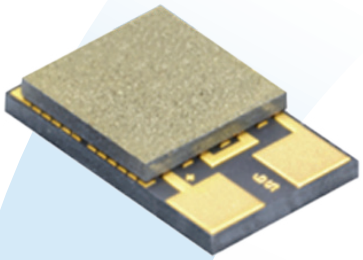
Laird TECHNOLOGIES

Innovative **Technology** for a **Connected** World

eTEG Series PG24,48,F2,0202,GG
Thin Film Energy Harvester



The eTEG Series is a micro thermoelectric power generator that harvests waste heat and converts it to usable output DC power. Due to its size, output power generation and heat conversion to power ratio this device is suitable for use in applications to power wireless sensors and wireless sensor networks.

One eTEG PG24 can produce 90 milliWatts of output power and 1.7 volts in an open circuit at a temperature differential of 100°C all within a 6.9 mm^2 footprint. This unit is assembled with thin film semiconductor material, thermally conductive aluminum nitride ceramics and gold plated wire bondable pads. The eTEG Series is designed for low power output applications with tight geometric space constraints. Custom designs are available to accommodate metallization, pretin solder and ceramic patterns, however MOQ applies.

FEATURES

- Micro Footprint
- High Output Power Density
- High Waste Heat Conversion Ratio
- Reliable Solid State Operation
- RoHS Compliant

APPLICATIONS

- Wireless Sensors
- LED Lighting
- Battery Charging

PERFORMANCE SPECIFICATIONS	ΔT		
	10°C	50°C	100°C
Power Output (mW)	1	24	90
Voltage Output (V)	0.09	0.4	0.85
Current Output (mA)	12	60	105
Voltage Open Circuit (V)	0.18	0.8	1.7
Current, Short Circuit (mA)	24	115	210

THERMAL PARAMETERS	
Thermal Resistance	21 K/W
Thermal Conductance	0.048 W/K

PACKAGE ASSEMBLY CONDITIONS	
Max Time Exposure > 290°C	60 sec
Peak Assembly Temperature	325°C

TEMPERATURE CONDITIONS	
Max Operating Temperature	150°C

Performance maximized with matched electrical load

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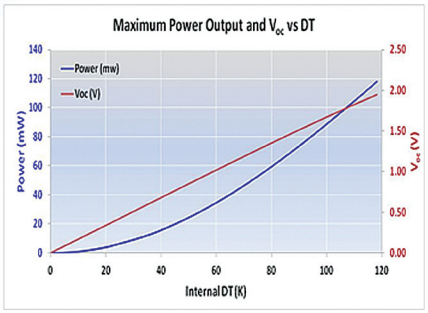
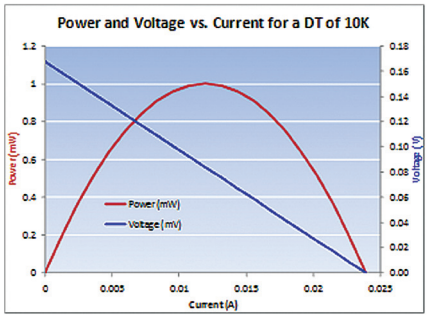
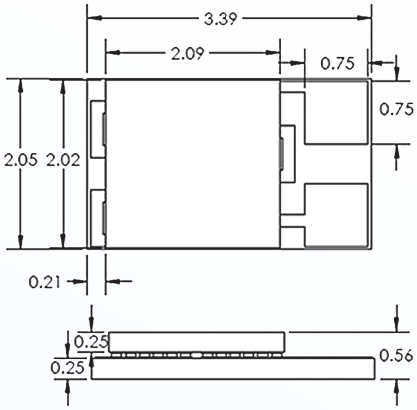
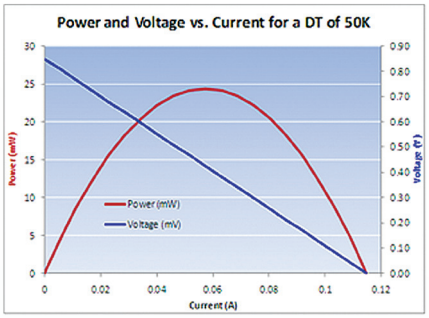
PERFORMANCE CURVES





ISOMETRIC DRAWING





Standard

Au metallization on exterior ceramic substrate surfaces

Au wire bondable pads on hot side ceramic for lead attachment

Optional

Bare solder wires, 2.0 inches in length

DEFINITIONS

Pmax The maximum amount of power created from the thermoelectric generator's Seebeck effect. This point occurs when the load resistance matches the device resistance resulting in an output voltage of ½ Voc, where Voc is the open circuit voltage.

ΔT Delta T is the temperature difference across the thermoelectric generator.

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