HAL 15xy switch family serves a broad variety of automotive and industrial applications under harshest temperature conditions.

HAL 15xy fulfills the latest quality and functional safety standards as AEC-Q100 qualified and ISO 26262 ASIL ready device, enabling our customers to target even the most safety-critical applications.

FEATURES

- Sampling and output refresh time of 2 μ s
- 3-wire version with a short-circuit protected open-drain output
- 2-wire version with current output
- Low current consumption of typ. 1.6 mA
- Wide supply voltage operation from 2.7 V to 24 V
- Overvoltage protection capability up to 40 V
- Available in the small SOT23 and T092UA package
- High HBM ESD performance of up to ± 8 kV
- Reverse-voltage protection at supply pin
- Operating with static and dynamic magnetic fields up to 12 kHz with low output jitter. Customized versions are possible up to 93 kHz.
- AEC-Q100 qualification
- ASIL ready device (SPFM $\geq 60\%$)
- Additional functional safety features e.g.:
 - Power on self-test (signal path test and wire-break detection)
 - Monitoring of bias, undervoltage, and current level
 - Overtemperature protection
 - Output current limitation
 - Defined fail safe state
- Wide junction temperature range from -40 °C to 170 °C, specially designed for operation in harsh environments
- High robustness of magnetic characteristics against mechanical stress
- Broad portfolio of temperature-compensated constant switching points

APPLICATIONS

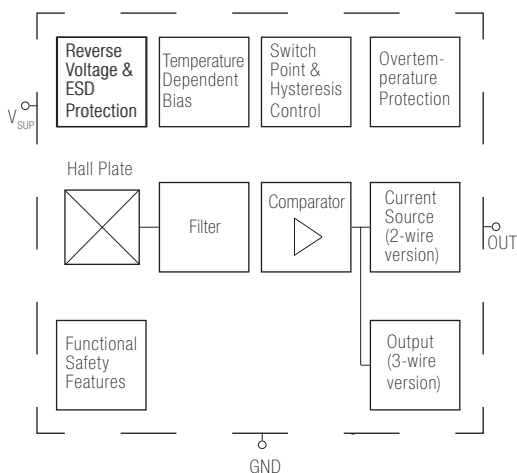
Our new switch family HAL 15xy is the optimal system solution for key applications such as:

- Position detection e.g. for seat belt and gear shift
- Index counting e.g. for window lift
- Brushless DC motor commutation e.g. for pumps and fans

HAL 15xy – FIRST ISO 26262 COMPLIANT LOW-POWER HALL SWITCH

AVAILABLE TYPES AND BEHAVIOR							
			B_{ON} (mT)	B_{OFF} (mT)			
3-wire	HAL1501	bipolar	0.4	-0.4	0	–	HAL 501
	HAL1502	latching	2.5	-2.5	-1000	–	HAL 502/HAL 202
	HAL1503	unipolar	5.5	3.7	-1000	–	HAL 506
	HAL1506	unipolar	18.9	17.3	-1200	–	HAL 508
	HAL1507	unipolar	28.2	23.9	-300	–	HAL 509
	HAL1508	unipolar	-5.5	-3.7	-1000	–	HAL 549
	HAL1509	unipolar inverted	3.7	5.5	-1000	–	HAL 516
	2-wire	HAL1562	latching	12	-12	0	5 to 7
HAL1563		unipolar inverted	7.6	9.4	0	5 to 7	HAL 584
HAL1564		unipolar inverted	4.1	6	-1000	2 to 5	HAL 566
HAL1565		unipolar	6	4.1	-1000	2 to 5	HAL 556
HAL1566		unipolar	9.4	7.6	0	5 to 7	HAL 574

SYSTEM ARCHITECTURE



BLOCK DIAGRAM OF THE HAL 15xy

HAL 15xy sensors are monolithic integrated circuits which switch in response to magnetic fields. If a magnetic field with flux lines perpendicular to the sensitive area is

applied to the sensor, the biased Hall plate forces a Hall voltage proportional to this field. The Hall voltage is compared with the actual threshold level in the comparator. If the magnetic field exceeds the threshold levels, the output stage (open drain output for 3-wire devices or current source for 2-wire devices) is switched to the appropriate state.

