

Q-1: Is ECT300 available for any kinds of small voltage application for step-up DC/DC converter? Is ECT 300 limited to use for Peltier Seebeck element only or it can be used more universal purpose if it is for step-up DC/DC converter ?

A-> DC/DC converter can be used also for other current sources to boost voltage from mV to V. Please keep in mind that the impedance of this sources should be 1-20hm in order to get enough current from this sources. If you have other ideas then Peltier elements please let us know.

Q-2: Input signal for ECT300 should be connected to PIN1 and PIN 2 and output signal should be connected to PIN 7 and PIN 9 ? Please advise the typical wiring schematic.

A-> Have a look at the data sheet or user manual attached and published on the website. Input pins are PIN1/PIN4, output at PIN7/PIN9. Example circuit is EVA 320 (ECT slot left corner below) published at EDK 300 CD and attached.

Q-3: For what's purpose for PIN 5 Voltage Output AC?

A-> A basic principal to convert DC/DC is converting via AC circuit. PIN5 is an internal test signal representing AC voltage from the converter core before rectification can be used for test purposes.

Q-4: Input vs Output curve is required.

Please advice Input and output signal curve which should be started from 20mV input and up to 500mV input signal and output signal should be how many volts to how many volts?

A->Input and output curve for ECT300 (470µF charged from 0V to 3V)

NOTE: ECT 300 is used to convert ultra low voltage to a higher voltage level, in order to store energy you need an additional capacitor or secondary battery. Standard configuration as mentioned within ECT 300 manual.

Peltier -> ECT 300 -> load circuit with capacitor -> STM 300

- Ishort is measured in mA. This represents the current measured in the first time you connect ECT 300 to an empty capacitor.

- tcharge is measured at an EXTERNAL capacitor of 470uF, to load this capacitor from 0 - 3V
 - ECT 300 does not discharge external capacitor, discharge depends complete from external load (radio modul).
 - Example:
 - Temperature difference 2K results in 25mV (with our standard peltier element)
 - 25mV will charge external 460uF capacitor in 122s
 - energy within capacitor is calculated by $(U^2 * C) / 2$ $(3^2 * 470uF) / 2 = 2,1mWs$
 - e.g. temperature measurement and sending of value with STM 300 will take 5ms, energy consumption will be about $3V * 0,025A * 0,005s = 0,375Ws$
 - You can send and measure 2,1/0,375=5x per 122s@2K temperature difference
 - Keep in mind that initial voltage has to be 2,4V for STM 300 and min. voltage 1,8V.
- So it will take an initial time to pre-load capacitor first time.

ECT300 Vin Open Circuit (mV)	20	25	30	40	50
ECT300 VOPEN-CIRCUIT (V)	3.5	3.9	4.0	4.1	4.1
ECT300 IShort Circuit (µF)	6	13	20	36	54
tCHARGE (Seconds)	260	122	76	43	26

* $I = U/R$, so e.g. for $V_{in} = 25 \text{ mV}$ and $R = 1.44 \text{ ohm}$ you will have
 $I = 25 \text{ mV} / 1.44 \text{ ohm} = 17.4 \text{ mA}$.

* Use case & application needs to be discussed with EnOcean, otherwise we can not assure that it will work.