





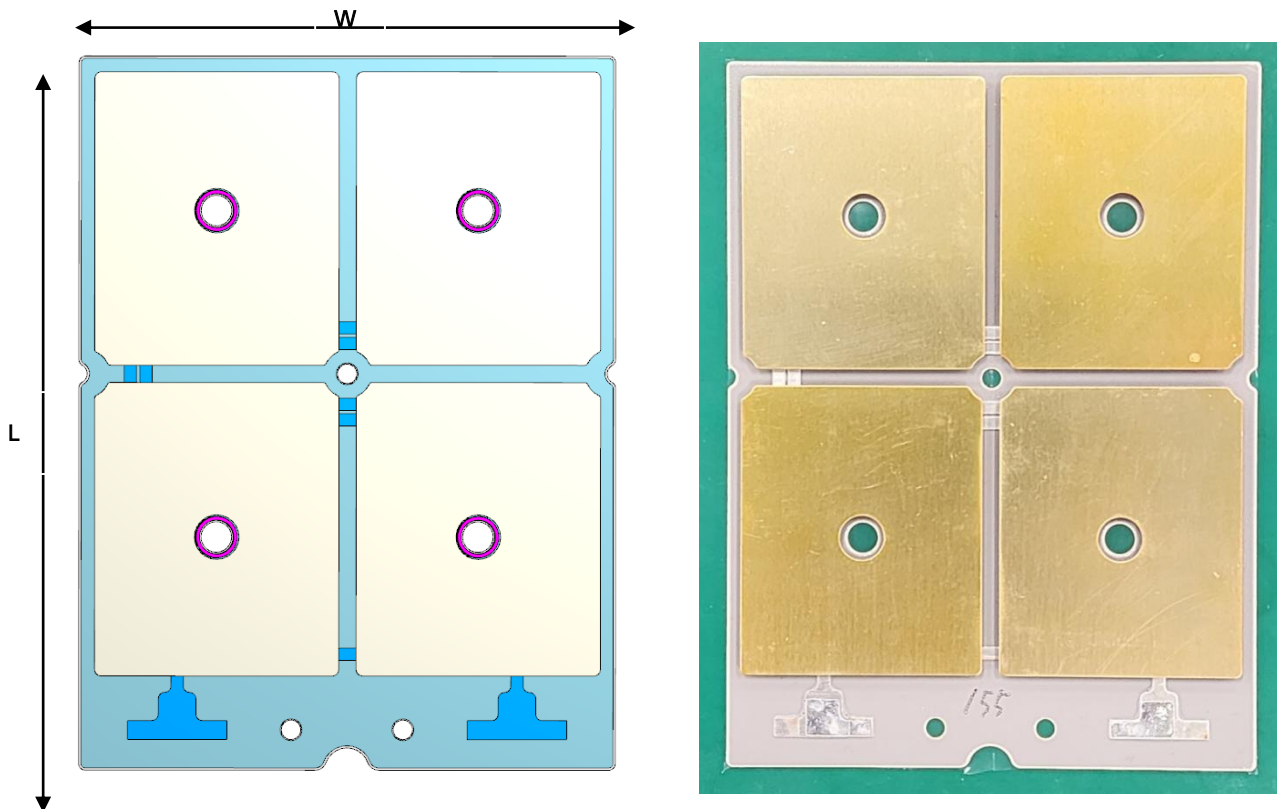
1. General Specifications

1-1. Thermoelectric Device (TED)

- Electrical power generation proportional to the heat gradient through the device
- Bi_2Te_3 semiconducting materials embedded
- Cu (C1100) substrate : 상부 4분할 기판 구조

	Item	Spec.	Remark
Performance	Resistance (Ω)	$1.75 \leq R \leq 2.15$  @ 1 V, AC, 1 kHz, $RT24 \pm 1^\circ\text{C}$	Inspected by LCR Meter
Appearance	Dimensions (W)	$96 \pm 0.3\text{mm}$ 	Inspected by Vernier calipers
	Dimensions (L)	$128 \pm 0.3\text{mm}$ 	
	Dimensions (H)	$2.6 \pm 0.3\text{mm}$ 	Inspected by Height gauge