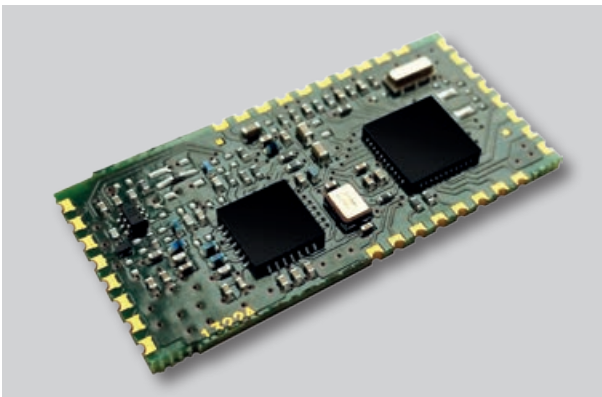
The built-in hysteresis eliminates oscillation and provides switching behavior of the output without toggling. Magnetic offset caused by mechanical stress is compensated by using the “switching offset compensation technique”.

The device is able to withstand a maximum supply voltage of 24 V for unlimited time and features overvoltage capability up to 40 V load dump.

LORA™ MODULES – LINE UP

Low-Power Wide-Area Network (LPWAN) or Low-Power Network (LPN) is a type of wireless telecommunication network designed to allow long range communications at a low bit rate among things (connected objects), such as sensors operated on a battery.^{[1][2]}

LoRaWAN™ is a Low Power Wide Area Network (LPWAN) specification intended for wireless battery operated Things in a regional, national or global network. LoRaWAN targets key requirements of Internet of Things such as secure bi-directional communication, mobility and localization services. Network architecture is typically laid out in a star-of-stars topology in which **gateways** is a transparent bridge relaying messages between **end-devices** and a central **network server** in the backend.



XTR-8LR100 / XTR-8LR10

Half-Duplex transceiver for long distance, (up to 12km) communication with LoRa™ modulation, able to ensure high immunity level against the interferences and a reduced energy consumption.

Working into European bandwidth 869.4 ÷ 869.65 MHz (100mW) and 868.0 ÷ 868,6 MHz (25mW) with link budget > 156 dBm.

The Transceiver Modules XTR-8LR100 and XTR-8LR10 with UART interface and an implemented data packet addressing technique allows a point-multipoint communication and 248 byte of max.

Part Number	650201364G
Modulation	LoRa™
Supply	3V
Frequency	869.4 ÷ 869.6 MHz
Sensitivity	-118 to -145 dBm
RF output power	100 mW (max) / 25 mW (max)
Consumption	17 mA (RX) - 110 mA (TX)
Dimension	37 x 18 x 2.4 mm



XTR-8LR-USB

XTR-8LR-USB is a radio-modem with Usb interface, used as receiver or concentrator for data from XTR-8LR10 and XTR-8LR100 modules.

It can handle addressing data for point-to-multipoint or star networks, main radio parameters might be set up smoothly via command mode procedure, offering the user a variety of solutions and flexibility to the problems encountered in the

Part Number	650201428G
Modulation	LoRa™
Supply	5V by USB
Frequency	869.4 ÷ 869.6 MHz
Sensitivity	-118 to -145 dBm
RF output power	100 mW ERP
Consumption	20 mA (RX) - 135 mA (TX)
Dimension	69 x 25 x 13 mm

LORA™ MODULES – LINE UP

Communication between end-devices and gateways is spread out on different **frequency channels** and **data rates**. The selection of the data rate is a trade-off between communication range and message duration.

Due to the spread spectrum technology, communications with different data rates do not interfere with each other and create a set of „virtual“ channels increasing the capacity of the gateway.

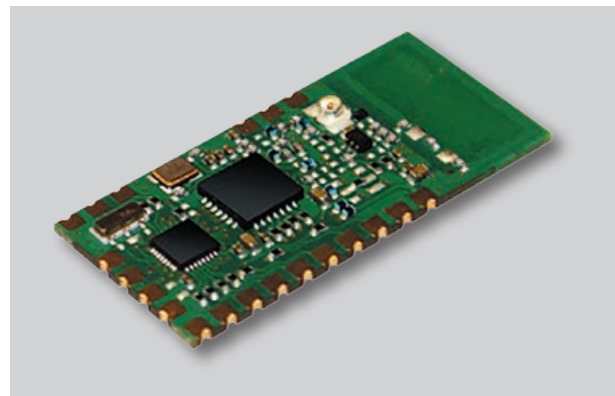


XTR-8LR-4ZN

XTR-8LR-4ZN is a keyfob with encrypted communication that combined with the XTR-8LR-DEC is used to activate remote loads. is used to activate remote loads. Two-way communication allows get acknowledgement of the status of the activated output.

