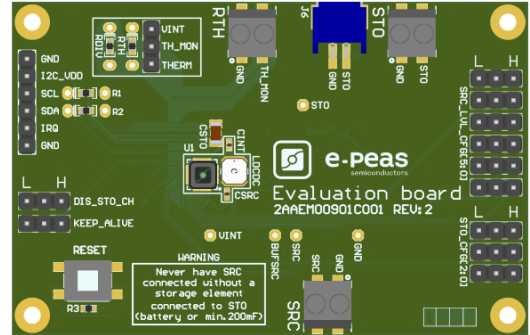


AEM00901

Quick Start Guide EVK



FEATURES

Connectors

- 1 screw connector for the photovoltaic cell.
- 1 screw connector + 1 JST connector for the storage element.
- 1 screw connector for thermal monitoring.

Configuration

- 6 SRC_LVL_CFG[x] headers to configure the SRC constant voltage regulation.
- 3 STO_CFG[x] headers to define the storage element protection levels.
- 1 TH_MON header to enable/disable the thermal monitoring.
- 6-pin header for the I²C communication.
- 2 headers for the KEEP_ALIVE and DIS_STO_CH features.

Reset

- 1 reset button (press for 5 seconds minimum to reset the AEM).

Size

- 79mm x 49mm.
- 4 x M2.5 mounting holes.

SUPPORT PCB

BOM around the AEM00901

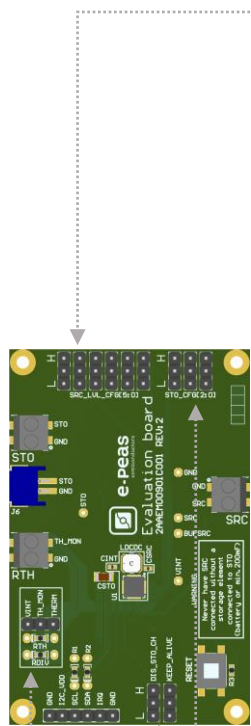
	Designator	Description	Quantity	Manufacturer	Part Number
Mandatory	U1	AEM0090x	1	e-peas	order at sales@e-peas.com
	Battery	Battery with 2.8 V min. voltage	1	To be defined by user	
	LDCDC (AEM00900)	Power inductor 6.8 μH 1.15A 1008	1	TDK	VLS252012HBX-6R8M-1
	LDCDC (AEM00901)	Power inductor 33 μH 680 mA 1515	1	Coilcraft	LPS4018-333MRB
	CSRC	Ceramic capacitor 22 μF 6.3 V 20% X5R 0402	1	Murata	GRM158R60J226ME01
Optional	CINT	Ceramic capacitor 22 μF 6.3 V 20% X5R 0402	1	Murata	GRM158R60J226ME01
	CSTO	Ceramic capacitor 22 μF 6.3 V 20% X5R 0402	1	Murata	GRM158R60J226ME01
	R1, R2	Pull-up 1kΩ Resistors for I ² C interface	2	Yageo	AC0603FR-071KL
	Rth	10kΩ NTC thermistor for temperature monitoring	1	Murata	NCP15XH103J03RC
	Rdiv	Resistor 22kΩ 1%	1	Yageo	PNRC0402FR-0722KL

Footprint & Symbol: information available on the datasheet.





STEP 1: AEM00901 configuration



- **SRC regulation voltage:** SRC_LVL_CFG[5:0] (seen as HIGH if left floating)

Configuration pins						Voltage Level	Configuration pins						Voltage Level
SRC_LVL_CFG[5:0]						V _{SRC,REG}	SRC_LVL_CFG[5:0]						V _{SRC,REG}
L	L	L	H	H	L	0.12 V	H	L	L	L	L	L	0.72 V
L	L	L	H	H	H	0.13 V	H	L	L	L	L	H	0.75 V
L	L	L	H	L	L	0.15 V	H	L	L	L	H	L	0.78 V
L	L	H	L	L	H	0.16 V	H	L	L	L	H	H	0.81 V
L	L	H	L	H	L	0.18 V	H	L	L	H	L	L	0.84 V
L	L	H	L	H	H	0.19 V	H	L	L	H	L	H	0.87 V
L	L	H	H	L	L	0.21 V	H	L	L	H	H	L	0.90 V
L	L	H	H	L	H	0.22 V	H	L	L	H	H	H	0.93 V
L	L	H	H	H	L	0.24 V	H	L	H	L	L	L	0.96 V
L	L	H	H	H	H	0.25 V	H	L	H	L	L	H	0.99 V
L	H	L	L	L	L	0.27 V	H	L	H	L	H	L	1.02 V
L	H	L	L	L	H	0.28 V	H	L	H	L	H	H	1.05 V
L	H	L	L	H	L	0.30 V	H	L	H	H	L	L	1.08 V
L	H	L	L	H	H	0.33 V	H	L	H	H	L	H	1.11 V
L	H	L	H	L	L	0.36 V	H	L	H	H	H	L	1.14 V
L	H	L	H	L	H	0.39 V	H	L	H	H	H	H	1.17 V
L	H	L	H	H	L	0.42 V	H	H	L	L	L	L	1.20 V
L	H	L	H	H	H	0.45 V	H	H	L	L	L	H	1.23 V
L	H	H	L	L	L	0.48 V	H	H	L	L	H	L	1.26 V
L	H	H	L	L	H	0.51 V	H	H	L	L	H	H	1.29 V
L	H	H	L	H	L	0.54 V	H	H	L	H	L	L	1.32 V
L	H	H	L	H	H	0.57 V	H	H	L	H	L	H	1.35 V
L	H	H	H	L	L	0.60 V	H	H	L	H	H	L	1.38 V
L	H	H	H	L	H	0.63 V	H	H	L	H	H	H	1.41 V
L	H	H	H	H	L	0.66 V	H	H	H	L	L	L	1.44 V
L	H	H	H	H	H	0.69 V	H	H	H	L	L	H	1.47 V

- **Storage element threshold voltages:** STO_CFG[2:0] (seen as HIGH if left floating)

Configuration	Availability Through Pins		Storage Element Threshold Voltage	
	I ² C Interface	Configuration pins	V _{OVCH}	V _{OVDIS}
LLL	yes	yes	4.50 V	3.30 V
LLH	yes	yes	4.00 V	2.80 V
LHL	yes	yes	3.63 V	2.80 V
LHH	yes	yes	3.90 V	2.80 V
HLL	yes	yes	3.90 V	3.50 V
HLH	yes	yes	3.90 V	3.01 V
HHL	yes	yes	4.35 V	3.01 V
HHH	yes	yes	4.12 V	3.01 V

- **Thermal monitoring:**

Enable thermal monitoring by placing a jumper on the dedicated header to connect TH_MON to THERM.

Disable thermal monitoring by placing a jumper on the dedicated header to connect TH_MON to VINT.

- **Configuration mode:**

- DIS_STO_CH : Connect to L to enable the charge of the storage element, connect to H to disable it (seen as LOW if left floating).
- KEEP_ALIVE : Connect to H to enable the feature, connect to L to disable the feature (seen as HIGH if left floating).

- **I²C communication:**

All the AEM configurations, as well as various information are available through I²C communication. See the AEM00900 datasheet for more details.





STEP 2: Connect a storage element with a voltage higher than 2.8 V

STEP 3: Connect a photovoltaic single cell

- Internal boost efficiency vs. input voltage (LDCDC = 33 μ H):