<96mmx128mm Device>



1. General Specifications

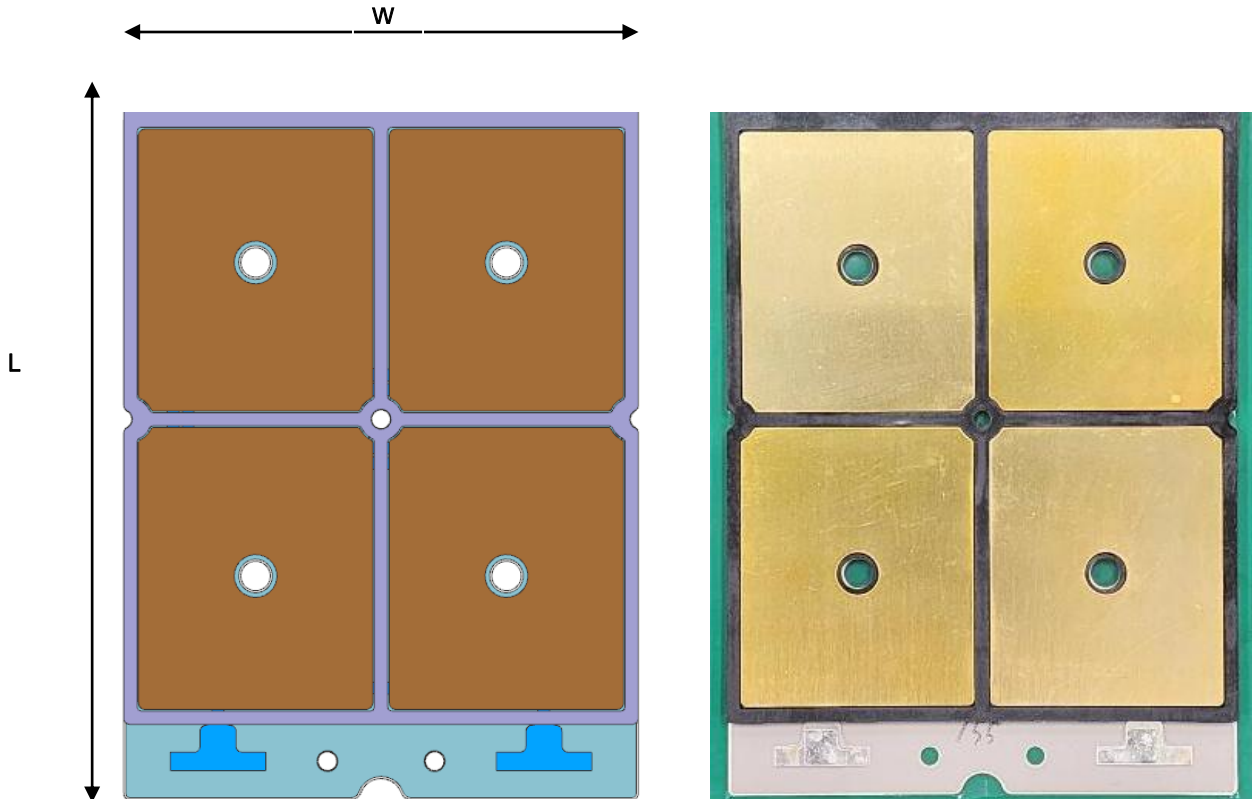
1-2. Thermoelectric Module (TEM1)

- TEM1: Added Silicon sealing to TED

* Silicon SPEC : Usable Temperature Range (C) : -40 to +250

	Item	Spec.	Remark
Performance	Resistance (Ω)	$1.75 \leq R \leq 2.15$ ◇CTQ @ 1 V, AC, 1 kHz, RT24 \pm 1 $^{\circ}$ C	Inspected by LCR Meter
Appearance	Dimensions (W)	96 \pm 0.3mm ◇MP	Inspected by Vernier calipers
	Dimensions (L)	128 \pm 0.3mm ◇MP	
	Dimensions (H)	2.6 \pm 0.3mm ◇MP	Inspected by Height gauge

