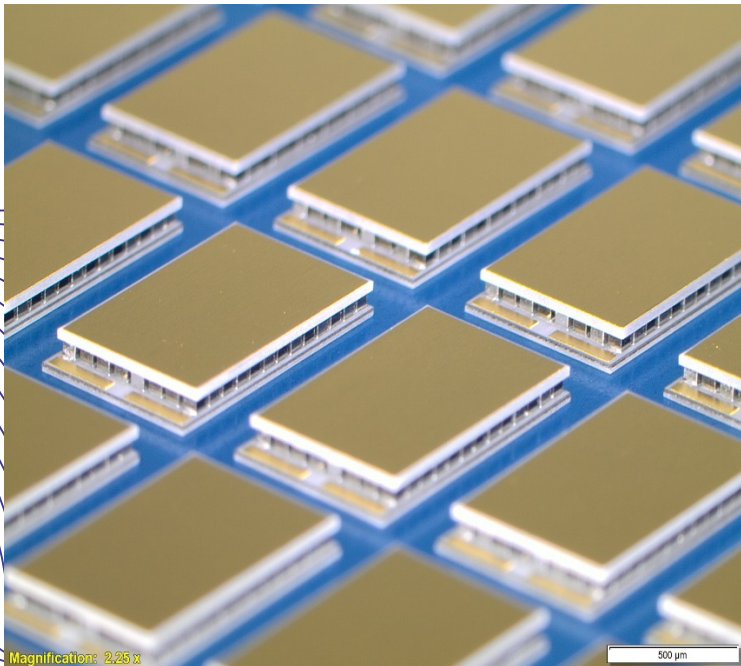


TECs for LiDAR

Phononic's high-performance TECs efficiently cool LiDAR sensor components while reducing overall TOSA power consumption. Configured to your specific application, this series can be used to cool a variety of high reliability, harsh environment applications used in automotive LiDAR sensors. Building reliability around AEC-Q10x standards and quality around IATF 16949 certification, Phononic ensures that the intense performance and reliability demands of the automotive industry are met and exceeded even as these continue to evolve. Phononic's application specific product approach quickly designs a TEC that meets an application's specifications and form factor, increasing LiDAR performance while lowering power consumption.



Features

- Small footprint for use in LiDAR systems
- Industry-leading diffusion barriers and electrical contacts
- Compatible with automotive 0-125°C operation
- Application-specific designs available
- RoHS compliant
- AEC-Q10x standards and IATF 16949 certification
- Exceptional design and application support: Phononic consults throughout the design process to ensure optimum thermal performance

End Customer Applications

Cooling of components in LiDAR sensors – laser, DSP, scanner, photo diode receivers and other application specific modules that require cooling

- Advanced Driver Assistance Systems (ADAS)
- Autonomous Vehicle sensors (AV)
- Robotics and manufacturing
- IoT sensors (smart cities, farming, security)
- 3d systems aviation and drones

Integration Options

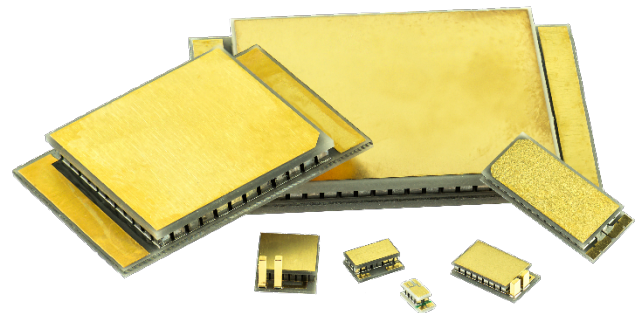
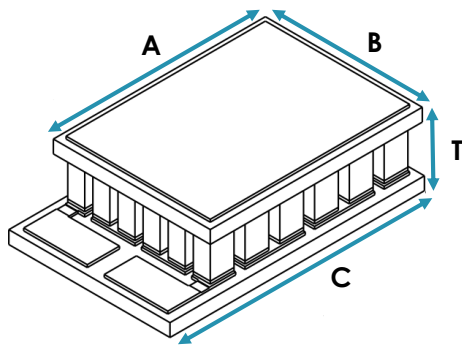
- Bare wire bond pads
- Cold side electrical connections
- Hot side vias for flip-chip electrical connection
- High temperature solder
- Solder pre-tinning
- Patterned cold side metallization
- Pre-attached cold side thermistor
- Automation-ready packaging

Benefits

- Low power consumption: 30% lower consumption than typical TEC performance
- High heat pumping density: 60% higher heat pumping density
- Improved sensor signal to noise ratio
- Enhanced wavelength stability
- Extended LiDAR reliability in harsh environments

Part Number	TEC Dimensions				TEC Performance ($T_{HOT} = 75^{\circ}C$)					AC Resistance at $25^{\circ}C$ [Ω]
	A [mm]	B [mm]	C [mm]	T [mm]	Optimal heat load [Watts]*	$Q_{C,MAX}$ [Watts]	DT_{MAX} [$^{\circ}C$]	V_{MAX} [Volts]	I_{MAX} [Amps]	
FBM-016918	7.15	5.1	7.8	1.0	0.7 - 2.4	7.4	87	5.44	2.45	1.9
FBM-016919	8.45	5.4	9.1	1.0	1.7 - 5.6	16.9	88	8.57	3.55	2.06
FBN-017482	11.4	4.95	12.6	1.65	0.5 - 1.7	5.14	92	13.45	0.067	17.2
FBN-017483	6.0	4.7	8.2	1.6	0.5 - 1.8	5.48	92	7.3	1.32	4.72
FBN-017484	12.0	6.0	12.8	1.8	0.7 - 2.3	6.9	92	4.48	2.7	1.41
FBN-014306	9.0	3.4	10.0	1.3	0.5 - 1.7	5.2	91	3.98	2.31	1.45

* Designs are not limited to the devices listed above. Application-specific devices are available upon request.



Application Considerations

For maximum reliability, TEC storage and operation at or below $85^{\circ}C$ ambient in a non-condensing environment is recommended. Recommended mounting methods are bonding with thermal epoxy or soldering with metallized ceramics.

With Phononic, the design possibilities are endless. To design the right TEC for your application, contact us for additional information at 1.844.476.4202 or at www.phononic.com/contact/

Find the right solution with Phononic
Contact us to learn more

800 Capitola Drive, #7, Durham, NC 27713 • 844.476.4202
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