

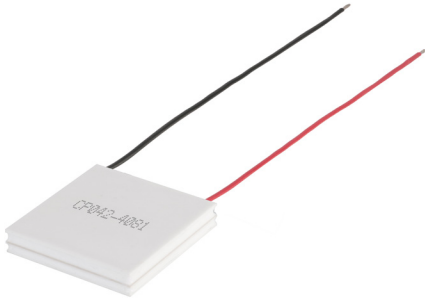


MODEL: CP042-4081

| DESCRIPTION: PELTIER MODULE

FEATURES

- 2-stage TEC module
- wide  $\Delta T$  max
- precise temperature control
- silicone sealed
- solid state construction



SPECIFICATIONS

| parameter                        | conditions/description                  | min | typ  | max  | units    |
|----------------------------------|-----------------------------------------|-----|------|------|----------|
| input voltage <sup>1</sup>       | Th = 27°C                               |     |      | 14.4 | V        |
|                                  | Th = 50°C                               |     |      | 16.4 | V        |
| input current <sup>2</sup>       |                                         |     |      | 4.2  | A        |
| internal resistance <sup>3</sup> | Th = 27°C                               |     | 3.25 |      | $\Omega$ |
|                                  | Th = 50°C                               |     | 3.60 |      | $\Omega$ |
| Qmax <sup>4</sup>                | Th = 27°C                               |     |      | 27.7 | W        |
|                                  | Th = 50°C                               |     |      | 31.1 | W        |
| $\Delta T$ max <sup>5</sup>      | Th = 27°C                               |     |      | 91   | °C       |
|                                  | Th = 50°C                               |     |      | 104  | °C       |
| solder melting temperature       | connection between thermoelectric pairs | 240 |      |      | °C       |
| hot side plate                   |                                         |     |      | 195  | °C       |
| cold side plate                  |                                         | -60 |      |      | °C       |
| assembly compression             |                                         |     |      | 0.3  | MPa      |
| RoHS                             | yes                                     |     |      |      |          |

Notes:

1. Maximum voltage at  $\Delta T$  max and  $T_h=27^\circ\text{C}$

2. Maximum current to achieve  $\Delta T$  max

3. Measured by AC 4-terminal method at 25°C

4. Maximum heat absorbed at cold side occurs at  $I_{max}$ ,  $V_{max}$ , and  $\Delta T=0^\circ\text{C}$

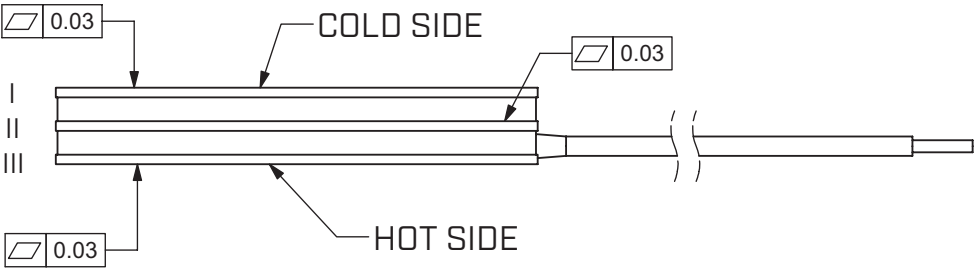
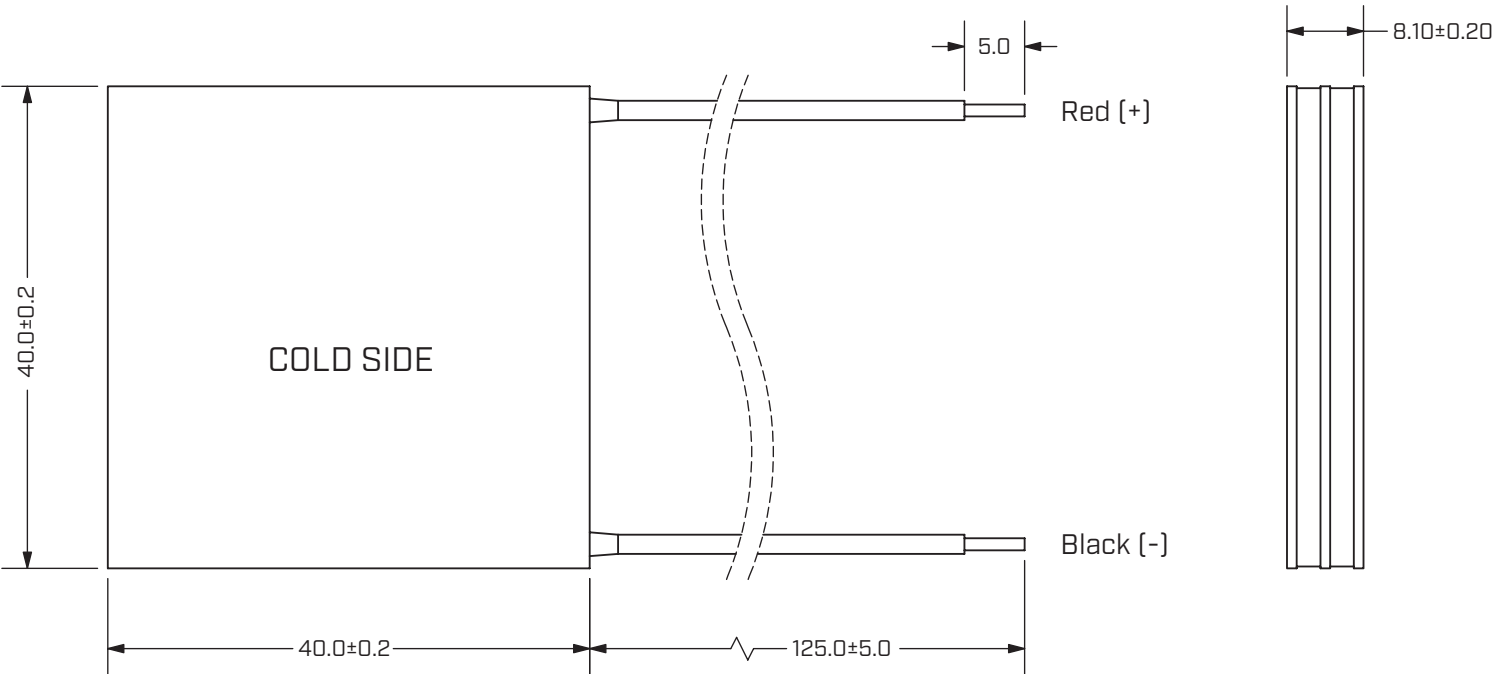
5. Maximum temperature difference occurs at  $I_{max}$ ,  $V_{max}$ , and  $Q=0$  W ( $\Delta T$  max measured in a vacuum at 1.3 Pa)

