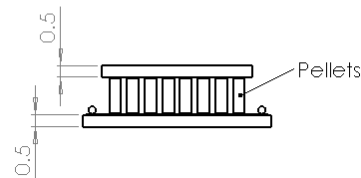
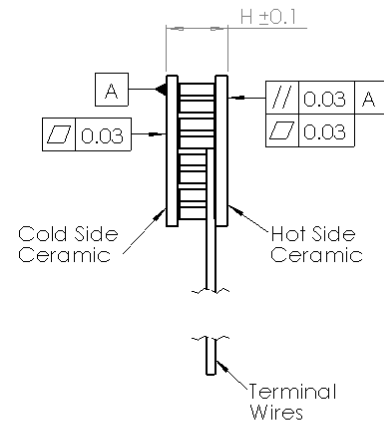
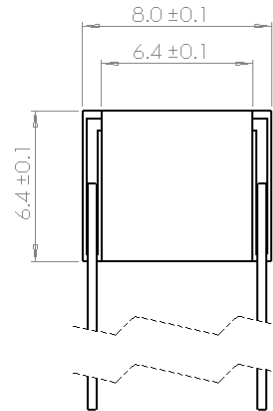


APHM04-032-XX

THERMOELECTRIC MODULE



CHARACTERISTICS

	ΔT_{max}	V_{max}	I_{max}	Q_{max}	Elect R	Length	Height
	[K]	[V]	[A]	[W]	[Ohm]	[mm]	[mm]
APHM04-032-XX (N=32)							
APHM04-032-03	65	3.9	2.3	5.3	1.28	6.4	1.4
APHM04-032-05	68	4	1.4	3.4	2.1	6.4	1.6
APHM04-032-08	70	4	0.9	2.2	3.34	6.4	1.9
APHM04-032-10	71	4	0.7	1.8	4.16	6.4	2.1
APHM04-032-12	71	4	0.6	1.5	4.98	6.4	2.3
APHM04-032-15	71	4	0.5	1.2	6.21	6.4	2.6

Features

- ROHS & REACH Compliant
- Precise temperature control
- Solid-state reliability

Applications

- Automotive
- Industrial
- Telecommunications
- Medical
- Aerospace

MANUFACTURING OPTIONS

STANDARD SPEC

SnSb solder ($T_{max} -230^{\circ}\text{C}$)
Aluminium Nitride ceramics (not metalised)
Terminal wires: Tinned copper wires

CUSTOMISATIONS

Integrated thermistors and custom tracking/plating
Customer specified connector harnesses

OPTIONS

SOLDER:
AuSn solder ($T_{max} 280^{\circ}\text{C}$)

CERAMICS:
High purity Al_2O_3 (99.6%), Al_2O_3 (96%)
Metalisation – (Au plating)

WIRING:
Insulated wires, colour coded

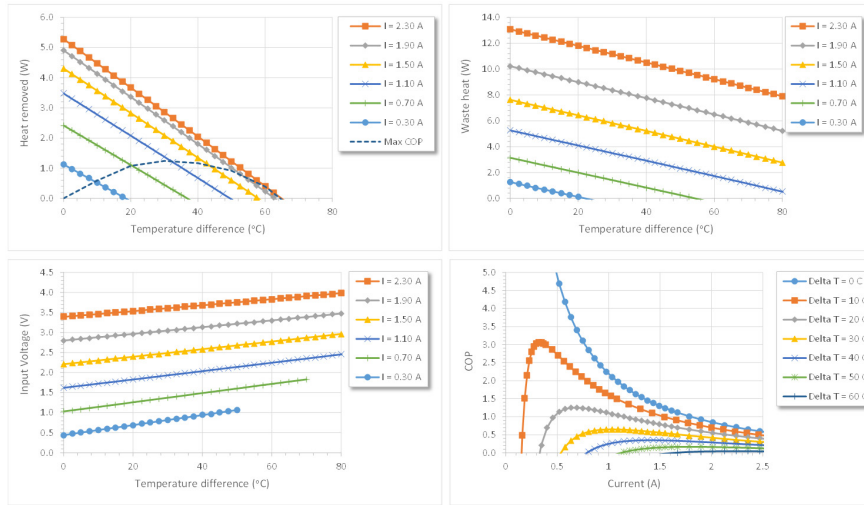
METALISATION AND PRE-TINNING WITH:

Solder 117 (In-Sn, $T_{melt} = 117^{\circ}\text{C}$)
Solder 138 (Sn-Bi, $T_{melt} = 138^{\circ}\text{C}$)
Solder 143 (In-Ag, $T_{melt} = 143^{\circ}\text{C}$)
Solder 157 (In, $T_{melt} = 157^{\circ}\text{C}$)
Solder 183 (Pb-Sn, $T_{melt} = 183^{\circ}\text{C}$)
Optional (specified by Customer)

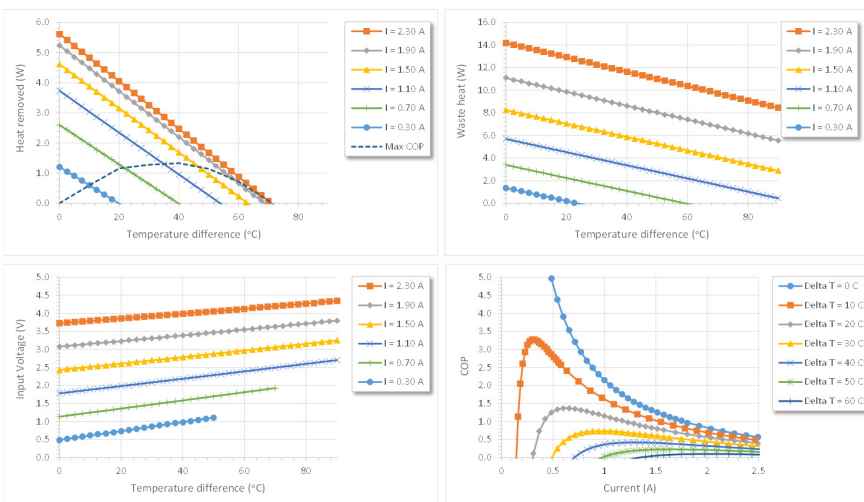
PERFORMANCE DATA

