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# endrich NEWS

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## Immigration - an unresolved problem!


Wolfgang Endrich

From 1940 to 1945, I lived with my parents in the Sudetenland, now the Czech Republic. After the end of the war, the so-called "Reich Germans" were more than unpopular and were expelled. When they arrived in West Germany, refugees from the East were distributed among communities.

The welcome in the West German communities, which suddenly had to give up part of their own living space, was not warm. At the time, there was the so-called "housing management", which meant that all vacant rooms were confiscated and occupied by refugees. However, as the state had hardly any financial resources, the so-called "equalization of burdens" was invented, meaning that every homeowner was given a compulsory mortgage on their house - regardless of whether they agreed to it or not. The first "solidarity surcharge".

At that time, Germany was administered by three military governments in the three zones (English, French and American). More than twelve million people were resettled from the former German Reich territories in Poland and the Czech Republic within a few months, and as the people had learned from the dictatorship to accept public decrees without complaint, a process of assimilation was able to slowly but successfully take hold in the communities.

Today we have the problem of immigrants who are looking for a new home out of sheer necessity and to escape their sometimes terrible living conditions. The language problems and, above all, our jungle of regulations are an extreme obstacle to settling down. There are many doctors, lawyers, craftsmen and even simple workers among these people who are forced to seek shelter and a home here, and they would help us considerably to alleviate the current shortage of workers. Integration is undoubtedly more difficult by the lack of German language skills and the cultural differences in some cases.

Why is it not possible to make it compulsory for every new immigrant to attend a crash course in German and about our legal system, customs, values and traditions? Since they have decided to leave their homeland and start a new life in a safe democratic country, this would be reasonable. The consequences of immigration put our state in an extreme financial situation. We have to use our tax money for these people to finance their lives at the beginning. Most of them would rather earn this through their own work. The state would receive income tax, it would get the social security contributions in the social security funds and we would certainly have more satisfied new citizens.

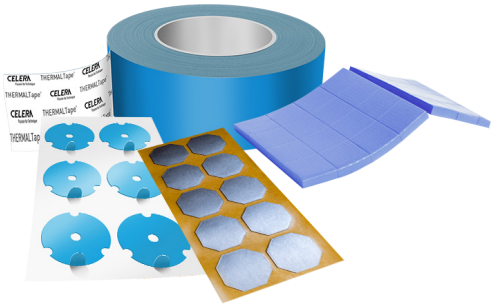
The baby boomers are retiring and there are currently not enough newborns. We are becoming a nation of old people without immigration. I wonder where is the common sense of our elected representatives to finally understand that without the immigrants we will have a problem in the future that we can only solve by integrating these new citizens. Do we want a Germany with retirement homes without carers and factories without workers?

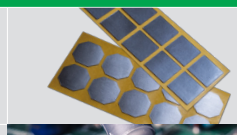
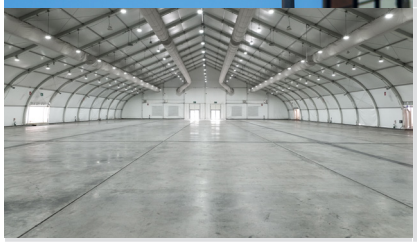
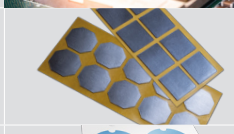
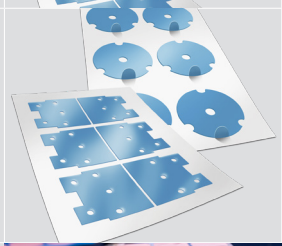
Yours sincerely, Wolfgang Endrich

# THERMAL INTERFACE MATERIALS FOR LED APPLICATIONS

Celera has the most suitable solution for the thermal profile of your application.

Overheating at LED junction point is the main responsible for failures associated with durability, reliability and luminous performance. Celera has a wide family of solutions in thermal Interfaces to ensure the appropriate thermal management of LED Fixtures and Luminaires.



| YOUR APPLICATION | THE CHALLENGES | OUR SOLUTIONS | |
|---|---|---|---|
|  | Very high thermal load generated by super high/high power LED packages | **FlexGRAF**<br>Thermally conductive graphite sheets |  |
| | | **FORMAPad**<br>Form-in-place gap pads |  |
|  | High/mid thermal load generated by high/mid power LED packages | **FlexGRAF**<br>Thermally conductive graphite sheets |  |
| | | **THERMALTape**<br>Thermally conductive double sided tapes |  |
|  | PCB attachment to aluminum profile and mid/low thermal load generated by LED packages | **THERMALTape**<br>Thermally conductive double sided tapes |  |
|  | Very high/high thermal load generated by COB packages and low clamping force between PCB and heat sink | **COOLPad**<br>Low compression silicon pad |  |
| | | **FORMAPad**<br>Form-in-place gap pads |  |



