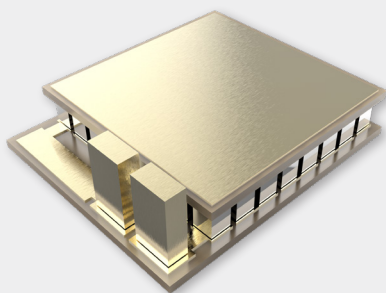


## Technical Data Sheet

# TECs for 400G/800G and beyond

Phononic's high-performance TECs cool next-generation optical communications components and circuits while reducing overall power consumption. Due to the fact that we design our TECs to meet your specific design constraints, the accurate temperature control of a wide variety of next generation high performance Ethernet applications is possible.

High performance transceivers, photonic integration and co-packaged optics [CPO] will not only generate more heat, but will require precise and reliable temperature control. Phononic's combination of application specific TEC design and semiconductor manufacturing experience, addresses these needs in a way that is unique to the industry and all the while being cost competitive with non-tailored off the shelf solutions.



## End-Customer Applications

- QSFP-DD
  - 400G, 800G
  - OSFP, OSFP-XD [with integrated heatsink] 400G, 800G, 1.6T and higher
- Coherent transmission and detection
- High data rate LAN-WDM
- I-Temp transceivers for operation in wider temperature ranges

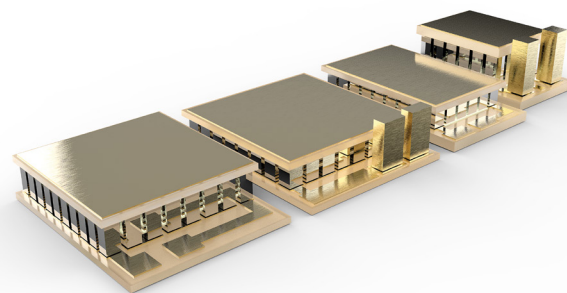
## Benefits

- Low power consumption  
30% lower power consumption than typical TECs
- Accurate, precise temperature control
- Application specific footprints and dimensions
- High heat pumping density
- High-efficiency cooling for single-channel or multi-channel laser assemblies
- Exceptional Design Support  
Benefit from our expertise: we will consult with you during your design process so that your electrical and thermal design converge in parallel allowing for faster time to market.

## Integration Options

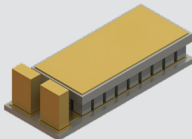
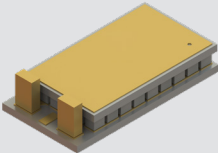
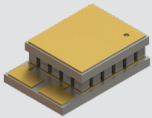
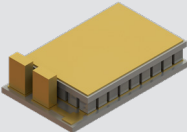
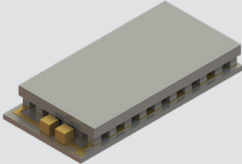
- Bare wire bond pads
- Wire bonding posts
- Cold side electrical connections
- High temperature solder
- Solder pre-tinning
- Patterned cold-side metallization
- Pre-attached cold-side thermistors
- Automation-ready packaging

## Phononic's high-performance TECs for 400/800G



With Phononic's experience in semiconductor design, we can partner with you to develop cost-effective, application-specific TECs. Devices in the table are examples of current designs that have been completed for 400G and 800G circuits.

*\*All thermoelectric performance data in the table is collected at 75°C*

Part Number	L x W x H (mm)	$\Delta T_{max}$ (°C, vacuum)	Optimum Heat Load (Watts)	I <sub>max</sub> (Amps)	V <sub>max</sub> (Volts, DC)	ACR (Ohms)	
FBM-013281	4.85 x 1.95 x 0.95	87	0.5 - 0.8	1.50	2.94	1.65	
FBM-016909	5.85 x 3.1 x 1.0	87	1.4 - 2.0	2.5	4.4	1.38	
FBM-015626	2.6 x 1.75 x 0.8	85	0.3 - 0.5	1.09	2.46	1.92	
FBM-016140	4.9 x 3.0 x 1.0	89	1.0 - 1.4	1.68	4.46	2.1	
FBM-017689	9.4 x 4.5 x 1.25	88	1.3 - 1.9	2.1	4.95	2	
FBP-016624	3.8 x 1.8 x .80	85	0.6 - 0.9	1.5	3.27	1.85	