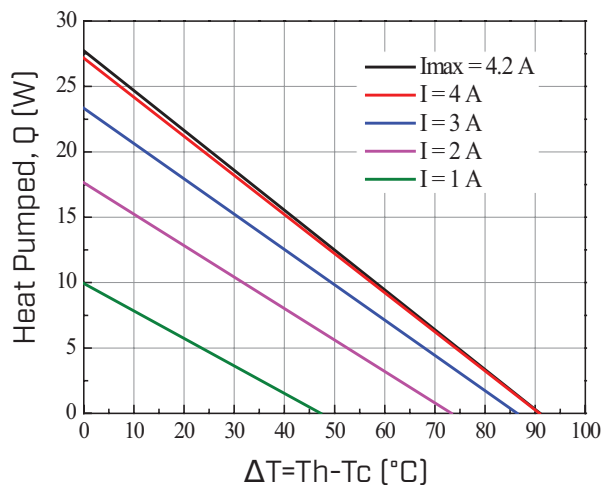
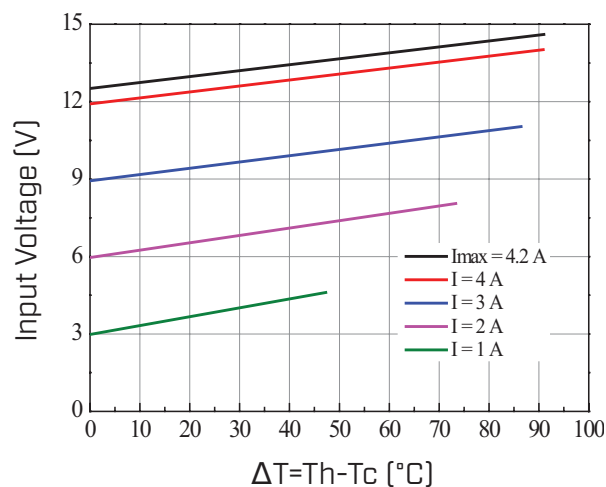
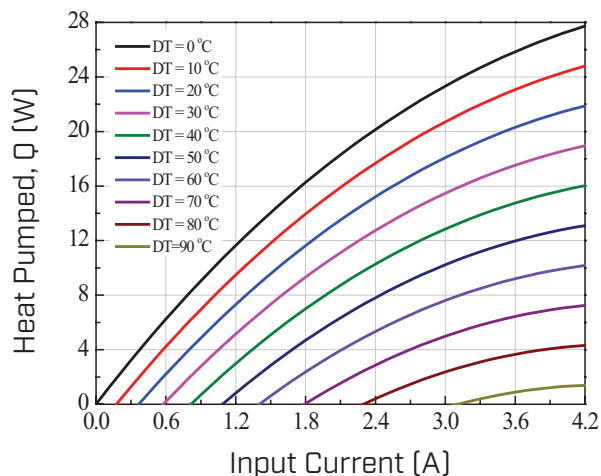
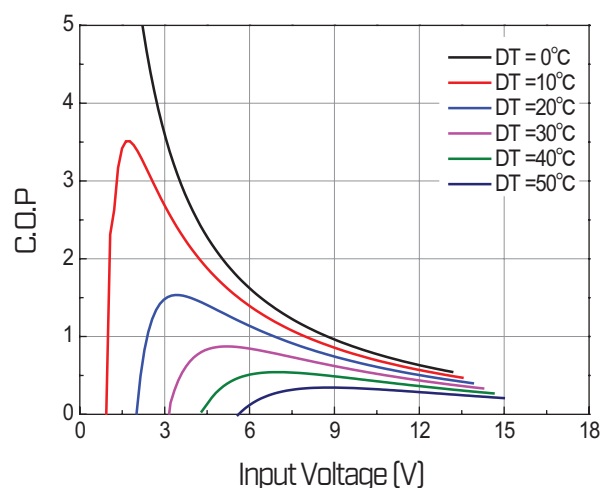
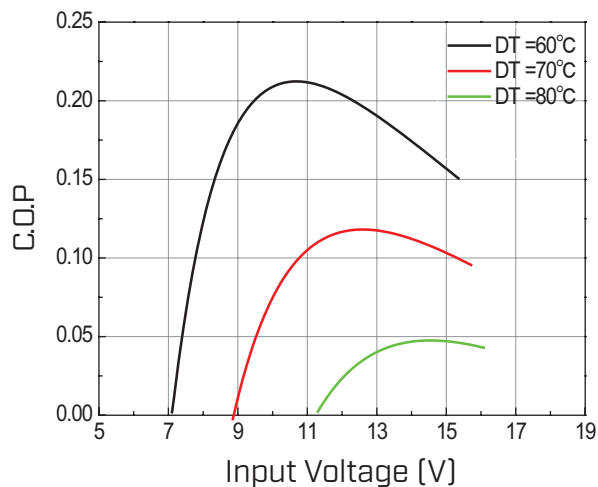
6. Tolerance for all thermal and electrical parameters is  $\pm 10\%$ .

