



MINIATURE SOLID STATE BATTERIES FOR SMART ORTHOPEDICS



IMPLANTATION FAILURES

Whilst the implantation of prosthetic joints provides renewed mobility to millions of people every year, failures are not uncommon, due to infection, loosening of the implant or mechanical collapse. Often, surgeon and patients are only aware of this too late, when pain occurs.

SMART ORTHOPEDICS

A new generation of prosthetic implants (knee, shoulder, hip) aim to incorporate sensors to monitor implantation success, signs of infection or malfunction by measuring pressure, movement and temperature. Transmitting data to the medical team wirelessly provides early warning signals, so action can be taken, preventing any further damage.

PAIN POINTS FOR DESIGNERS

To acquire as much data as possible, smart orthopedic implants need to perform sensing and communications autonomously, whilst powered by a battery. This battery should be of small size so as not to reduce the mechanical integrity of the implants. Rapid charging of the battery should be possible to maximise patient compliance.







STEREAX SOLID STATE BATTERIES

Stereax M300 is a rechargeable, miniature solid state battery with:

- 300 μ Ah
- 3.5 V
- 3 mA pulse current
- 1000 cycles
- 5.6 x 3.6 x 1.1 mm



PRODUCT DESIGN BENEFITS

-  Millimetre-scale format, enable real miniaturisation
-  Rectangular form factor, fits easily on PCB
-  High power, capable of powering most comms and therapies
-  High cycle life, can be recharged numerous times
-  Can be recharged wirelessly
-  Rapid charging, improves patient compliance to charging at home

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