<96mmx128mm Module>



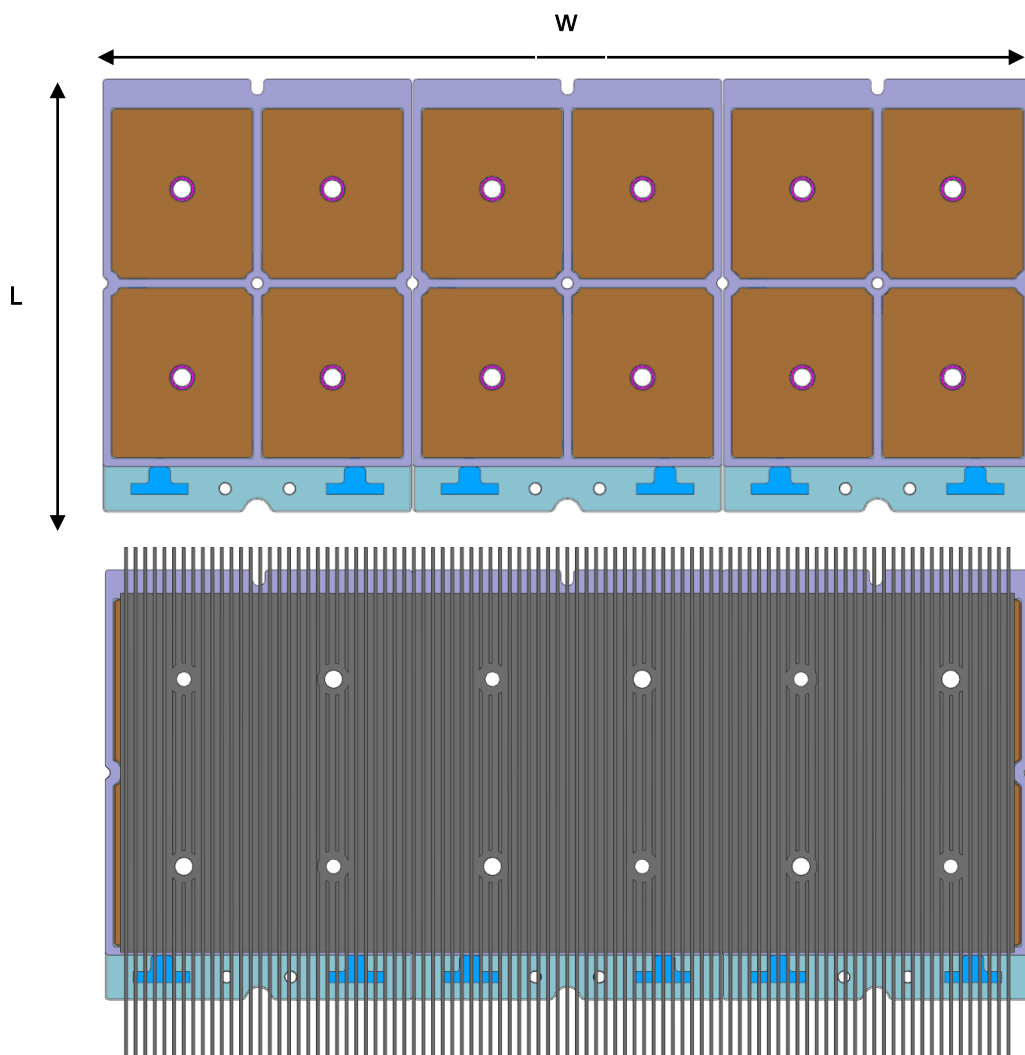
1. General Specifications

1-3. Thermoelectric Module (TEM2)

- TEM2: A configuration composed of three connected and attached TEM1 units

	Item	Spec.	Remark
Performance	Resistance (Ω)	$(5.25 \leq R \leq 6.45)$ CTQ @ 1 V, AC, 1 kHz, RT24 \pm 1 $^{\circ}$ C	Inspected by LCR Meter
Appearance	Dimensions (W)	289 \pm 0.3mm MP	Inspected by Vernier calipers
	Dimensions (L)	128 \pm 0.3mm MP	
	Dimensions (H)	2.6 \pm 0.3mm MP	Inspected by Height gauge

