

Unrivaled Cooling Performance



CENTUM™ Advanced Solid-State Coolers

Solid-State

Products today demand high-performance and efficient solid-state cooling solutions. Applications such as 5G Communications, Data Center Cooling, LIDAR/3D Sensing, CCD/IR/Sensors, IoT, Battery Cooling, and A/C for Electric Vehicles require higher performance, higher efficiency, and higher reliability cooling technology.

High ΔT

Sheetak's flagship CENTUM™ product line offers the industry best, highest efficiency, ultra-high reliability solid-state coolers. Centum products offer unrivaled cooling performance and come in various sizes and cooling power.

High Efficiency

- ❖ *Utilizes novel high efficiency device structures in tandem with robust fault tolerant topology*
- ❖ *Incorporates industry best materials to provide exceptional cooling capability in addition to robust mechanical integrity*
- ❖ *Built-in fault tolerance for long lifetime in extreme environments*
- ❖ *Deep cooling with 30% to 50% better COPs*
- ❖ *$\Delta T_{max} > 100^{\circ}\text{C}$ with form factor and fabrication of single-stage cooler*

Ultra-High Reliability



Leading manufacturer of efficient, environmentally friendly, solid-state electronic cooling systems

CENTUM™ Advanced Solid-State Coolers

Unrivaled Cooling

Sheetak CENTUM devices offer a novel multi-stage topology in the form factor of a single stage package and lower fabrication complexity than a traditional multi-stage device. These deep cooling solid-state cooling products have 30-50% better COPs and $\Delta T_{\max} > 100^{\circ}\text{C}$.

Industry Best Materials & Assembly

CENTUM devices utilize industry best thermoelectric materials and manufacturing assembly methods to develop high-performance solid-state cooling devices with robust mechanical integrity. Sheetak design and fabrications allows for scalability of the devices down to 0.5 mm in device thickness as well as couple density of 1000 couples/cm² resulting in exceptional cooling capability.

Ultrahigh Reliability

CENTUM devices have designed-in fault tolerance which allows the products to operate for extraordinarily long lifetimes even under the harshest of environments. The design allows for graceful degradation and not abrupt failures.

Features

- ❖ Solid-state design
- ❖ Ultrahigh temperature differentials $\Delta T > 100^{\circ}\text{C}$
- ❖ Industry-best COP metrics
- ❖ High reliability and MTBF > 100,000 cycles

Applications

- ❖ Optoelectronics
- ❖ Telecommunications
- ❖ IoT
- ❖ High Performance Computing
- ❖ Thermo-cyclers for PCR
- ❖ Refrigeration/Heat Pumps



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CENTUM[®] Advanced Solid-State Coolers

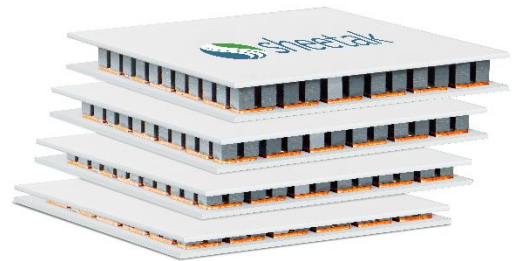
CENTUM 241-11

- ❖ 40 x 40 mm²
- ❖ Device thickness = 3 mm
- ❖ $\Delta T_{max} = 105^{\circ}\text{C}$
- ❖ $Q_{max} = 97\text{ W}$
- ❖ $V_{max} = 22\text{ V}$
- ❖ $I_{max} = 11\text{ A}$



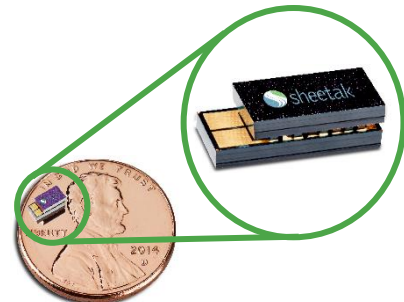
CENTUM 71 Couple Family

- ❖ 22 x 22 mm²
- ❖ Device thickness ranges from 1 mm to 2 mm
- ❖ $\Delta T_{max} = 85^{\circ}\text{C}$
- ❖ Q_{max} ranges from 5 W to 200 W
- ❖ $V_{max} = 10\text{ V}$
- ❖ $I_{max} = 2\text{ A to } 30\text{ A}$




MicroCENTUM Family

- ❖ Couple density up to 1000 couples/cm²
- ❖ Device thickness as low as 0.5 mm
- ❖ $\Delta T_{max} = 105^{\circ}\text{C}$
- ❖ $Q_{max} = \text{microwatts to } 10\text{s of Watts}$



New advanced technologies for improved efficiency and performance are under development. For inquiries email info@sheetak.com.

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