CELERA Passion for Technique

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# NEWS

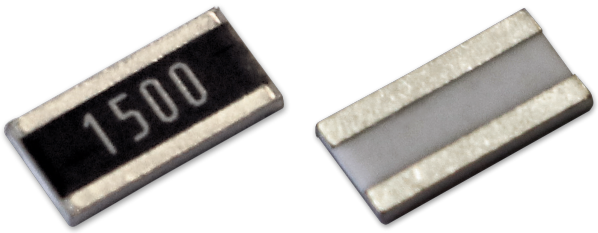
## WCF SERIES WIDE TERMINAL CHIP R

WCF series is a lineup of high rated power and compact size chip resistor from Prosperity Dielectrics Co. (PDC). During operation, resistors generate heat within the resistive element (P=I^2*R). The rated power of a chip resistor is determined by its capacity to efficiently dissipate this heat to both the PCB and the surrounding environment. The heat dissipation capability is, among other factors, contingent upon the ratio of the chip size to the terminal area. A comparison of two resistors of identical chip size reveals that the resistor with wide side terminals exhibits superior heat dissipation compared to the resistor with short side terminals.

This phenomenon conveys various advantages to the resistor:

1. Increased power density without requiring additional PCB space.
2. Reduced PCB space through the utilization of smaller resistor package sizes or a decreased number of components.
3. Augmented safety margin and diminished aging effects.

In applications subjected to a wide ambient operating temperature range, careful consideration is essential when using larger chip sizes of resistors. This caution arises from the disparity in the Coefficient of Thermal Expansion (CTE) between the resistor and PCB, which can induce mechanical stress and lead to terminal cracks after prolonged usage. Generally, chip resistors with wide side terminals facilitate downsizing, mitigating the risk of terminal cracks. Even in larger sizes, resistors with wide side terminals exhibit increased robustness against stress induced by CTE due to their larger soldering area.




| Series | L(mm) | W(mm) | T(mm) | Size Code | Rated Power (70deg.C.) | Max. RCWV | Avail. TCR | Avail Tol. | Resistance value Range |
|---|---|---|---|---|---|---|---|---|---|
| WCF06 | 1.60 ± 0.20 | 3.20 ± 0.20 | 0.6 ± 0.15 | 0612 | 1 W | 200 V | +/– 100 ppm<br>+/– 200 ppm | +/– 1 %<br>+/– 5 % | 1 Ohm – 1Meg. Ohm |
| WCF25 | 3.10 ± 0.20 | 6.30 ± 0.20 | 0.6 ± 0.15 | 1225 | 2 W | 200 V | +/– 100 ppm<br>+/– 200 ppm | +/– 1 %<br>+/– 5 % | 1 Ohm – 1Meg. Ohm |

## APPLICATIONS

- Power supplies
- Industrial application (e.g. for ECU boards)
- Automotive (e.g. for xEV Inverter)
- General purpose applications

## FEATURES

- High power rating to 2 W and compact size
- High reliability and high precision (1 %)
- Compatible with wave and reflow soldering
- Suitable for lead free soldering
- Meet AEC-Q200, RoHS compliant & Halogen Free



PSA PASSIVE SYSTEM ALLIANCE INPAQ TECHNOLOGY CO., LTD.

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# ULTRA-HIGH RANGING FREQUENCY LASER SENSOR BASED ON VCSEL

Industries have put forward new requirements on ranging distance and accuracy. If the deviation cannot be controlled within a certain range, or the measured distance cannot meet the actual needs, the related works will not be able to carry out smoothly, even cause irreparable loss.

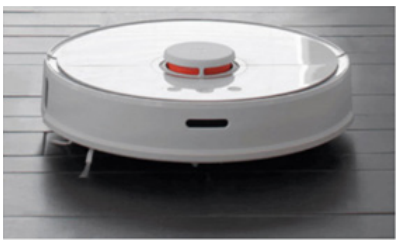
As a supplier of, Brightlaser laser sensors provides a serie of laser ranging products from several meters to tens of kilometers.

