

Figure S1. Finite element model of w-TEG.

Table S1. Thermoelectric material properties in the temperature range 303 to 333K.

Materials	Parameters	Value
p-type $\text{Bi}_{0.5}\text{Sb}_{1.5}\text{Te}_3$	Electrical conductivity (10^4 S m^{-1})	8.19~9.76
	Thermal conductivity ($\text{W m}^{-1} \text{ K}^{-1}$)	1.53~1.58
	Seebeck coefficient ($\mu\text{V K}^{-1}$)	223~231
n-type $\text{Bi}_2\text{Te}_{2.7}\text{Se}_{0.3}$	Electrical conductivity (10^4 S m^{-1})	9.91~11.1
	Thermal conductivity ($\text{W m}^{-1} \text{ K}^{-1}$)	1.76~1.81
	Seebeck coefficient ($\mu\text{V K}^{-1}$)	-214~-212

Table S2. Material properties used in the simulation.

Materials	Thermal conductivity (W m ⁻¹ K ⁻¹)	Electrical resistivity (ohm·m)
AlN	195~270	--
Cu	401	$1.55 \times 10^{-8} \sim 2.78 \times 10^{-8}$
Solder	55	1.14×10^{-7}
Skin	11.8~14.2	--
Ag	420	--

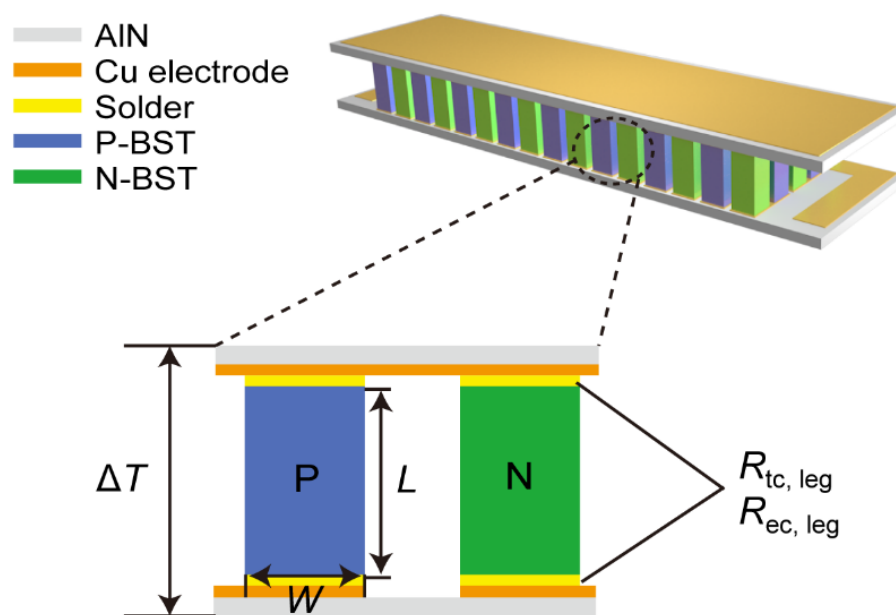


Figure S2. TEG unit and its internal structure.

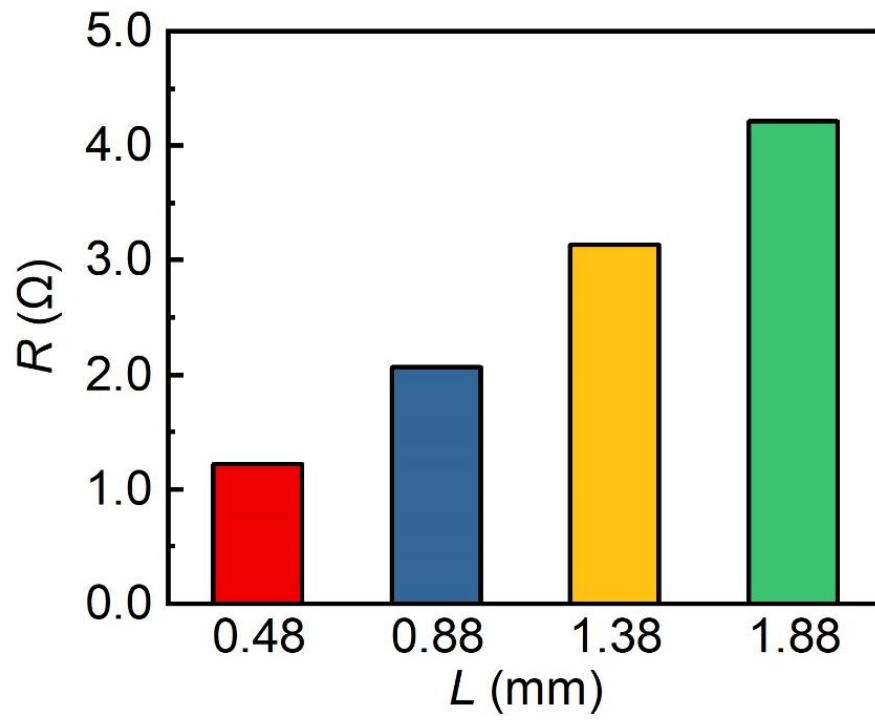


Figure S3. Resistance of TEG with different thermoelectric leg lengths.