<289mmx128mm Module>



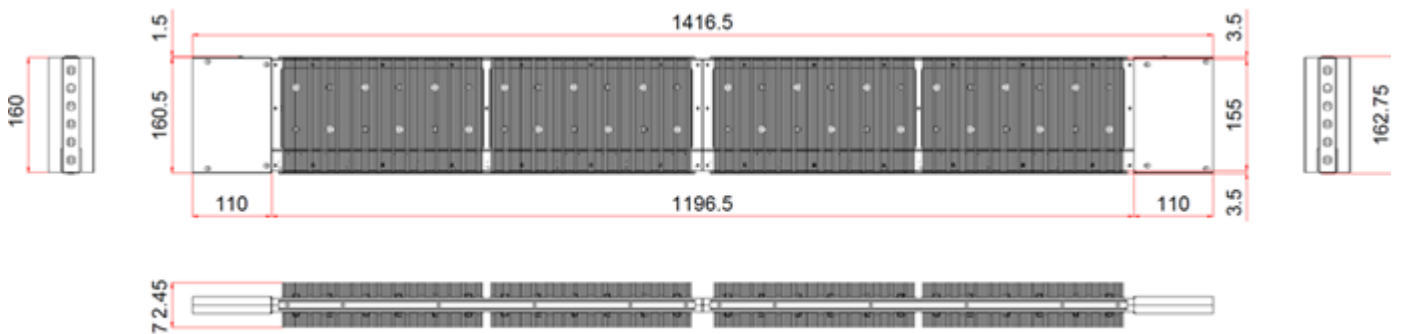
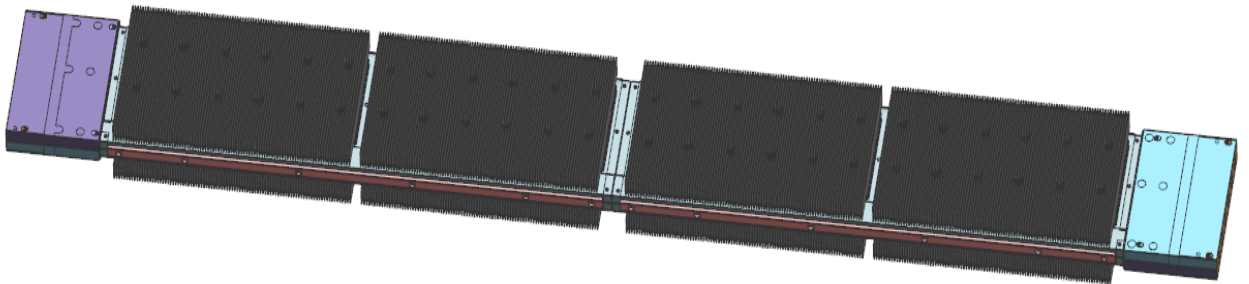
1. General Specifications

1-4. Thermoelectric Module (TEM3 : TEG Pack)

- TEM3 (TEG Pack) : Thermoelectric generator consisting of 8 TEM2 units connected in series and mounted on a water jacket

	Item	Spec.	Remark
Performance	Resistance (Ω)	($42 \leq R \leq 59$) ◇CTQ @ 1 V, AC, 1 kHz, RT $24 \pm 1^\circ\text{C}$	Inspected by LCR Meter
Appearance	Dimensions (W)	163 \pm 3.0mm ◇MP	Inspected by Vernier calipers
	Dimensions (L)	1,416 \pm 3.0mm ◇MP	
	Dimensions (H)	62.5 \pm 3.0mm ◇MP	Inspected by Height gauge

<TEM3 : TEG Pack>



4. Operating Conditions(TED, TEM)

- 4-1. Operating Temperature
 - Max. 250°C (TED)
 - Max. **260°C** (TEM)
- 4-2. Operating voltage
 - Max. 12.55V (Rated current 3.23A)
- 4-3. Relative humidity
 - Max. 70% R.H
- 4-4. Environment
 - Inside air cooler of Vessel(TEM)

5. Storage Conditions

- 5-1. Ambient temperature
 - 10°C ~ 40°C
- 5-2. Relative humidity
 - 20~75%, Normal humidity (Non-Condensing)

6. Detailed specifications

<TED>

Parameter		Remark
Electrical resistance	1.95 Ω ± 0.4 Ω	LCR-Meter (1kHz, A.C current) @ RT24±1°C
I _{Load}	3.23 A	Th=200 °C, Tc=35 °C (ΔT=165 K)
V _{Load}	12.55 V	
Power	40.88 W	
Allowed temperature	250°C	Maximum Processing temperature