APHM04-032-03

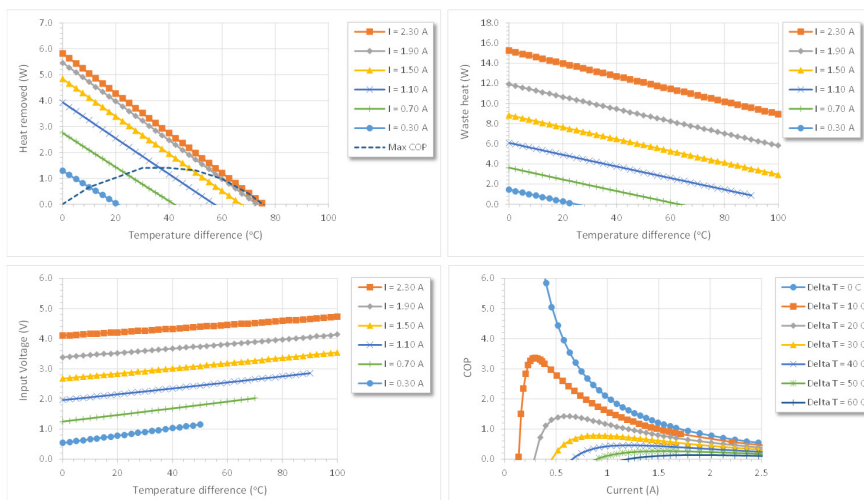
Hot side temperature 25°C



Hot side temperature 50°C



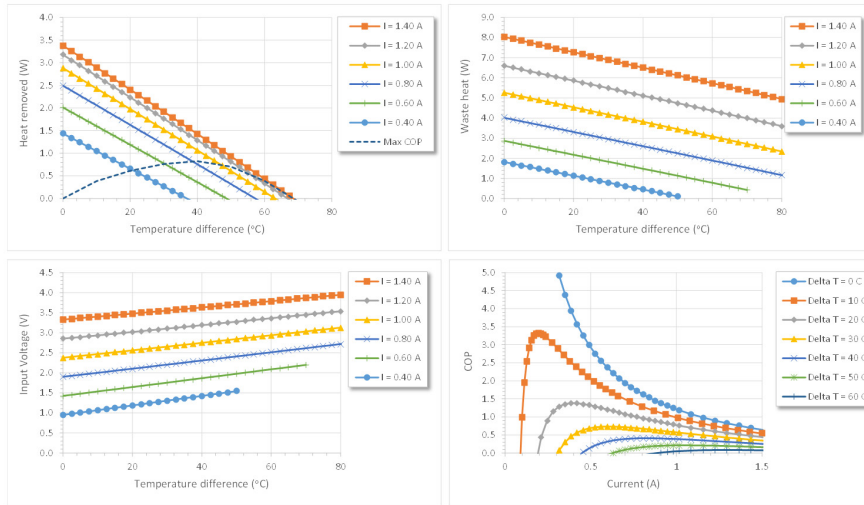
Hot side temperature 75°C



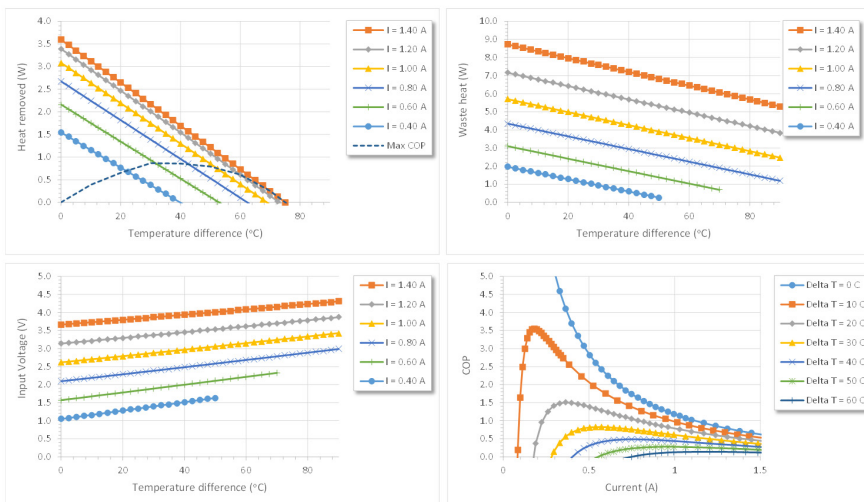
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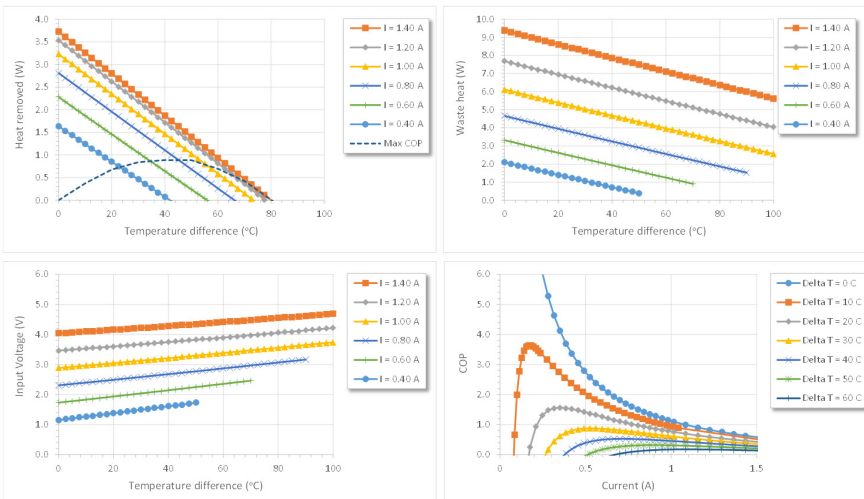
Hot side temperature 25°C



