

The WPG-1 is a self-contained thin-film thermoelectric power generator that harvests waste heat and converts it to usable output DC power. Due to its compact size, output power generation and ability to regulate voltage this device is suitable for use in applications to power wireless sensors and wireless sensor networks.

One WPG-1 can produce up to 1.5 mW of usable output power and can handle a wide range of load resistances. An ultra-low voltage step-up converter is incorporated to provide usable output power at low temperature differentials, < 20°K. The output power can be regulated to accommodate three voltage set points: 3.3V, 4.1V or 5.0V. Custom design services are available to accommodate alternate heat absorption and heat dissipation mechanisms or output power requirements, however MOQ applies.

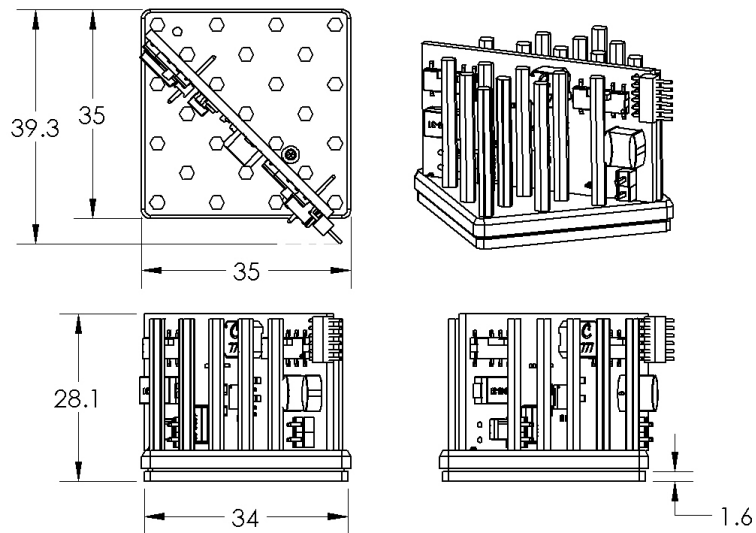
FEATURES

- Compact form factor
- Regulated output voltage
- High waste heat conversion ratio
- Ultra-low voltage converter
- Reliable solid state operation

APPLICATIONS

- Wireless sensors and transmitters
- LED lighting
- Battery charger

Heat is absorbed through a flat heat exchanger plate, energy is harvested by the thin-film thermoelectric and heat is exhausted into ambient environment by the pin fin heat sink.



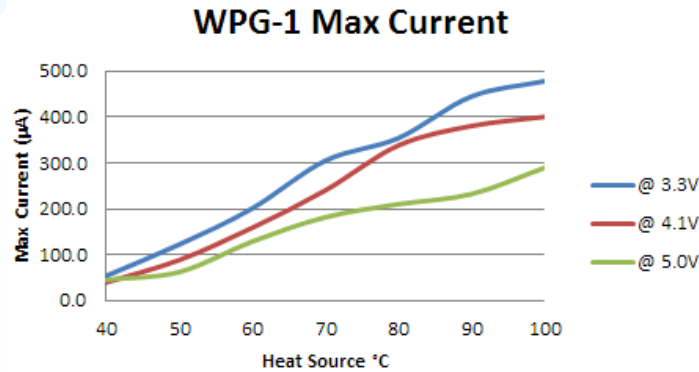
Note: Unit of measure is in mm's

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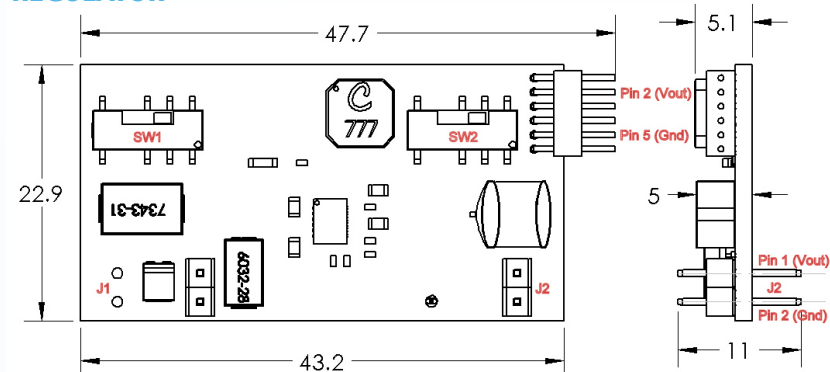
OUTPUT POWER CURVES

Maximum Output Current vs. Heat Source Temperature
(Natural Convection, $T_{amb}=24^{\circ}\text{C}$)



OPERATING RANGE	
Max Heat Source Temp	100°C
Ambient Temp	24°C
Temp Differential	15 to 76°C

REGULATOR



SETTINGS

SW-1 - VOLTAGE SELECTOR			
Silkscreen	5.0	4.1	3.3
Vout	5.0 V	4.1 V	3.3 V

SW2 - LOAD AND STORAGE SELECTOR			
Silkscreen	C	S	L
Load	J2 and J3	J2 and J3	LED
Storage	Off-board only	Onboard 1000uF Cap	N/A

CAUTION

- Keep areas around the heat sink clear for optimal air flow
- Avoid excessive shock or vibration
- Avoid exposure to water or high moisture environments