<TEM1>

Parameter		Remark
Electrical resistance	1.95 Ω ± 0.4 Ω	LCR-Meter (1kHz, A.C current) @ RT24±1°C
I _{Load}	3.23 A	Th=200 °C, Tc=35 °C (ΔT=165 K)
V _{Load}	12.55 V	
Power	40.88 W	
Allowed temperature	250°C	Maximum Processing temperature

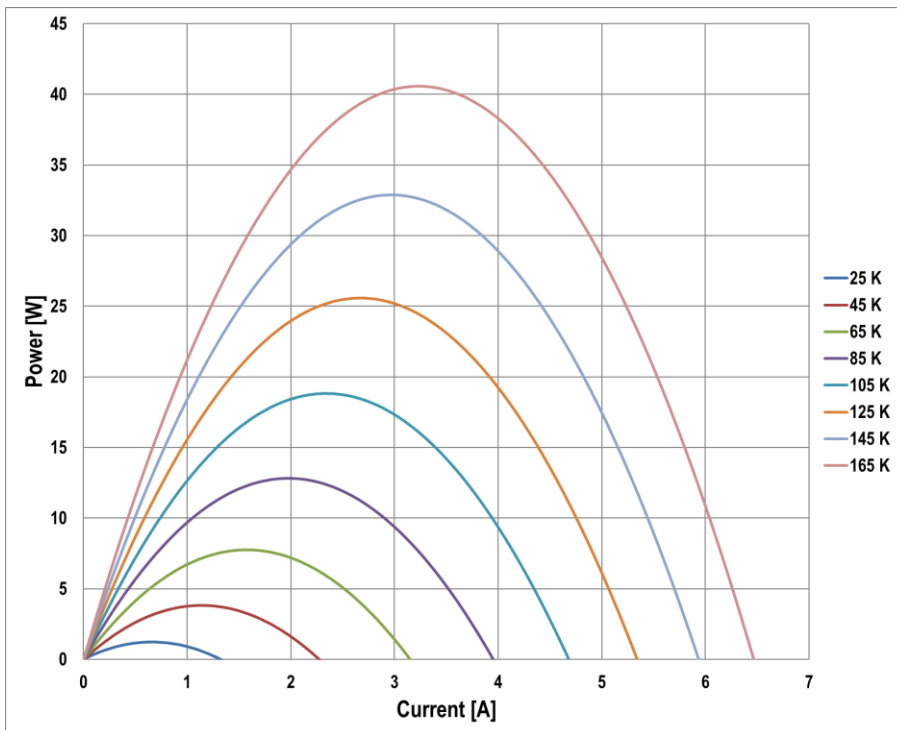
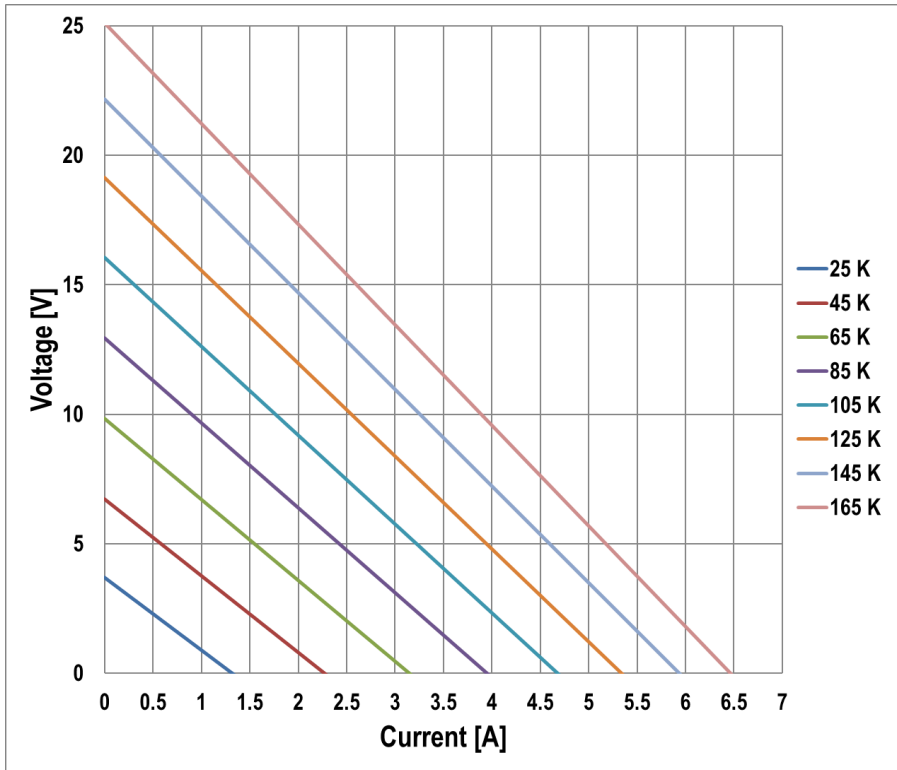
<TEM2>