Hot side temperature 50°C



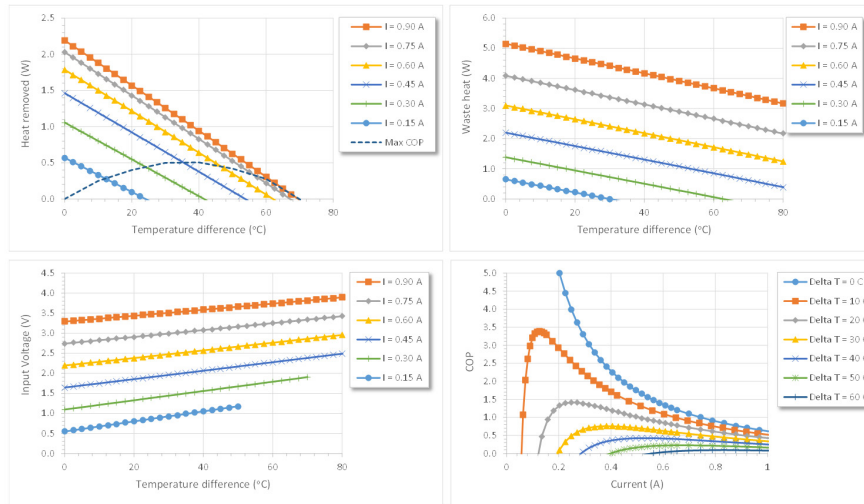
Hot side temperature 75°C



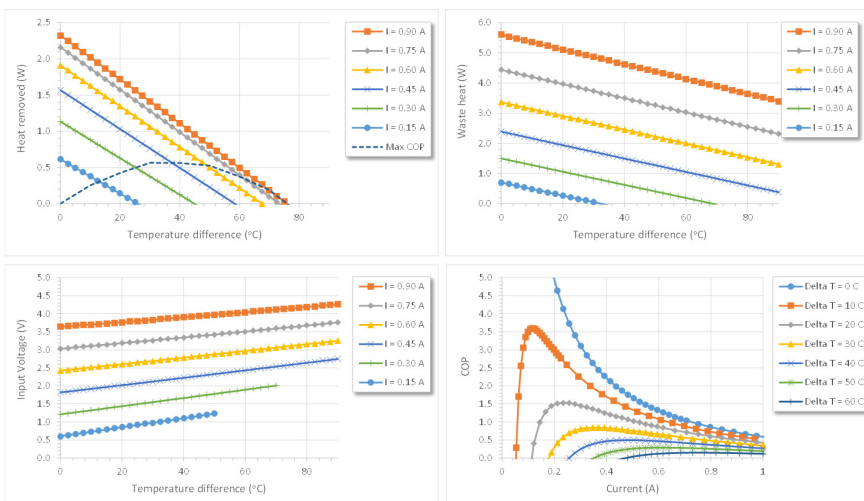
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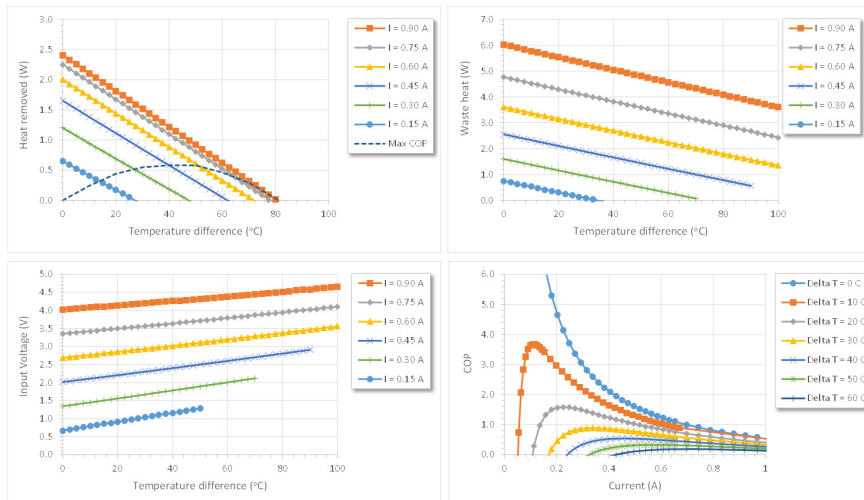
Hot side temperature 25°C