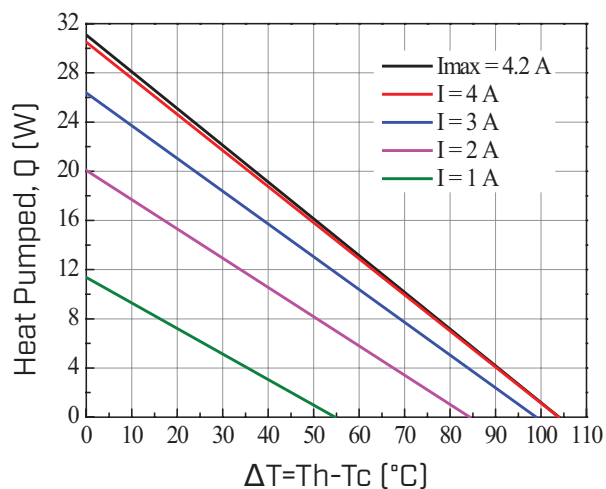
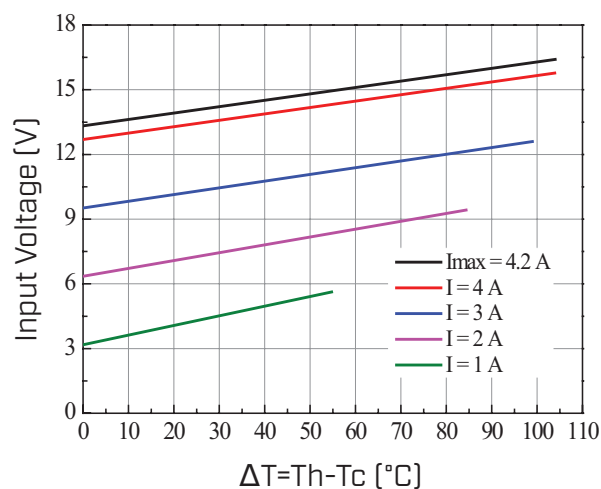
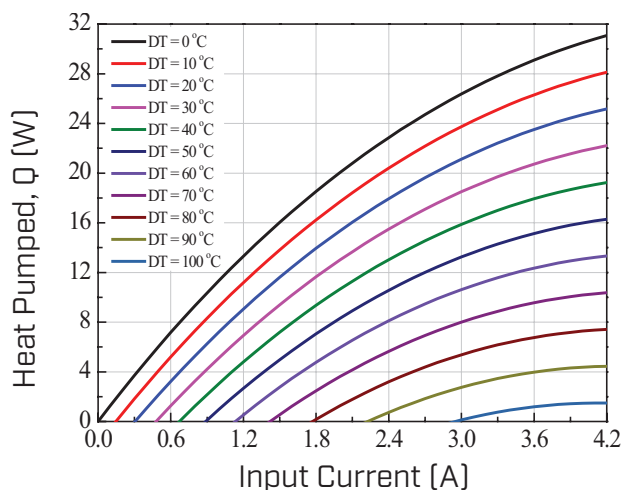
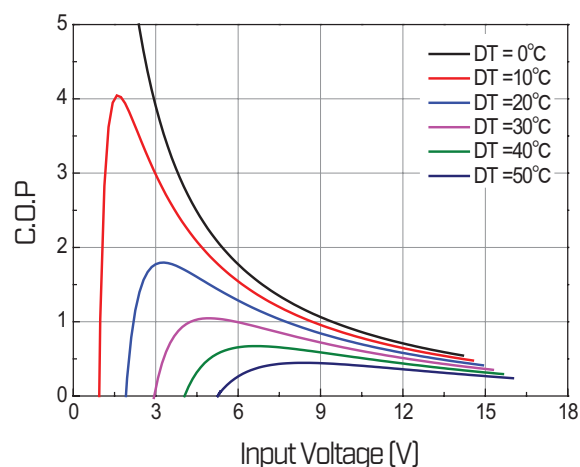
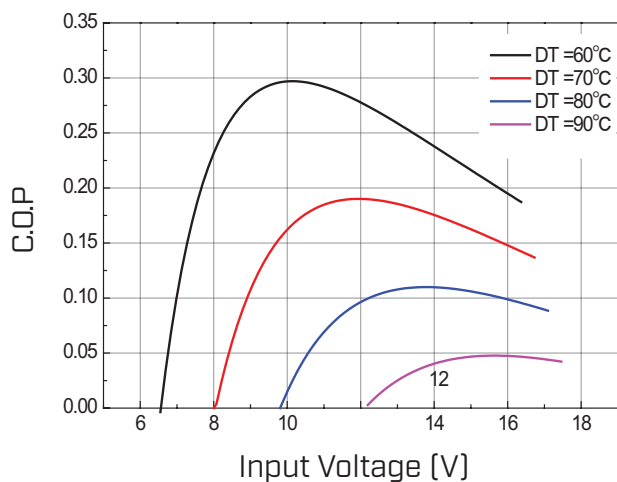
MECHANICAL DRAWING