Parameter		Remark
Electrical resistance	$5.25 \leq R \leq 6.45$	LCR-Meter (1kHz, A.C current) @ RT24±1℃
I_{Load}	1.2 A	Hot Air=260 ℃, Cold Water=20 ℃ ($\Delta T=000$ K) *Gas Mode, Engine load 100%
V_{Load}	55 V	
Power	66 W	
Allowed temperature	260℃	Maximum Processing temperature

<TEM3 : TEG Pack>

Parameter		Remark
Electrical resistance	$42 \leq R \leq 59$	LCR-Meter (1kHz, A.C current) @ RT24±1℃
I_{Load}	1.2 A	Hot Air=260 ℃, Cold Water=20 ℃ ($\Delta T=000$ K) *Gas Mode, Engine load 100% or KERI 검사장비
V_{Load}	334 V	
Power	Min 350 W	
Allowed temperature	260℃	Maximum Processing temperature

7. Power generation performance (TED)



※ Conditions:

$T_h=60, 80, 100, 120, 140, 160, 180, 200$ °C, $T_c=35$ °C

$\Delta T=25, 45, 65, 85, 105, 125, 145, 165$ K

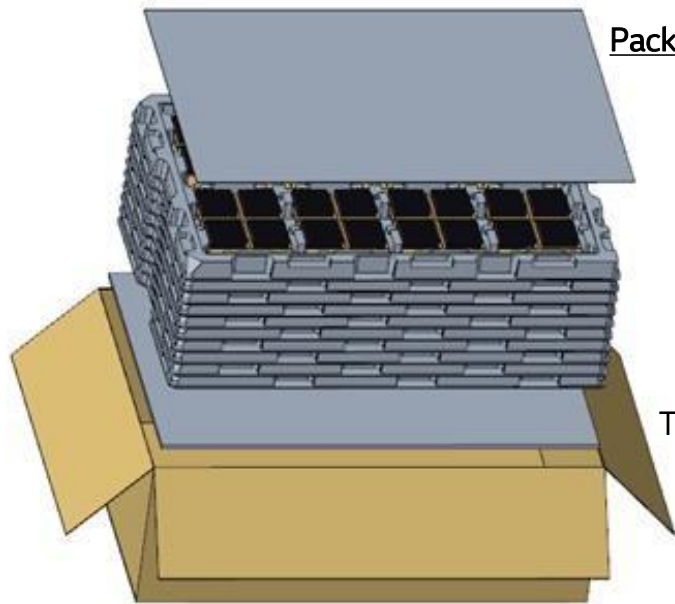
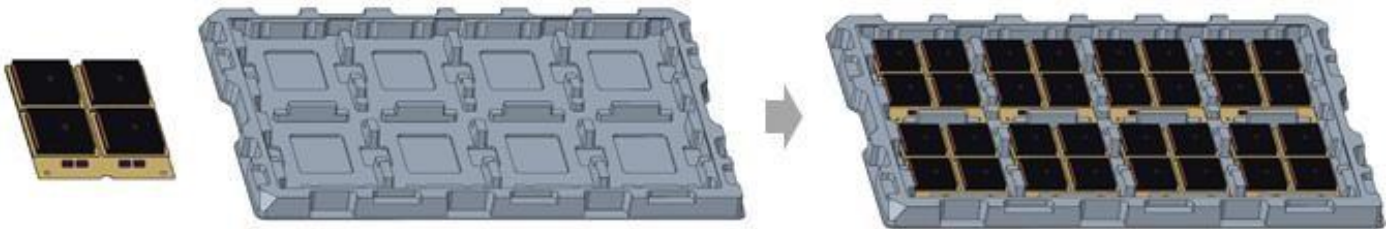
(T_h : Surface temperature of hot side TED)