Hot side temperature 50°C



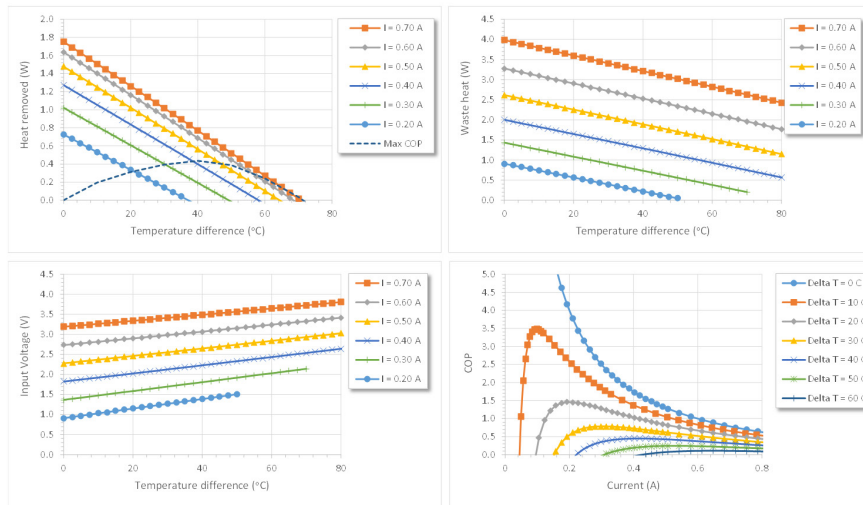
Hot side temperature 75°C



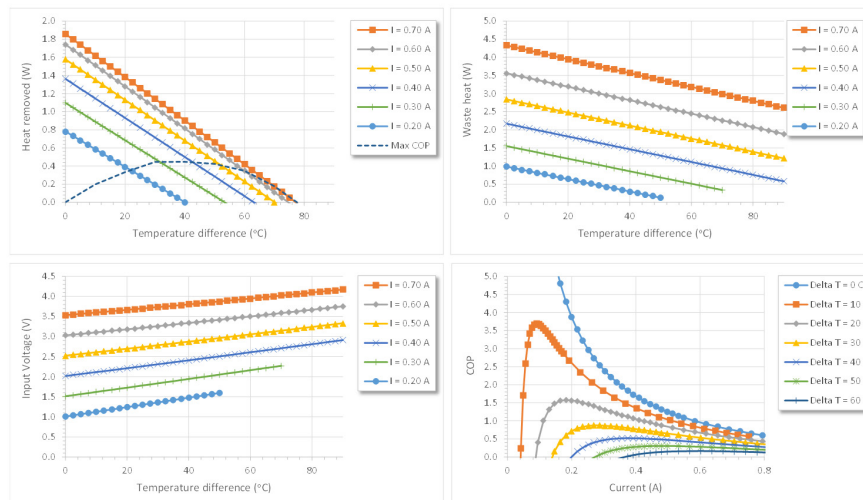
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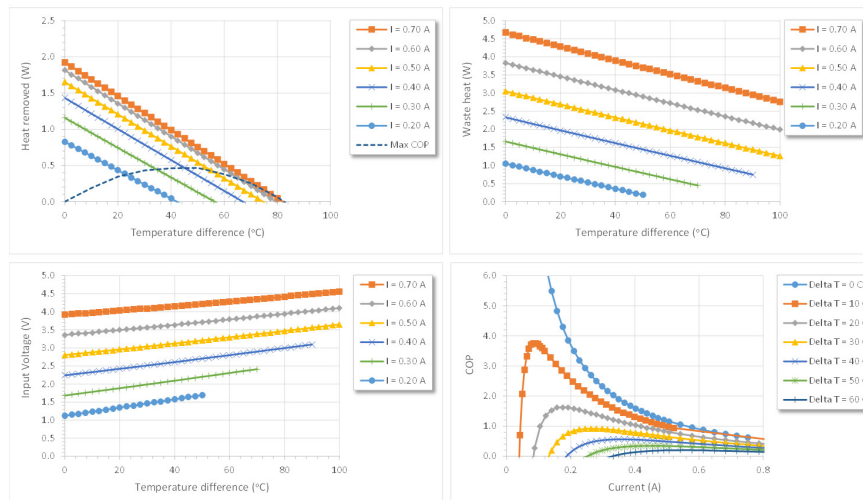
Hot side temperature 25°C