Part Number	650201429G
Modulation	LoRa™
Supply	3V (CR2032 Lithium)
Frequency	868.30 MHz
Sensitivity	-122 dBm
RF output power	10 mW ERP
Consumption	35 mA
Dimension	72 x 39 x 11 mm

Compatible only with 650201431G



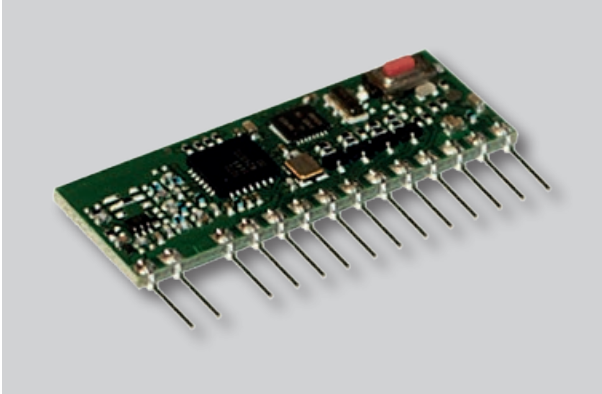
XTR-8LR-ENC

XTR-8LR-ENC is a transmitter with encrypted communication that combined with the XTR-8LR-DEC is used to activate remote loads. Two-way communication allows get acknowledgement of the status of the activated output.

Part Number	650201430G
Modulation	LoRa™
Supply	3V
Frequency	868.30 MHz
Sensitivity	-122 dBm
RF output power	20 mW ERP
Consumption	35 mA (TX) - < 1µA (PVDN)
Dimension	35.5 x 18 x 2.3 mm

Compatible only with 650201431G

LORA™ MODULES – LINE UP



XTR-8LR-DEC

XTR-8LR-DEC is a receiver with encrypted communication that combined with the XTR-8LR-ENC or with keyfob XTR-8LR-4ZN is used to activate remote loads

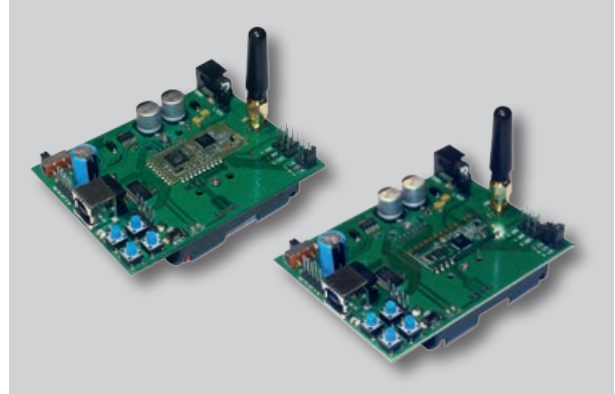
The module makes available four open-collector outputs and two lines of setting the output functioning mode, the cyclical receiver mode also allows a consumption < 1 mA, allowing use in battery powered applications. The output state will be acknowledged to its transmitter.

XTR-8LRWAN

XTR-8LRWAN is designed to support LORAWAN™ protocol stack to provide Low Power Wide Area Network with features specifically needed to support low-cost, mobile, secure bi-directional communication for Internet of Things (IoT), machine-to-machine (M2M), smart city and industrial applications. (Design Phase)

Part Number	650201431G
Modulation	LoRa™
Supply	3V
Frequency	868.30 MHz
Sensitivity	-126 dBm
RF output power	20 mW
Consumption	< 1 mA (RX IDLE) - 16 mA (RX) - 35 mA (TX)
Dimension	38.5 x 16 x 3.8 mm