T_c : Surface temperature of cold side TED)

10. Package Information

10-1. Packing Information

No.	Item	Q'ty (EA)	Spec.
1	Module	80	-
2	Tray	10	1. Material: PET / 1.5t 2. Size (WxD) : 500 x 350mm
3	PE Sheet	10	1. Material: PE Sheet / 1t 2. Size (WxDxt) : 500x 350 x 1t
4	Out Box	1	1. Material: BC Flute / 7t 2. Size (WxDxHxt) : 515 x 365 x 180 x 7t (internal size)

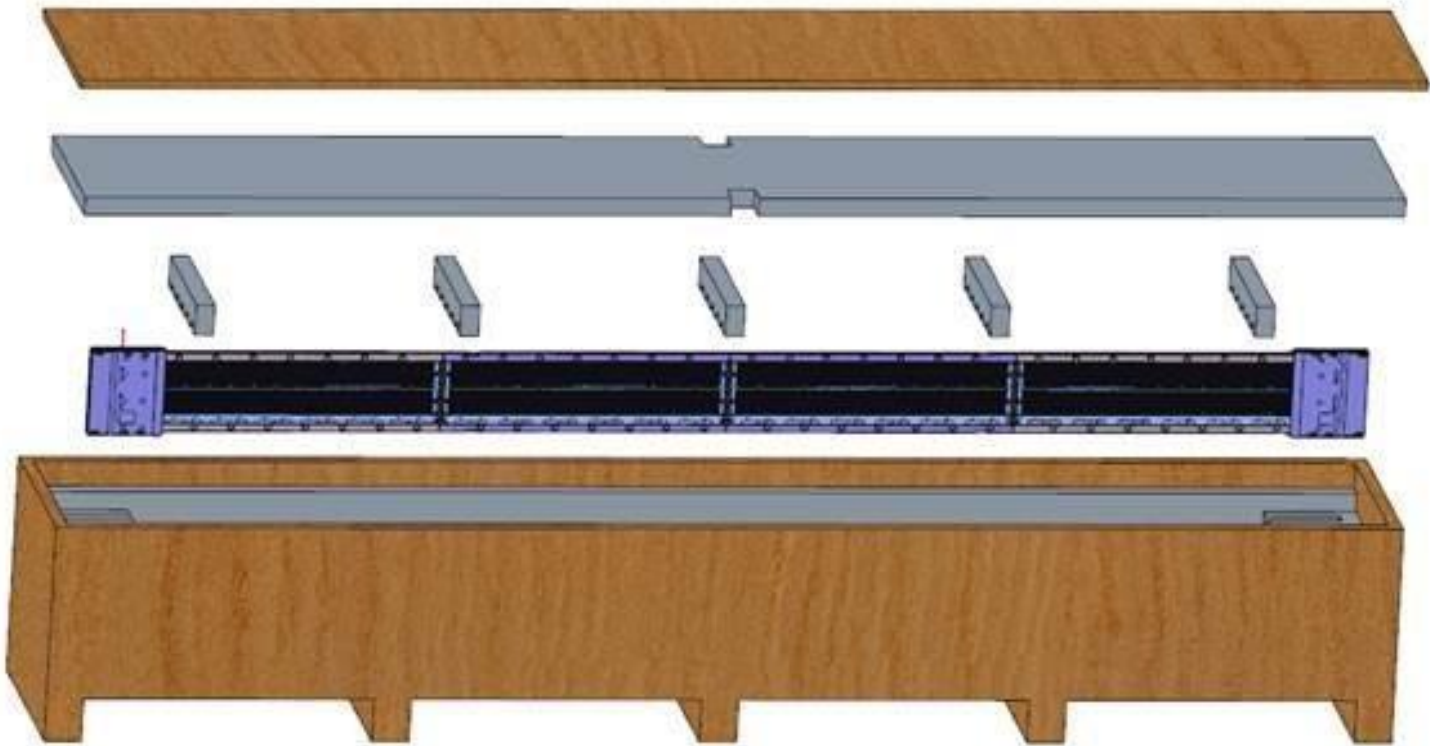


Packing Process

- Place TEMs on the tray
 - ↓
 - Insert PE sheet in the box
 - ↓
 - Insert tray
 - ↓
 - Place PE sheet on tray.
 - Tape top side of the carton box
- Repeat
: Stack 10 sets
(Tray + PE sheet)