Hot side temperature 50°C



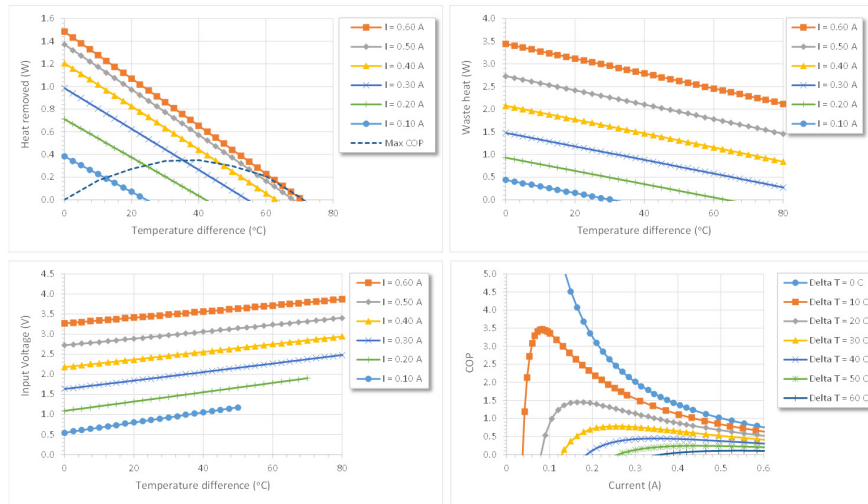
Hot side temperature 75°C



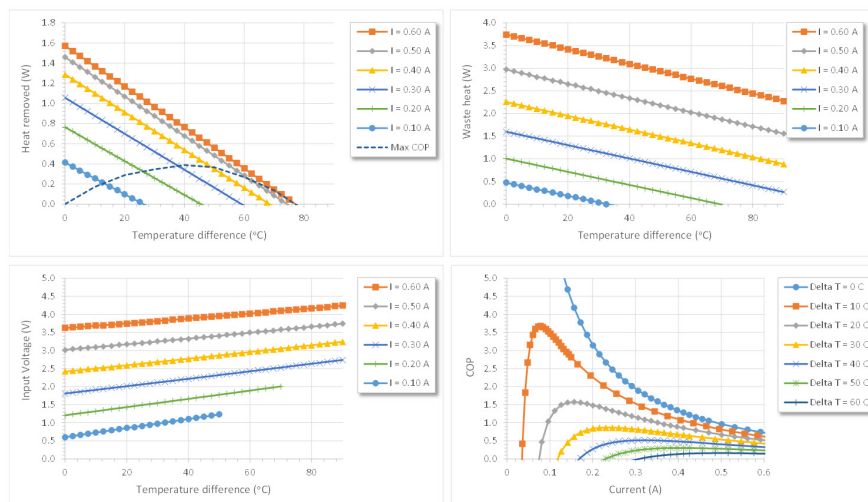
PERFORMANCE DATA

APHM04-032-I2

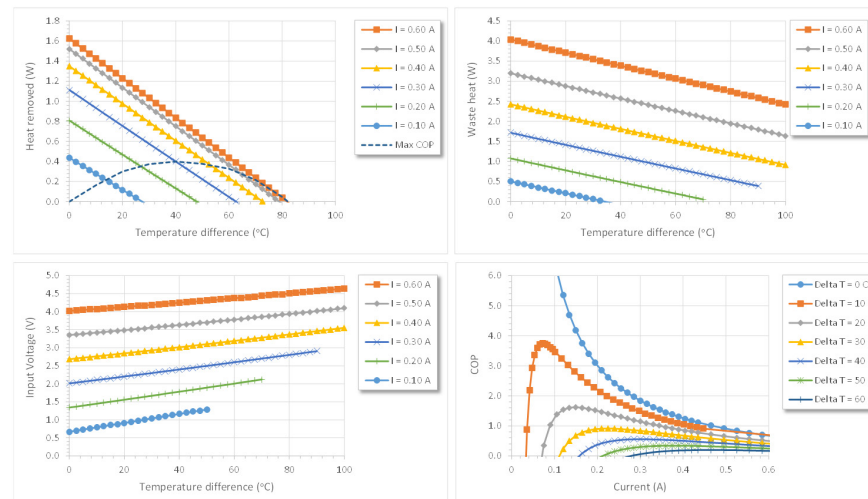
Hot side temperature 25°C



Hot side temperature 50°C