Laser sensor series LiDAR of Bright Laser adopts independent intellectual DTOF ( Direct Time Of Flight: measures the time between the sending of an optical pulse and the arrival of the reflected light pulse).

Technology and high-performance high-pulse power VCSELs (vertical-cavity surface-emitting lasers: are superior to LEDs when it comes to short switching times and a narrow optical spectrum—making them the best choice for time-of-flight (ToF) applications).

Devices and high-quality optical design, advanced optomagnetic design and high-performance, high-precision timing circuit, high measurement frequency, small size, and realization of 360° two-dimensional scanning of distance; the infrared high-power pulsed VCSEL laser is used, which is invisible to the naked eye and safe for the human eye, and has strong antiinterference ability. It can be widely used in sweeper/robot navigation and obstacle avoidance.

As well known, ranging frequency directly determines whether robot be able to generate a map quickly and accurately. Brightlaser's scanning and ranging sensor uses high-quality VCSEL light source and algorithm system. The ranging frequency is adjustable and has two options, up to 14000 times per second. It is an incredibly competitive product in the industry, on account of cost-efficiency and high-performance.

| TRAFFIC FLOW DETECTION | ROBOT APPLICATION | LASER RANGE FINDER SENSOR A4 |
|---|---|---|
|  |  |  |



BRIGHTLASER

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# NEWS

## APPLICATIONS UP TO 100m

- Sweeper navigation and obstacle avoidance
- Environmental scanning and 3D modelling
- Obstacle detection and evasion of security
- Regional security
- Robot navigation
- Vehicle ADAS

## APPLICATIONS MORE THAN 100M

- Traffic light control
- Positioning sensing
- Electrical cable monitoring
- Dam deformation monitoring
- Hill slope monitoring
- Range monitoring
- Traffic flow monitoring
- Stuff position monitoring

As well known, ranging frequency directly determines whether robot be able to generate a map quickly and accurately. Brightlaser's scanning and ranging sensor uses high-quality VCSEL light source and algorithm system. The ranging frequency, up to 14000 times per second. It is an incredibly competitive product in the industry, optical communication and transportation.

LS-0905D-150M-ED-XA4
range 150m 200-1000Hz

LS-0905B-600M-AM-CA2
range 1-600m

LS-0905B-001K-AM-CA2
range 1-1000m 5Hz

LS-06XXC-0X0M-Am-EA6
635nm Range 60m 5-10Hz

Single Line Scanning Lidar
LS-0940H-00XM-AC-FX9



BRIGHTLASER

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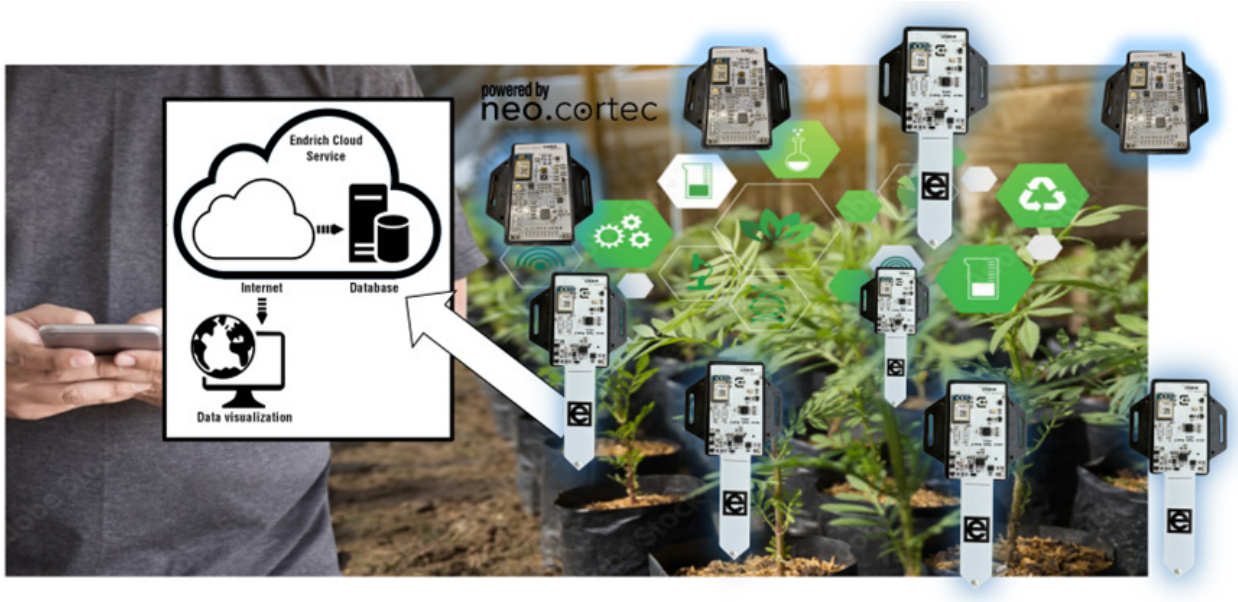
# SOIL MOISTURE MEASUREMENT USING AD-HOC LOCAL NETWORK AND NB-IOT TECHNOLOGY.