10-3.Wood Packing Information

No.	Item	Q'ty (EA)	Spec.
1	TEG system	10	
2	Wood Box	1	1. Material : Wood 2. Size (WxD) : 1485x 813x 322mm
3	Packaging buffer	1	1. Material : EPP 2. Size (WxD) : 1400 x 750mm



Packing Process

Insert the TEG Pack in the wood box

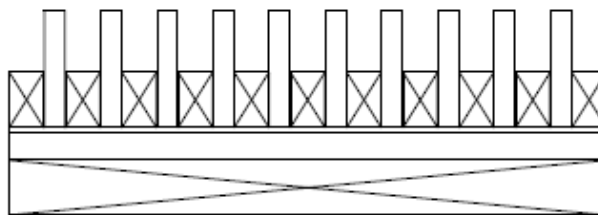
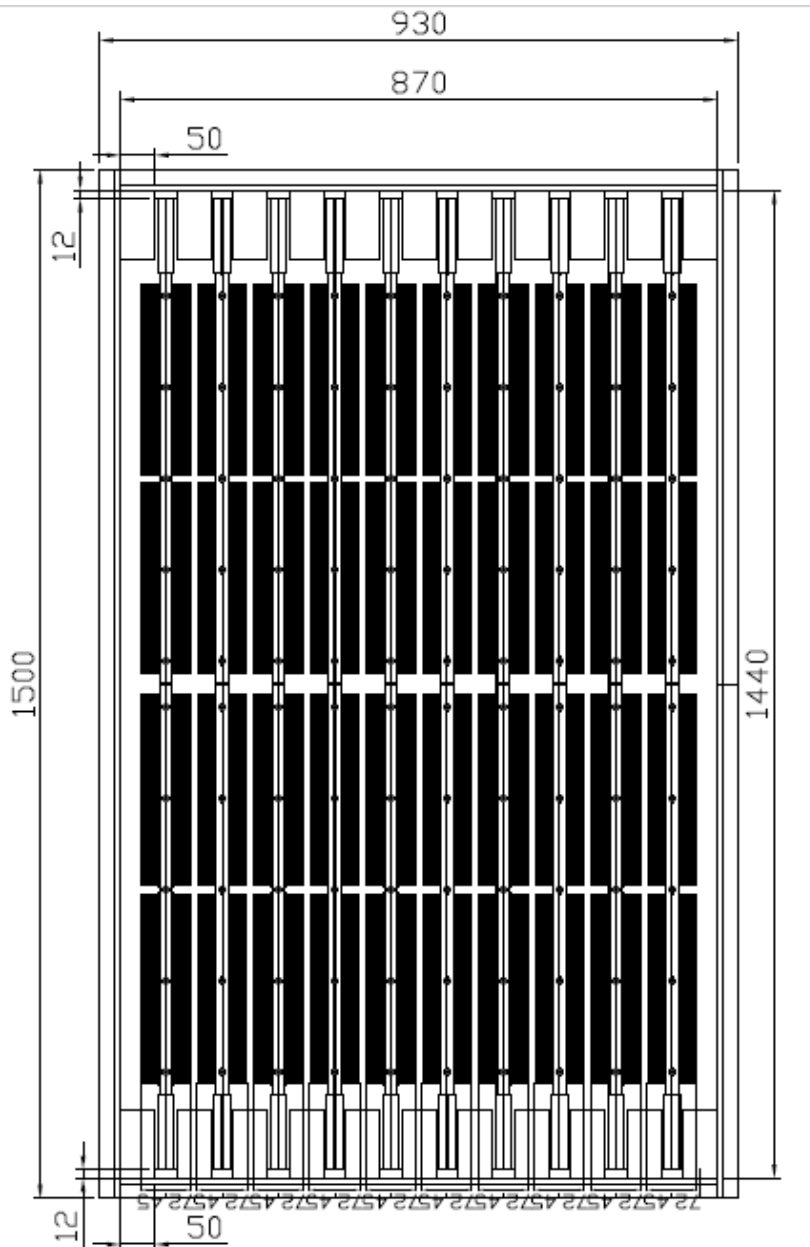


Insert packaging buffer



Close lid of the wood box with hook clamp

10-4.Outer Information



10 Sets / Box