OptoTEC™ MBX Series Thermoelectric Cooler

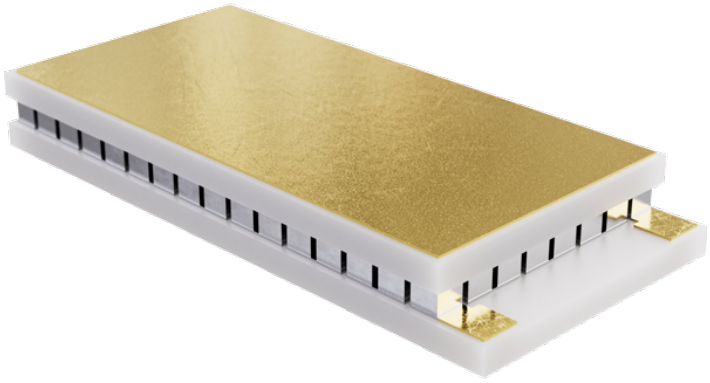
The MBX25-59-F2A-0505-GG-W0 is a high-performance, miniature thermoelectric cooler. The MBX25-59-F2A-0505-GG-W0 is primarily used in applications to stabilize the temperature of sensitive optical components in the telecom and photonics industries. It has a maximum Qc of 8.3 Watts when ΔT = 0 and a maximum ΔT of 72.9 °C at Qc = 0.

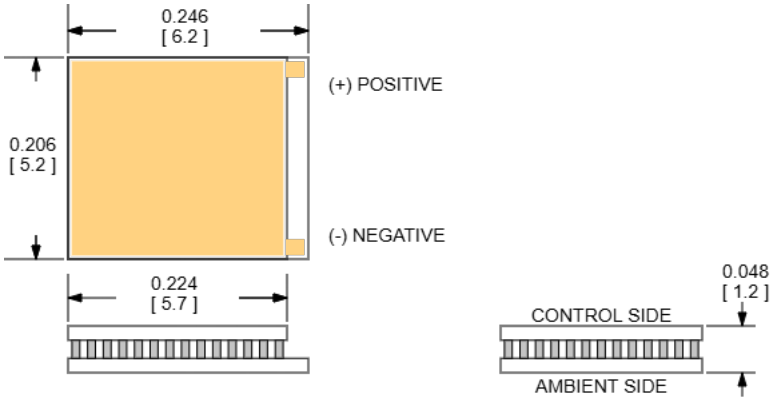
Features

- Miniature footprint
- Precise temperature control
- Reliable solid-state operation
- Operates in high-temperature applications
- No sound or vibration
- RoHS-compliant

Applications

- VCSELs
- Laser Diodes
- Optical Transceivers
- Lidar Sensors
- Infrared Range (IR) Sensors
- Autonomous Systems
- Machine Vision