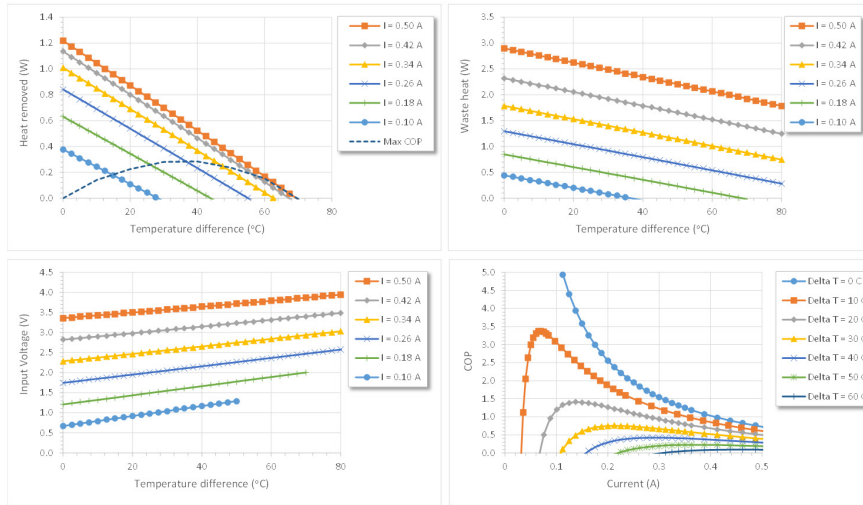
Hot side temperature 75°C



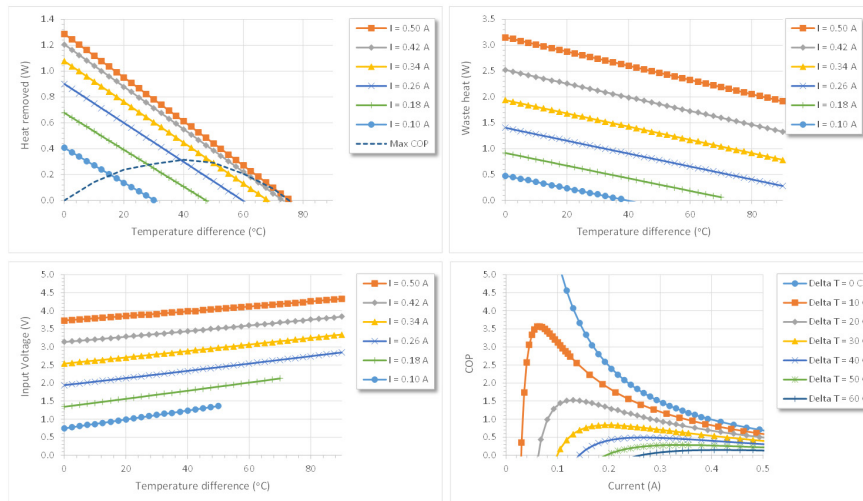
PERFORMANCE DATA

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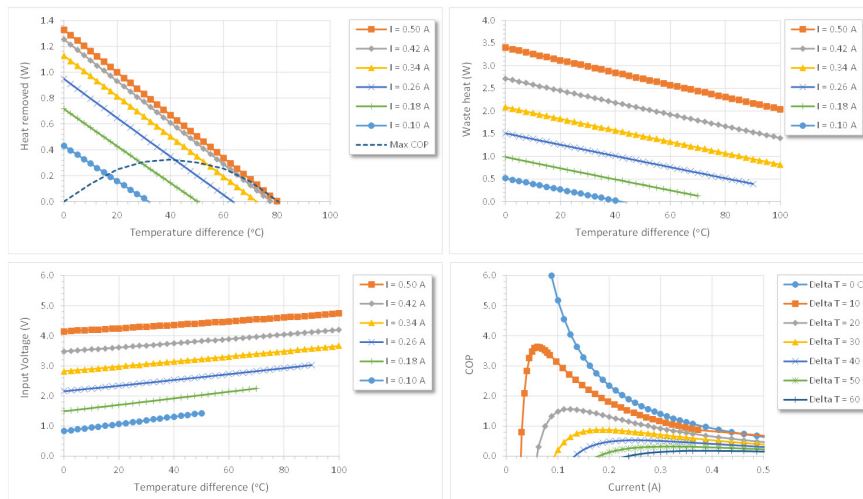
Hot side temperature 25°C



