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NICHICON and e-peas Co-operatively Release an Energy Harvesting Power Solution Suitable for Maintenance-Free IoT Devices.

**e-peas SA
NICHICON CORPORATION**

e-peas, the leader in PMICs for energy harvesting, and NICHICON CORPORATION, the leader in miniature lithium-titanate (LTO) rechargeable batteries, combine their unique value propositions of high-performance power management ICs (PMICs) and micro energy storage devices to offer developers an ultra-compact, lightweight, long-term energy supply solution for sensor nodes that don't require battery maintenance.

The collaboration encompasses the e-peas AEM10941 AEM10330 AEM10300 DC/DC converters together with NICHICON's SLB series LTO battery range. The SLB series is an IoT-focused battery with high current charge/discharge with the potential for at least 25,000 cycles providing a long lasting, maintenance-free solution. Over 30 million units have been shipped since its market introduction in 2019. The storage voltage range of NICHICON SLBs is well suited for e-peas DC-DC converters and internal state machine, making the connection of both devices almost seamless, with no configuration headaches.

The e-peas AEM10300/330 offers a pre-set bank of storage elements that matches the typical operating conditions of NICHICON's SLB LTO batteries while the e-peas AEM10941 custom configuration mode gives developers the ability to match NICHICON SLB LTO batteries perfectly to an application.

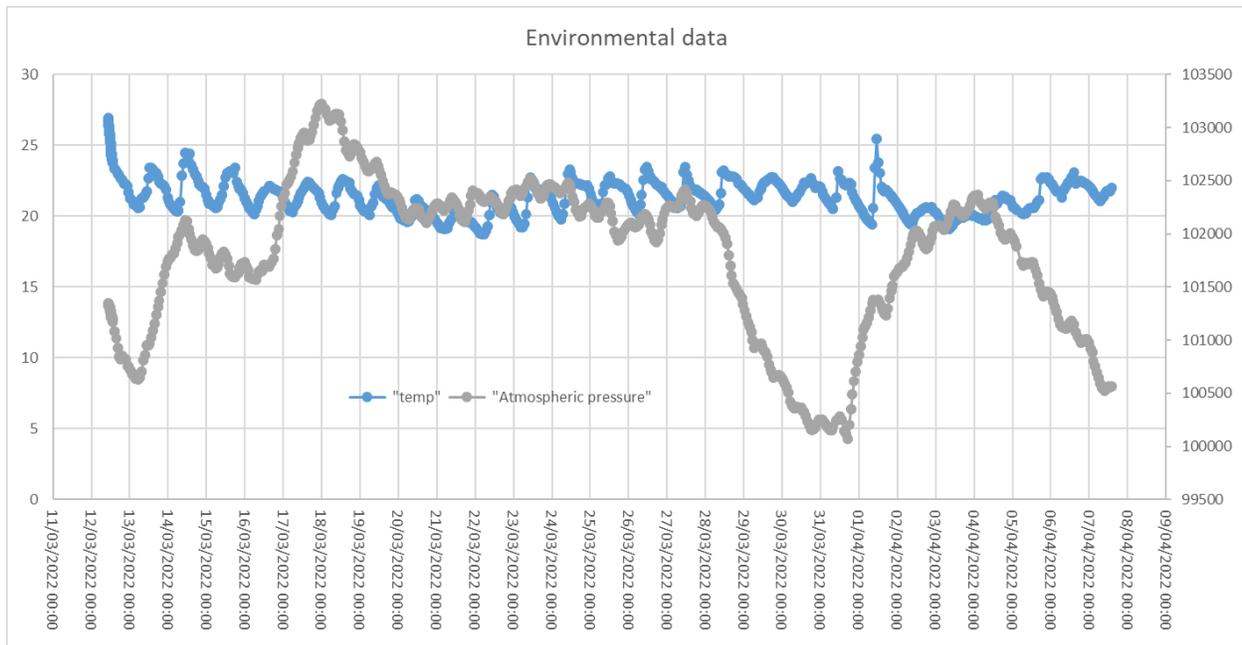
The e-peas PMICs add over-voltage and over-discharge protection, providing the developer additional confidence that the NICHICON SLB LTO battery will deliver the best possible performance and serve the application's requirements over a long period of time.

One of the high-value propositions of this combination of NICHICON's SLB LTO battery and the e-peas PMIC is the ultra-low-leakage on both sides, making 99.9% of the harvested energy available to an application. This ultra-low leakage results in very long-lasting sensor node activity once the harvester source and AEM device have charged the NICHICON LTO battery.

Performance evaluation shows that the NICHICON SLB03070LR35 combined with the e-peas AEM10300 can remain running for months while the harvester energy source is not in condition to provide energy, for example while the light source disappears for several weeks or months.

The solution has demonstrated that it will continue to supply power to the application (sensor node) in dark conditions for over four months.

The data log shown below is clear: while staying in dark conditions, the sensor node continued to transmit information to the remote gateway for months as the total battery voltage decay for one month was only 86mV while maintaining sensing and communication activity.



Possible applications include ecosystems where the presence of normal energy sources can be cut off for very long periods, for example, smart building environmental monitoring systems often experience long periods of inactivity, yet the system still functions. This innovation completely revolutionizes the scope of energy harvesting-based sensor nodes.

One can now see how the phrase "set and forget" has finally come true.

■ About NICHICON :

NICHICON is a global manufacturer of electronic components that develops, manufactures, and sells aluminum electrolytic capacitors, film capacitors, and circuit products. It pursues an aggressive corporate strategy in four market segments: Energy, Ecology & Medical equipment; Automotive & Railway-car related appliances; Home appliances & Industrial inverters; and Information & Communications equipment.

■ About e-peas :

Our mission is to revolutionize the industry by shifting the world to green renewable energy devices. We provide industry leading energy harvesting and processing solutions – AEMs & Microcontrollers – to give infinite battery life to your wireless device by increasing the amount of harvested energy and by drastically reducing the energy consumption of all power consuming blocs of the system.

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