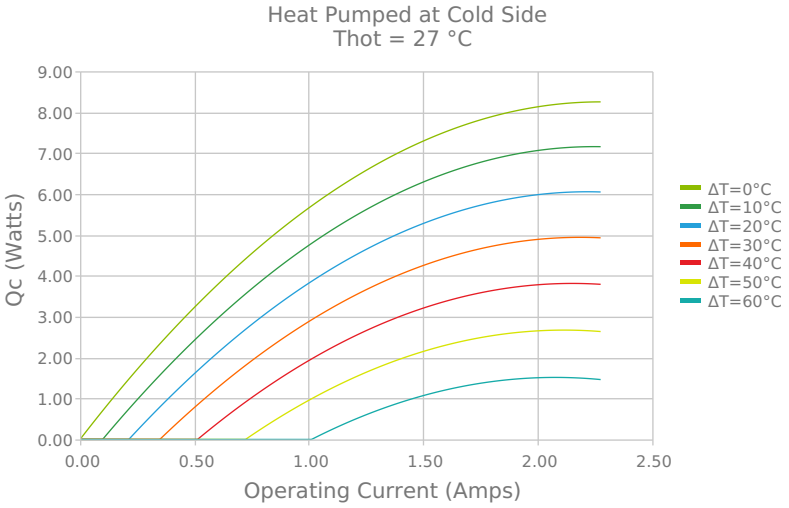


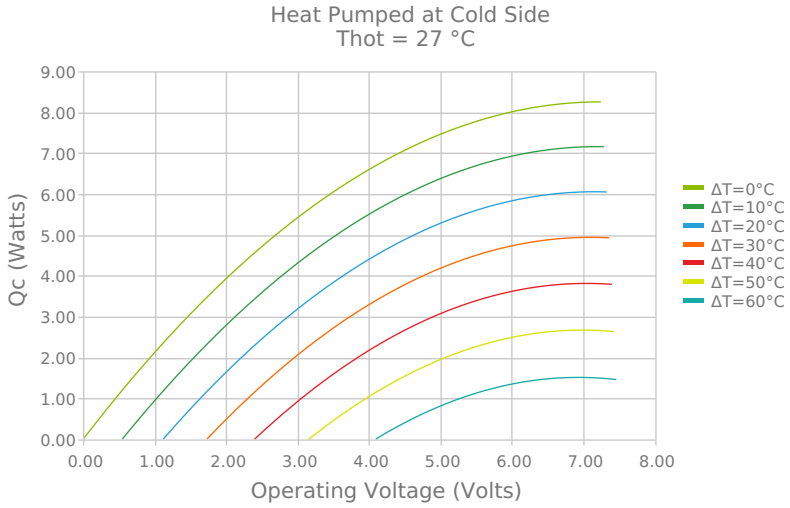
CERAMIC MATERIAL: Al_2O_3
SOLDER CONSTRUCTION: 232°C, SbSn

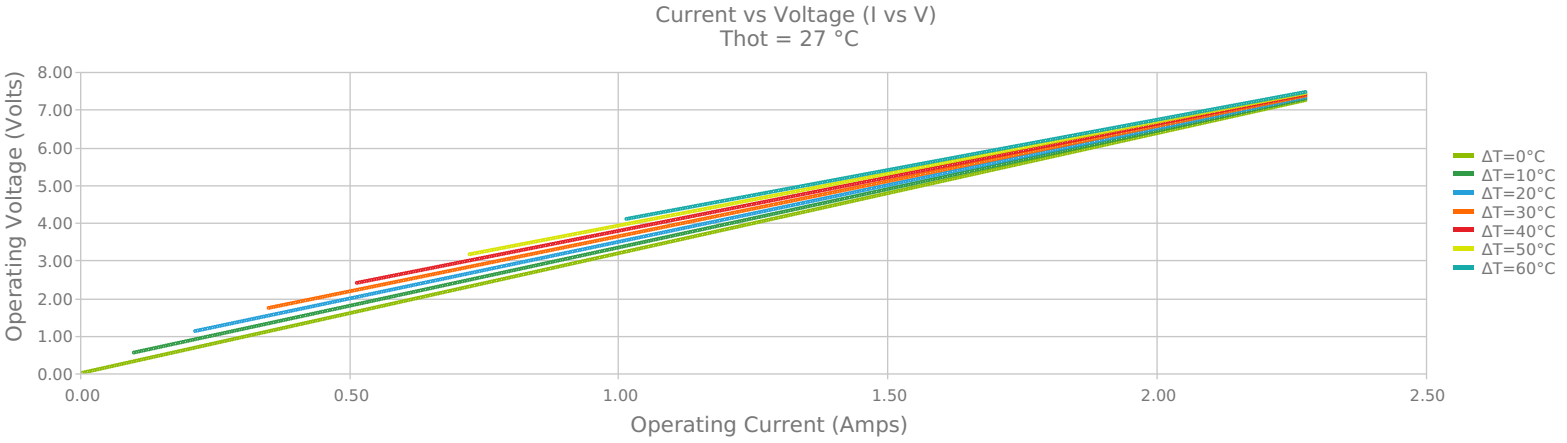
INCHES [MM]