**An interesting field of use**

Soil moisture detection is one of the key elements of environmental monitoring and agricultural and horticultural IoT solutions. It involves measuring the amount of water in the top layer of soil, which directly affects plant growth, irrigation strategies and our water conservation efforts. A variety of methods are used to detect soil moisture, from traditional techniques such as gravimetric measurements to modern technologies such as capacitance sensing or TDR (TDR). Accurate soil moisture sensing helps optimize irrigation schedules, prevent over- or under-watering, promote sustainable farming, and ultimately increase agricultural productivity while minimizing water wastage. Supplementing traditional sensors and control electronics with modern wireless communication units and integrating the IoT is a popular and interesting task, which really makes sense if we want to get an idea of the soil moisture conditions in large plantations using computational methods from the data of many sensors. During his business trip to South America this summer, the author spoke with representatives of several companies where the lack of coverage of cultivated areas with telecommunication services makes it impossible or uneconomical to use, for example, smart sensors with a direct sensor-cloud connection (GSM, SAT, etc.). In such cases, a solution may be to organize the soil moisture sensors into an ad-hoc wireless network that uses renewable energy sources, uses low consumption modems, which can cover a large area, and provide this network with a single connection to the Internet to promote cost-effectiveness. The used gateway (one piece) can be a device operating in a property with Internet connection on the edge of the area, a gateway with SAT connection, which is organically integrated into the smart sensor mesh network.



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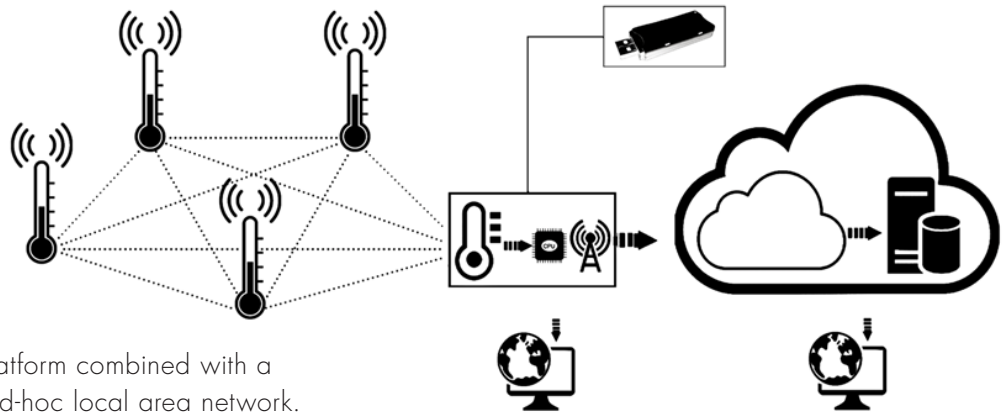
# NEWS

