

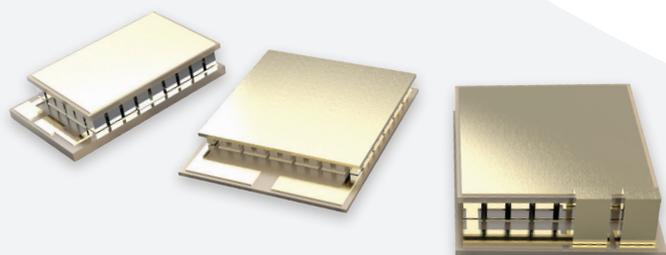
## Technical Data Sheet

# TECs for TO can packages

Phononic's high-performance TECs efficiently cool TO can lasers, setting the standard for high heat pumping density while simultaneously reducing overall TOSA power consumption. Specifically designed for optimized performance given your specific end-application, this series can be used to cool a variety of TO can sizes, including TO60, TO56, and even as small as TO40. These TECs are incredibly high value, delivering industry-leading performance, cost-effectively, in a variety of bandwidths from 1G to 100G and beyond. This suite of TECs is appropriate for use in passive optical networks, wireless networks and FTTX applications, and are ideal for use in any package or TOSA form factor where space is at a premium.

### Capitalize on Phononic's Design Expertise

Collaborate with our team of experienced Application Engineers and Thermal Management Experts to design cooling solutions optimized for the nuances of your specific end-application, with quick NPI timelines to accommodate tight product launch schedules, at scale.



## Benefits

- **Industry-leading Design and Application Support:** Capitalize on our expertise. The Phononic team will consult and proactively engage with your team throughout the design process to ensure optimal thermal performance, energy efficiency and space maximization.
- **Low power consumption:** Achieve up to 30% lower power consumption as compared with industry standard performance.
- **High Heat Pumping Density:** Realize up to 60% higher heat pumping density in a very thin TEC.

## Features

- Small footprint for use in TO can lasers
- Industry-leading diffusion barriers and electrical contacts
- Compatible with I-temp & C-temp operating ranges
- Application-specific designs available
- RoHS compliant

## End-Customer Applications

- Laser cooling for optical communications components
- 10G and 25G tunable lasers for DWDM [dense wavelength division multiplexing]
- 50G PAM4 lasers
- 25G L-WDM and M-WDM lasers for 5G wireless
- 100G single wavelength
- Components for Passive Optical Network [PON] applications
- 1550nm and 1577nm TO can lasers

## 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 metalization
- Pre-attached cold side thermistor
- Automation-ready packaging

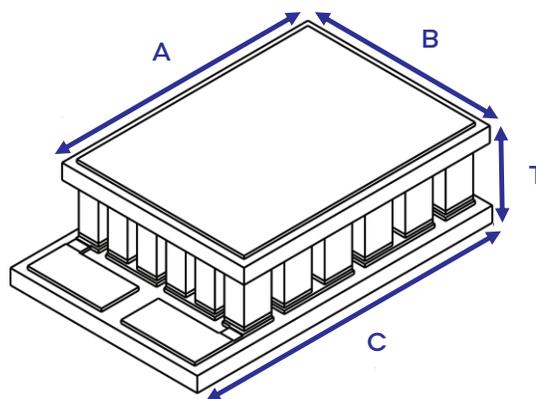
## Product Portfolio

Part Number	TEC Dimensions				TEC Performance (Thot = 75°C)					AC Resistance @ 25°C [Ω]
	A [mm]	B [mm]	C [mm]	T [mm]	Optimal Heat Load [milliwatts]	Qc Max [Watts]	DT Max [°C]	V Max [Volts]	I Max [Amps]	
FBP-016624	3.30	1.70	3.80	0.80	270 - 900	2.70	85	3.27	1.48	1.52
FBM-013865	2.37	1.95	2.87	0.90	170 - 580	1.70	88	2.97	1.03	2.02
FBP-017398	2.05	2.00	2.60	0.83	160 - 530	1.60	87	3.20	1.00	1.80
FBM-015626	2.00	1.70	2.60	0.80	150 - 500	1.50	85	2.45	1.09	1.44
FBP-015268	2.05	1.45	2.50	0.80	100 - 300	1.10	85	1.95	0.99	1.35
FBP-015289	1.50	1.50	2.10	0.90	100 - 320	0.96	87	1.31	1.31	0.67
FBP-016622	2.43	1.25	2.96	0.80	100 - 300	0.94	88	2.64	0.63	2.77
FBM008828	3.00	1.30	3.60	1.10	80 - 270	0.80	88	1.47	0.98	0.98
FBM009395	1.90	1.10	2.30	1.10	40 - 110	0.40	87	0.81	0.81	0.64

\*Optimal heat load is the cold side heat load range under which the TEC operates at or near highest efficiency conditions. Hot side temperature is 75°C, cold side temperature is 45°C to 55°C.

## Considerations to Maximize Performance

To maximize performance, longevity and reliability, TEC storage and operation at or below 85°C ambient in a non-condensing environment is recommended. Recommended mounting methods are bonding with thermal epoxy or soldering with metalized ceramics. For additional information or assistance selecting or designing the right TEC optimized for your specific application, please consult with one of our Application Engineers at [phononic.com/contact-us](https://phononic.com/contact-us), or learn more about Phononic’s proprietary approach to TEC design at [phononic.com/tecs-for-fiber-optics](https://phononic.com/tecs-for-fiber-optics).



Learn More:



**Unleash Every Watt. Unlock Every Degree.**

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Phononic, Inc. 800 Capitola Dr #7, Durham, NC 27713 | [phononic.com](https://phononic.com)