Hot side temperature 50°C

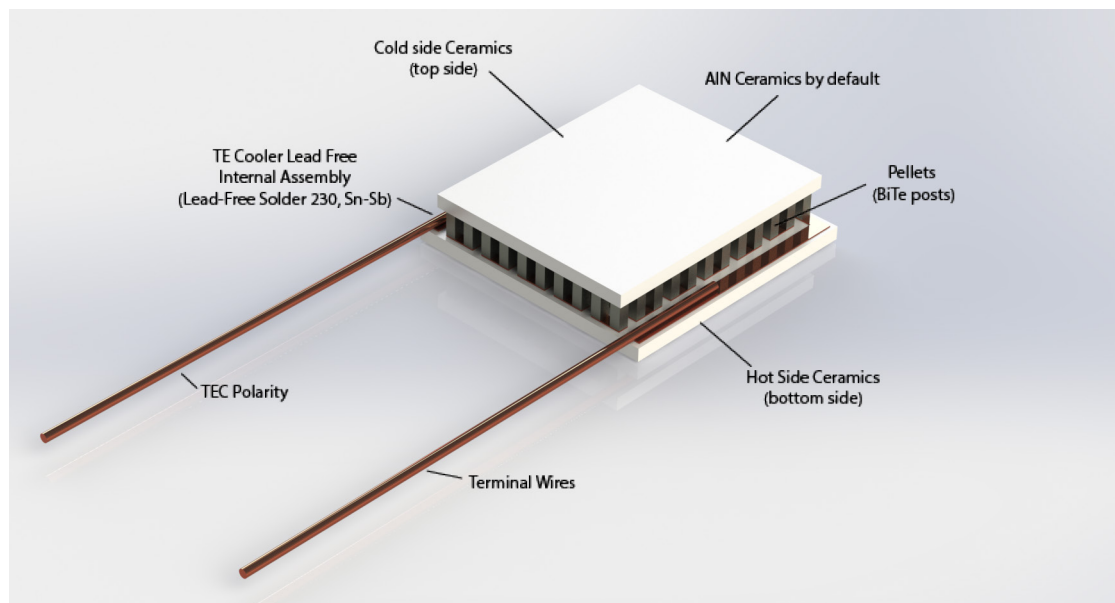


Hot side temperature 75°C





THERMOELECTRIC COOLER OVERVIEW



ADDITIONAL OPTIONS

Tec Polarity

TEC Polarity can be modified upon request.

Terminal Wire Options

The default wires are blank (not isolated) tinned Copper. Multiple options including isolated wires and flexible multicore wires are available upon request.

Customised AU Patterns

Selective Pre-tinning over pattern and customised AU patterns are available on request.

Modification for WB Process

Thermoelectric coolers can be modified for wire bonding process. Available upon request.

TEC Height Modification

Using ceramics of different thickness, standard TEC height can be modified without effecting performance.

NOTES

- TEC performance in this datasheet is specified in two standard ambient condition modes (vacuum, +27°C and dry nitrogen (N₂) + 50°C). The performance may differ under other conditions.
- ACR and U_{max} values are sensitive to ambient temperature.
- Q_{max} raises with ambient temperature.
- Best performance temperature: +80 to +90°C
- The performance will be lower at temperatures below 0°C

- Do not exceed 200°C when heating the thermoelectric module.
- A heat sink must be attached at the hot (bottom) side when using the thermoelectric module.
- Do not apply DC current higher than I_{max}.
- Connect the thermoelectric module to DC power supply according to polarity.