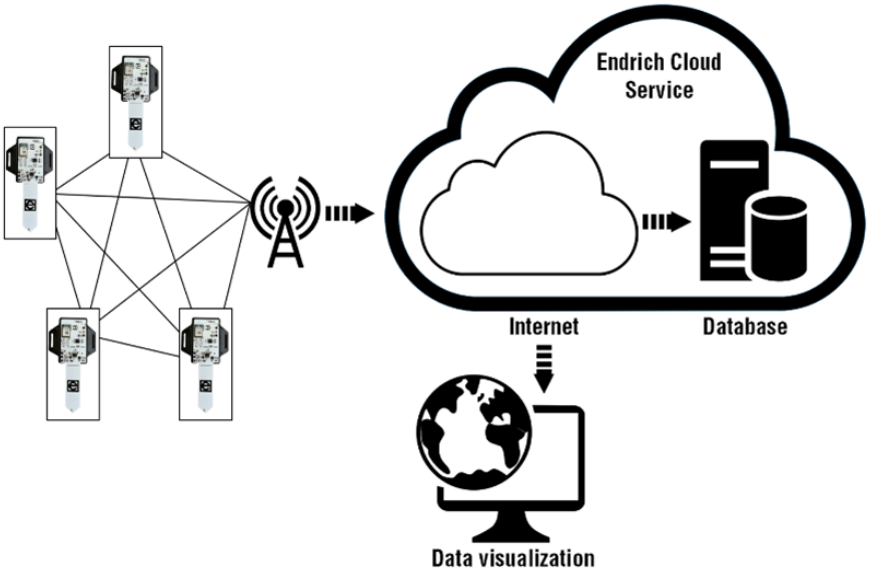


The E-IOT platform combined with a low-power ad-hoc local area network.

In this case, we call for a low-consumption ad-hoc local sensor network solution, for example, in our case we can use the NeoCortec Neo.Mesh protocol presented earlier. A large number of smart sensors can be connected with ultra-low power consumption to a local, sub-GigaHertz wireless network, where a single data concentrator/gateway with an Internet connection takes care of delivering the data to the Cloud DB via the cellular network, for example using LTE-M or NB-IoT, even with satellite or wired connection. This modular sensor network infrastructure offers multi-point-to-point communication to the cloud through the LPLAN-LPWAN/WAN gateway. In our previous article, we described the characteristics of this communication technology in detail, and now we would like to write about the concept that was newly developed for agricultural tasks

**E-IoT wireless soil moisture transmitter**

As an experiment, we created a sensor that works on the capacitive principle, which transmits a signal proportional to the moisture of the topmost layer of the soil through the neo.mesh network. As we discussed earlier, the "mesh" of sensors placed outdoors at a distance of up to a hundred meters from each other is suitable for covering relatively large areas due to the applicability of a large number (thousands) of nodes without the data being lost, since each sensor also acts as a repeater and finds the data at the same time the way to the target gateway. During the day, the integrated solar panel provides energy for the electronics of each node, while at night, the rechargeable battery ensures continuous operation.

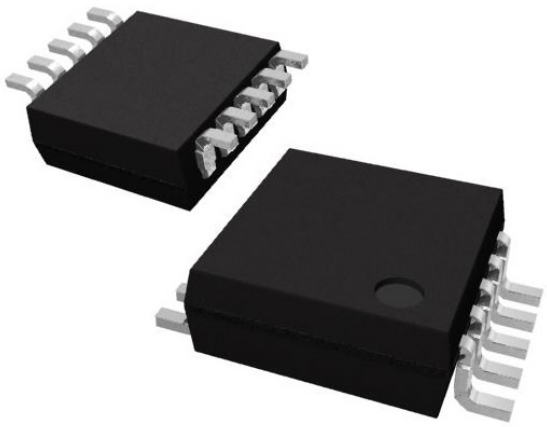



# NJW1871A-T1 MOSFET DRIVE SWITICHING REGULATOR IC

The NJW1871A is a MOSFET drive switching regulator IC designed for boost/flyback converters with a wide operating voltage range from 4.5V to 40V. Its internal N-channel MOSFET driver circuit ensures high-efficiency driving, making it ideal for applications requiring high output currents. This IC is equipped with protection features, including pulse-by-pulse overcurrent detection to limit the switching current during overload, with automatic recovery in the event of load anomalies. In addition, its support for high transmit frequency enables avoidance of AM band noise and facilitates the use of small inductors. Overall, the NJW1871A is suitable for boost/flyback applications such as automotive and industrial equipment.

## APPLICATIONS

- Consumer Electronics
- Industrial Instruments
- Boost converter for small to middle range power supplies



## FEATURES

- Input Voltage Range from 4,5V to 40V
- Operating Temperature Range from -40°C to 125°C
- Supply Current: Typ. 1200 µA / Max. 1700 µA
- Standby Current: 10 µA/ Max. 20 µA
- Output Voltage Accuracy: ± 1/2 %
- Oscillator Frequency: 1000kHz to 2000kHz
- Package: MSOP10(VSP10)
- Current Mode Control / PWM Control
- Standby Function
- Soft Start (Fixed 20ms typ.)
- Over Current Protection (Hiccup)
- Over Voltage Protection
- Thermal Shutdown



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