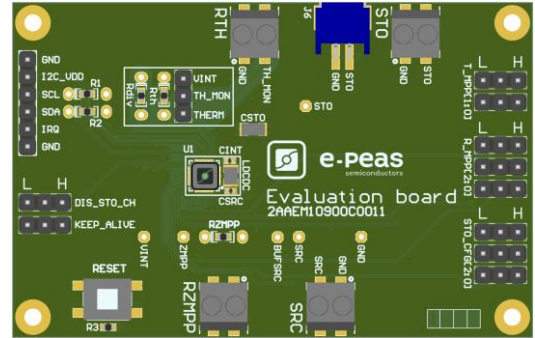


AEM10900

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
- 1 screw connector for RZMPP

Configuration

- 3 jumpers R_MPP[x] to define the MPP ratio linked to the harvester technology
- 2 jumper T_MPP[x] to define the MPP timing
- 3 jumpers STO_CFG[x] to define the storage element protection levels
- 1 jumper TH_MON for enabling the thermal monitoring
- 6-pins header for the I²C communication
- 2 jumpers for the configuration mode

Size

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

SUPPORT PCB

BOM around the AEM10900

	Designator	Description	Quantity	Manufacturer	Part Number
Mandatory	U1	AEM10900	1	e-peas	order at sales@e-peas.com
	Battery	Battery with 2.8 V min. voltage	1	To be defined by user	
	LDCCDC	Power inductor 4.7 μH 1.9A 1008	1	TDK	VLS252012HBX-4R7M-1
	CSRC	Ceramic capacitor 22 μF 6.3 V 20% X5R 0402	1	Murata	GRM158R60J226ME01
	CINT	Ceramic capacitor 22 μF 6.3 V 20% X5R 0402	1	Murata	GRM158R60J226ME01
Optional	RZMPP	Resistor for ZMPP functionality	1	To be defined by user	
	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: Informations available on the datasheet





STEP 1: AEM10330 Configuration



- **MPP timing** : T_MPP[0] – T_MPP[1]

Configuration	Availability Through Pins			MPP Timing	
	I ² C Interface	Configuration pins		Sampling duration [ms]	Sampling period [ms]
T_MPP[2:0]		QFN28	WLCSP16		
000	yes	no	no	2	64
001	yes	no	no	256	16384
010	yes	no	no	64	4096
011	yes	no	no	8	1024
100	yes	yes	no	4	256
101	yes	yes	no	2	128
110	yes	yes	no	4	512
111	yes	yes	yes	2	256

- **MPP ratio**: R_MPP[0] – R_MPP[1] – R_MPP[2]

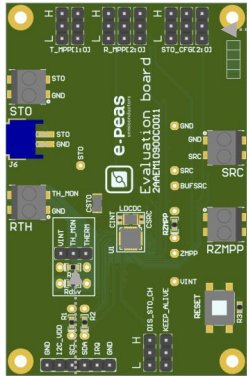
Configuration	Availability Through Pins			MPPT ratio <i>V_{mpp}/V_{oc}</i>
	I ² C Interface	Configuration pins		
R_MPP[3:0]		QFN28	WLCSP16	
0000	yes	yes	no	ZMPP
0001	yes	yes	no	90%
0010	yes	yes	no	65%
0011	yes	yes	no	60%
0100	yes	yes	no	85%
0101	yes	yes	no	75%
0110	yes	yes	yes	70%
0111	yes	yes	yes	80%
1000	yes	no	no	35%
1001	yes	no	no	50%

- **Storage Element voltages protection**: STO_CFG[3] – STO_CFG[2] – STO_CFG[1] – STO_CFG[0]

Configuration	Availability Through Pins			Storage element threshold voltage	
	I ² C Interface	Configuration pins		V _{ovch}	V _{ovdis}
CFG[2:0]		QFN28	WLCSP16		
000	yes	yes	no	4.50 V	3.30 V
001	yes	yes	no	4.00 V	2.80 V
010	yes	yes	no	3.63 V	2.80 V
011	yes	yes	no	3.90 V	2.80 V
100	yes	yes	no	3.90 V	3.50 V
101	yes	yes	no	3.90 V	3.01 V
110	yes	yes	no	4.35 V	3.01 V
111	yes	yes	yes	4.12 V	3.01 V

- **Thermal Monitoring**: Connect the jumper TH_MON to THERM to enable the feature, connect TH_MON to VINT to disable the thermal monitoring.
- **Configuration mode**: DIS_STO_CH – KEEP_ALIVE :
 - DIS_STO_CH : Connect to H (STO) to disable the charge of the storage element, connect to L to enable the charge of the storage element
 - KEEP_ALIVE : Connect to H for enabling the feature, connect to L for disabling the feature

Note : All configurations and informations of the AEM are available through a I²C communication. See the datasheet for more details





STEP 2: Connect the Storage Element with a voltage higher than 2.8V (and the Primary Battery)

STEP 3: Connect the Photovoltaic Single Cell

- Internal Boost efficiency Vs. input voltage :

