Datasheet TE-Power PROBE Ver. 2.7

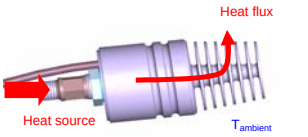
Typical thermoelectric characteristics

Thermogenerator (TEG): 1x MPG-D751

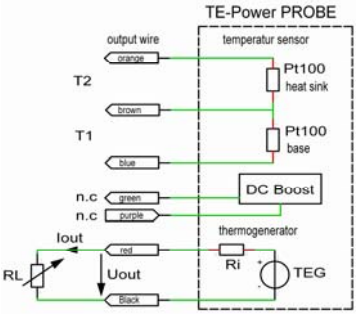
Thermal resistance R_{th} MPG-D751: 12,5 K/W

Electrical resistence R_i MPG-D751: 300 Ohm

thermal measurement setup:



electrical measurement setup:



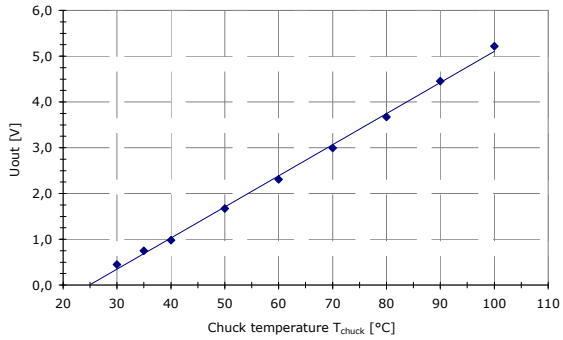
Reference values with heat source @ 60 °C for:	**natural convection**	
R_{Th} (Heat sink actual thermal resistance (3 % TEG footprint coverage to heat sink):	14,64	K/W
T_{chuck} (Chuck temperature)	60	°C
$T_{ambient}$ (Room temperature)	25	°C
T_1 (Heat source temperature)	58,7	°C
T_2 (Heat sink temperature)	42,9	°C
ΔT (Net temperature drop across TEG T_1-T_2, including interface losses)	15,9	K
U_{TEG} (Open circuit voltage)	2,31	V
I_{out} (Current @ matched load, R_iTEG = R_L)	3,67	mA
P_{TEG} (Electrical power @ matched load, R_iTEG = R_L)	4,04	mW
Q_{TEG} (Heat flux through TE-Power-One)	1,22	W
η_{TEG} (Thermoelectric conversion efficiency)	0,55	%

Thermogenerator output performance (gray wire, before DC Booster):

Natural convection

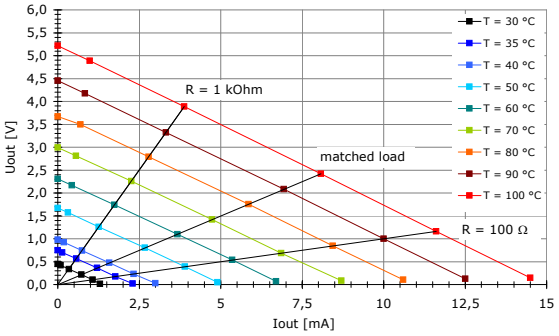
No airflow / Lab environment

max. open circuit voltage (R_L = ∞)



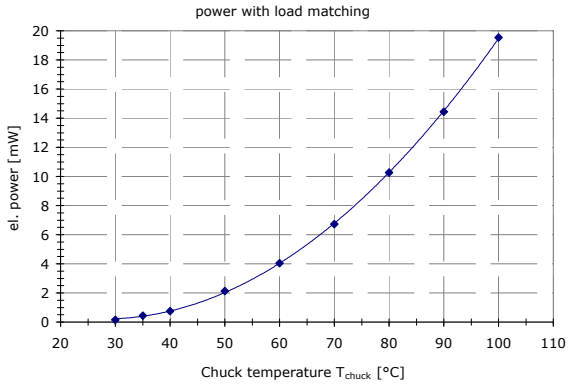
Open circuit voltage (load resistance R_L > 1MOhm)

voltage / current characteristic



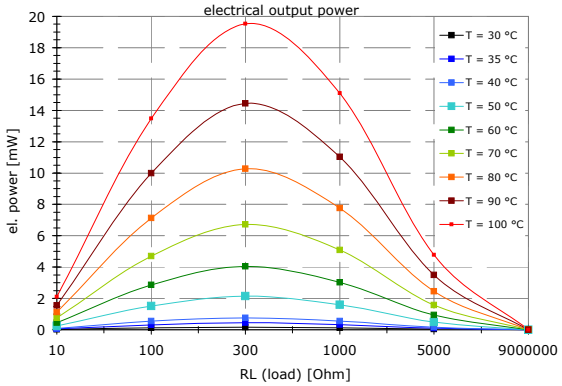
Voltage versus current characteristics at various load resistances R_L

power with load matching



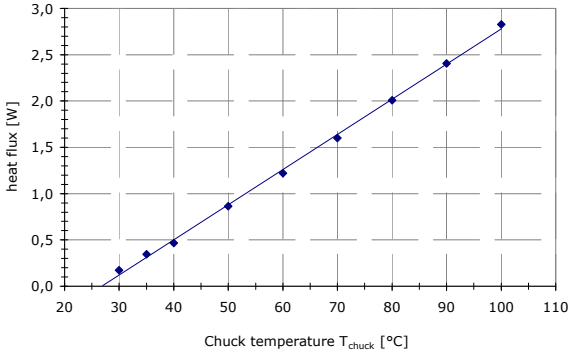
Maximum output power (load matching R_i = R_L)
versus hot side temperature T_{chuck} @ $T_{ambient}$ about 25 °C

electrical output power



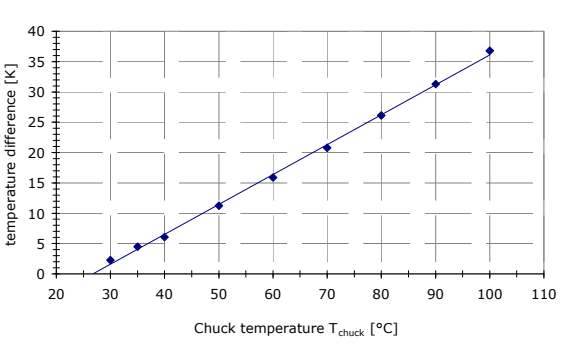
Maximum output power of the TE-Power NODE is achieved
with matching resistances (Ri ~ R_L)

heat flux through MPG-D751



Heat flux through MPG-D751 with standard heat sink
$T_{ambient}$ about 25 °C

temperature difference across MPG-D751



Effective (net) temperature difference across MPG-D751
$T_{ambient}$ about 25 °C

micropelt