Compatible only with 650201429G & 650201430G



DEMO-BOARD XTR-8LR100 & DEMO-BOARD XTR-8LR10

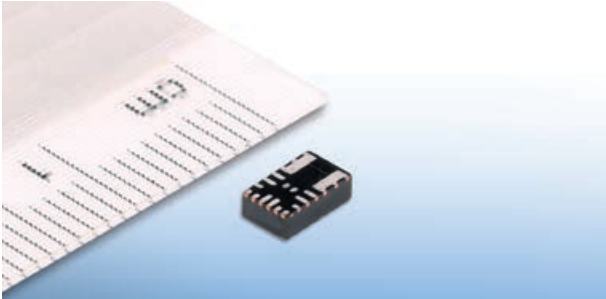
DEMO-BOARD XTR-8LR100 and DEMO-BOARD XTR-8LR10 is an evaluation board of the transceiver module XTR-8LR100 and module XTR-8LR10 which can easily check functionality, power consumption, commands and performance of radio link. The difference between the two demo board is on the mounted module, XTR-8LR100 that have mode of operation, Normal, Rx cycle, Tx ADC value and XTR-8LR10 that is implemented the Normal mode operation.

For more detail about the operation mode refer to the user manual of the used module. The device is able to work with external power supply or powered by four AA batteries, for tests in standalone.

It is included a stylus antenna operating on the 868 MHz band connected to the SMA connector, thereby using the test mode through some diagnostic led, it is possible to realize radio links. The DEMO-BOARD is equipped with a USB connector with COM port emulation realized with CI FTDI1235-C and an SMA input connector radio output for the RF connections measurement instruments.

Part Number	650201415G
Modulation	LoRa™
Supply	3V
Frequency	868 ÷ 870 MHz
Sensitivity	-115 to -137 dBm
RF output power	25 mW
Consumption	17 mA (RX) - 30 mA (TX)
Dimension	33.5 x 15.4 x 2.4 mm

HIGH-EFFICIENCY LED DRIVER / AEC-Q100 – MPM6010 - 36V/1.5A



The **MPM6010** 36 V/1.5 A high-efficiency module is a synchronous, rectified, step-down, LED driver with built-in power MOSFETs, inductor, and two capacitors. The MPM6010 offers a very compact solution with only four external components to achieve 1.5A of continuous output current with excellent load and line regulation over a wide input supply range. The MPM6010 uses synchronous mode operation to achieve high efficiency.

The MPM6010 eliminates design and manufacturing risks while improving the time to market dramatically.

Full protection features include over-current protection (OCP) and thermal shutdown.

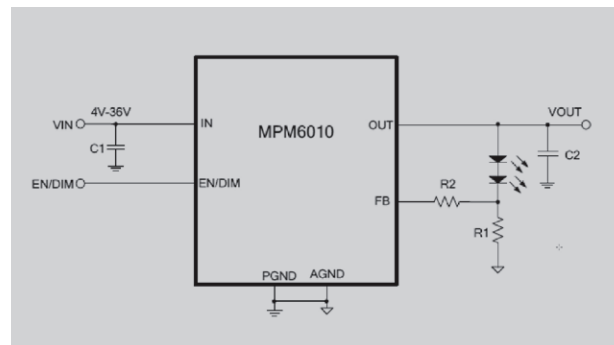
The MPM6010 is available in a space-saving QFN-17 (3 mm × 5 mm × 1.6 mm) package.

FEATURES

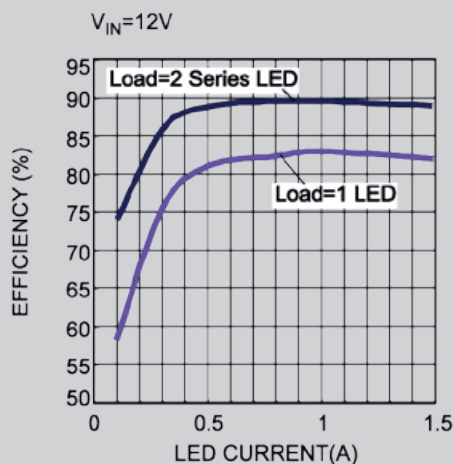
- Complete Switch Mode Power Supply
- Wide 4 V to 36 V Operating Input Range
- Integrated 2.2 μ H Power Inductor (AEC-Q200 Component)
- 85 m Ω /50 m Ω Low RDS(ON) Internal Power MOSFETs
- Wide PWM Dimming 100Hz - 2kHz Fault Indication for LED Short, Open, and Thermal Shutdown
- Over-Current Protection (OCP) with Valley Current Detection
- Available in a Wettable Flank Package
- Package QFN-17 (3 mm × 5 mm × 1.6 mm)