ELECTRICAL AND THERMAL PERFORMANCE

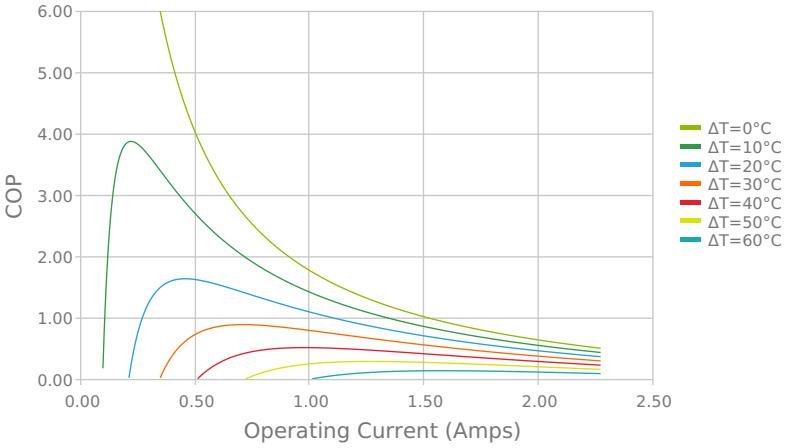
For maximum performance, be sure to orient the CONTROL side of the TEC against the application to be managed and the AMBIENT side against the heat sink or other heat rejection method. The CONTROL side is always opposite the side with lead attachments. Lead attachment is a passive heat loss and less impactful if located on the side that attaches to the heat exchanger.







Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C



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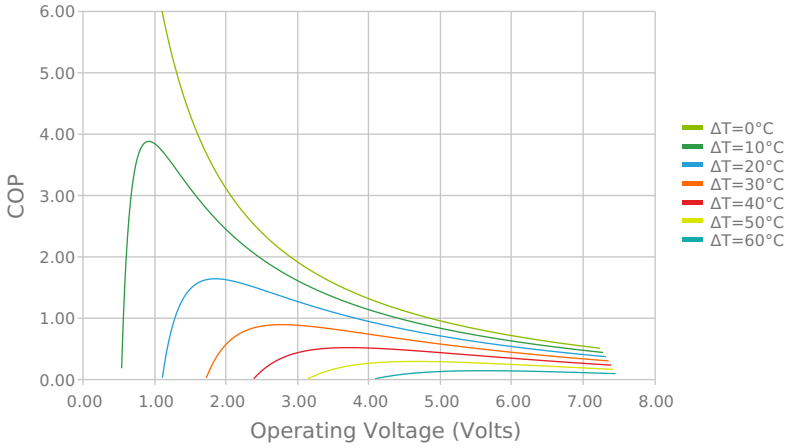
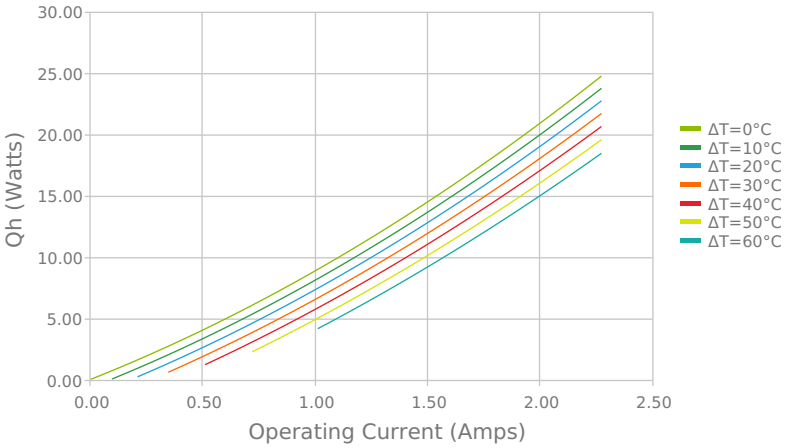


Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 27 °C



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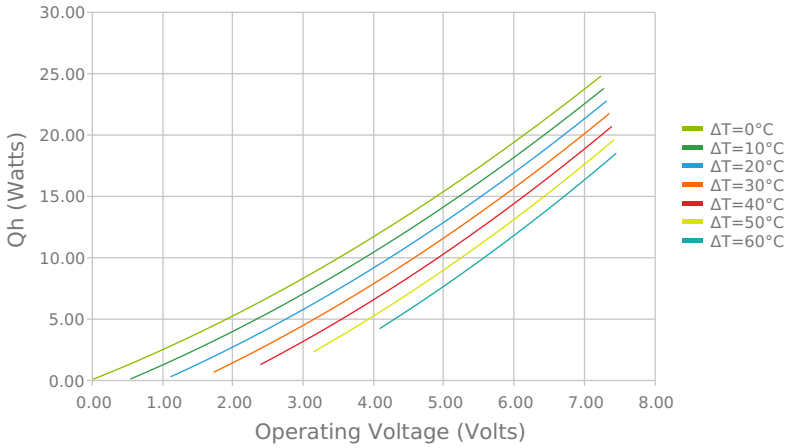
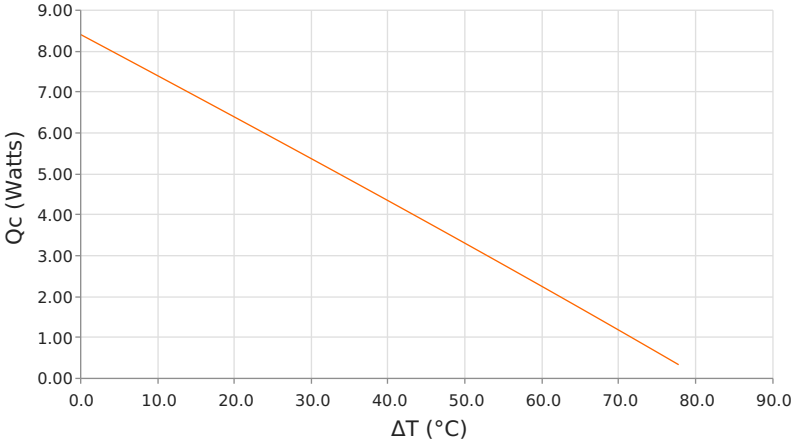
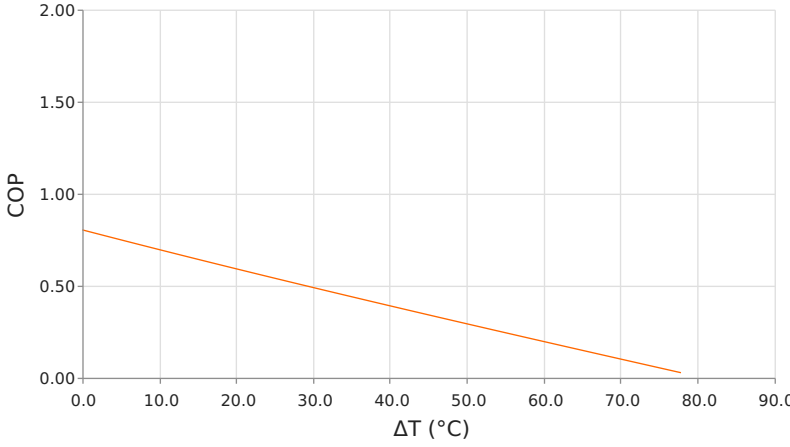


Heat Pumped at Cold Side (Qc)
Thot = 50 °C | Ioperating = 1.7 Amps



Coefficient of Performance (COP = Qc/Pin)
Thot = 50 °C | Ioperating = 1.7 Amps



SPECIFICATIONS

Hot Side Temperature	27.0 °C	50.0 °C	80.0 °C
Qcmax (ΔT = 0)	8.3 Watts	8.9 Watts	9.5 Watts
ΔTmax (Qc = 0)	72.9°C	81.8°C	92.1°C
Imax (I @ ΔTmax)	2.0 Amps	2.0 Amps	1.9 Amps
Vmax (V @ ΔTmax)	6.9 Volts	7.6 Volts	8.6 Volts
Module Resistance	3.18 Ohms	3.58 Ohms	4.10 Ohms
Max Operating Temperature	120 °C		
Weight	0.5 gram(s)		

FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
GG	1.230 ±0.100 mm 0.048 ± 0.0039 in	N/A / N/A	Au Plated	Au Plated	0.0 mm 0.00 in

SEALING OPTIONS

Suffix	Sealant	Color	Temp Range	Description
	None			No sealing specified

NOTES

1. Max operating temperature: 120°C
2. Do not exceed Imax or Vmax when operating module
3. Reference assembly guidelines for recommended installation
4. Solder tinning also available on metallized ceramics

Revision: 00 Date: 09-10-2024

Print Date: 12-09-2024