units: mm

|               | MATERIAL                                                | PLATING |
|---------------|---------------------------------------------------------|---------|
| ceramic plate | 96% $AL_2O_3$                                           |         |
| wire leads    | UL3443 20 AWG                                           | tin     |
| sealer        | 704 silicone sealant (between cold and hot side plates) |         |
| marking       | P/N printed on cold side surface                        |         |



**PERFORMANCE (Th=27°C)****Heat Pumped, Q Vs.  $\Delta T$** **Input Voltage, V Vs.  $\Delta T$** **Heat Pumped, Q Vs. Input Current, I****COP Vs. Input Voltage, V ( $\Delta T = 0 \sim 50^\circ\text{C}$ )****COP Vs. Input Voltage, V ( $\Delta T = 60 \sim 80^\circ\text{C}$ )**

**PERFORMANCE (Th=50°C)****Heat Pumped, Q Vs.  $\Delta T$** **Input Voltage, V Vs.  $\Delta T$** **Heat Pumped, Q Vs. Input Current, I****COP Vs. Input Voltage, V ( $\Delta T = 0 \sim 50^\circ\text{C}$ )****COP Vs. Input Voltage, V ( $\Delta T = 60 \sim 90^\circ\text{C}$ )**

REVISION HISTORY

| rev. | description     | date       |
|------|-----------------|------------|
| 1.0  | initial release | 12/09/2024 |

The revision history provided is for informational purposes only and is believed to be accurate.



Same Sky offers a one (1) year limited warranty. Complete warranty information is listed on our website.

Same Sky reserves the right to make changes to the product at any time without notice. Information provided by Same Sky is believed to be accurate and reliable. However, no responsibility is assumed by Same Sky for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

Same Sky products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

**sameskydevices.com**