APPLICATIONS

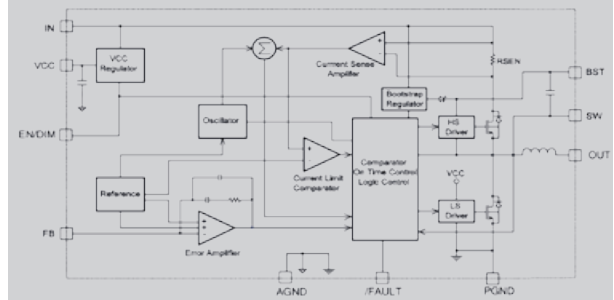
- Automotive LED Lighting



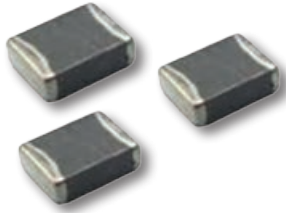
EFFICIENCY VS. LED CURRENT



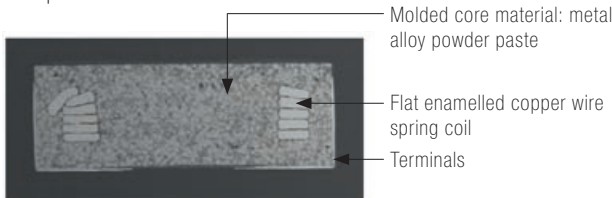
FUNCTIONAL BLOCK DIAGRAM



WIREWOUND POWER INDUCTORS IN CHIP SIZE – WIP SERIES



The new WIP series of Inpaq are wirewound power inductors in chip size. The construction consists of enamelled copper wire spring coil, molded inside a metal alloy powder paste. Core material with best permeability and lowest core loss, combined with a highly efficient production method result in coils with excellent performance and best competitiveness.

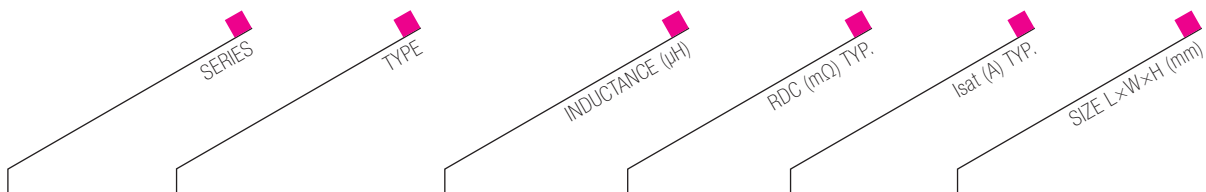


FEATURES

- High saturation current, up to 6.8 A
- Low DCR, down to 16 mΩ
- Very low core loss
- Suitable for frequency up to 10 MHz
- Excellent EMI
- **Referenced by Qualcomm/Snapdragon**

APPLICATIONS

- DC/DC converters with high switching frequency
- Portable devices
- Industrial application
- Automotive electronics
- Consumer products



ELECTRICAL CHARACTERISTICS (T_{op}=25°C)

WIP201610PL	WIP-P (standard)	0.33 ... 2.2	24 ... 135	1.9 ... 5.0	2.0±0.2 × 1.6±0.2 × 1.0 max.
WIP201610SL	WIP-S (high performance)	0.33 ... 2.2	21 ... 117	2.6 ... 6.7	2.0±0.2 × 1.6±0.2 × 1.0 max.
WIP252010PL	WIP-P (standard)	0.22 ... 4.7	9 ... 220	1.8 ... 7.9	2.5±0.2 × 2.0±0.2 × 1.0 max.
WIP252010SL	WIP-S (high performance)	0.33 ... 2.2	17 ... 88	3.3 ... 7.8	2.5±0.2 × 2.0±0.2 × 1.0 max.
WIP252012PL	WIP-P (standard)	0.47 ... 4.7	21 ... 196	1.9 ... 5.3	2.5±0.2 × 2.0±0.2 × 1.2 max.
WIP252012SL	WIP-S (high performance)	0.47 ... 2.2	16 ... 74	3.5 ... 6.8	2.5±0.2 × 2.0±0.2 × 1.2 max.

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