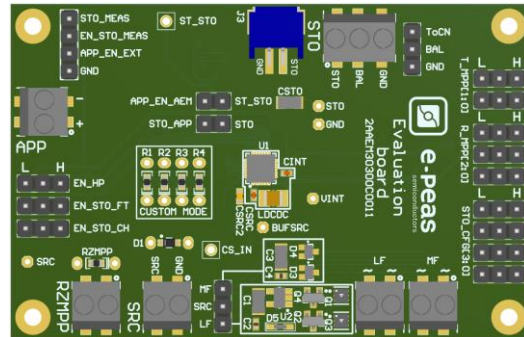


AEM30300

Quick Start Guide EVK



FEATURES

Connectors

- 3 screw connectors for the source (1 for the DC and 2 for the AC)
- 1 screw connector + 1 JST connector for the Storage Element
- 1 screw connector for the application supply
- 1 screw connector for RZMPP

Configuration

- 3 jumpers R_MPP[x] to define the MPP ratio linked to the harvester technology
- 2 jumpers T_MPP[x] to define the MPP timing
- 4 jumpers STO_CFG[x] to define the storage element protection levels
- 4 resistors footprint related to the custom mode (STO_CFG[3:0]=LHHH)
- 1 jumper to set the dual cell supercapacitor BAL feature
- 3 jumpers to enable the different modes
- 2 jumpers to enable the application output supply
- 1 jumper to select the rectifier

Size

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

SUPPORT PCB

BOM around the AEM30300

Designator	Description	Quantity	Manufacturer	Link
U1	AEM30300 - Symbol QFN 28-pin	1	e-peas	order at sales@e-peas.com
LDCCD	Power inductor 10 μ H - 1.76A	1	Murata	DFE252010F-100M
CINT	Ceramic Cap 10 μ F, 6.3V, 20%, X5R 0402	1	Murata	GRM155R60J106ME15
CSRC	Ceramic Cap 15 μ F, 6.3V, 20%, X5R 0402	1	Murata	GRM155R60J156ME05
CSTO (optional)	Ceramic Cap 100 μ F, 6.3V, 20%, X5R 1206	1	TDK	C3216X5R1A107M160AC

Footprint & Symbol: Informations available on the datasheet





STEP 1: AEM30300 Configuration



- **MPP timing :** $T_MPP[0] - T_MPP[1]$
- **MPP ratio:** $R_MPP[0] - R_MPP[1] - R_MPP[2]$

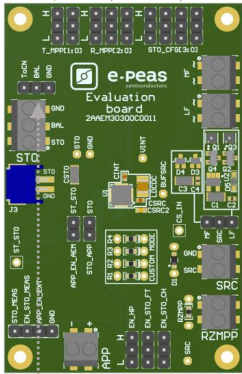
Configuration pins			MPPT ratio
R_MPP[2]	R_MPP[1]	R_MPP[0]	V_{MPP} / V_{OC}
0	0	0	35%
0	0	1	50%
0	1	0	60%
0	1	1	65%
1	0	0	70%
1	0	1	75%
1	1	0	80%
1	1	1	ZMPP

Configuration pins		MPPT timing	
T_MPP[1]	T_MPP[0]	Sampling duration	Sampling period
0	0	3.82 ms	18.28 ms
0	1	5.1 ms	280.0 ms
1	0	71.6 ms	1.12 s
1	1	1.12 s	71.7 s

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

Configuration pins				Storage element threshold voltages			Typical use
STO_CFG[3]	STO_CFG[2]	STO_CFG[1]	STO_CFG[0]	V_{OVDIS}	V_{CHRDY}	V_{OVCH}	
0	0	0	0	3.00 V	3.50 V	4.05 V	Li-Ion battery
0	0	0	1	2.80 V	3.10 V	3.60 V	LiFePO4 battery
0	0	1	0	1.85 V	2.40 V	2.70 V	NiMH battery
0	0	1	1	0.20 V	1.00 V	4.65 V	Dual-cell supercapacitor
0	1	0	0	0.20V	1.00V	2.60 V	Single-cell supercapacitor
0	1	0	1	1.00 V	1.20 V	2.95 V	Single-cell supercapacitor
0	1	1	0	1.85 V	2.30 V	2.60 V	NGK
0	1	1	1	Custom Mode			
1	0	0	0	1.10 V	1.25 V	1.50 V	Ni-Cd 1 cells
1	0	0	1	2.20 V	2.50 V	3.00 V	Ni-Cd 2 cells
1	0	1	0	1.45 V	2.00 V	4.65 V	Dual-cell supercapacitor
1	0	1	1	1.00 V	1.20 V	2.60 V	Single-cell supercapacitor
1	1	0	0	2.00 V	2.30 V	2.60 V	ITEN / Umal Murata
1	1	0	1	3.00 V	3.50 V	4.35 V	Li-Po battery
1	1	1	0	2.60 V	2.70 V	4.00 V	Tadiran TLI1020A
1	1	1	1	2.60 V	3.50 V	3.90 V	Tadiran HLC1020

- **BAL option:** Select “ToCn” for dual-cells supercapacitor and “GND” for any other storage element
- **Configuration mode:** EN_HP – EN_STO_FT – EN_STO_CH
Connect to H for enabling the feature, connect to L for disabling the feature
- **External output supply:** Connect both jumper at the APP_EN_AEM and STO_APP headers to enable the APP output supply.

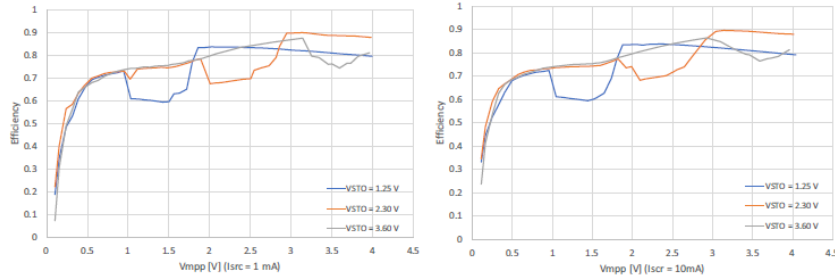




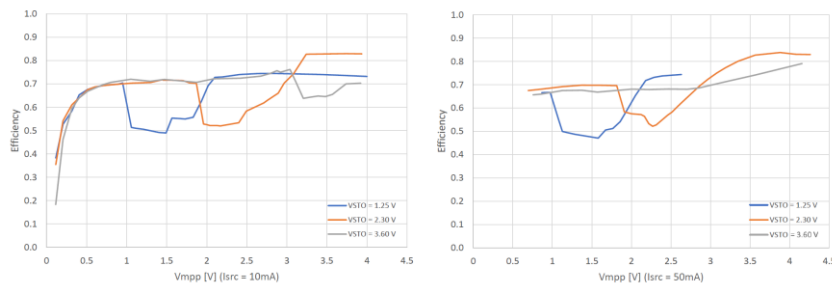
STEP 2: Connect the Storage Element

STEP 3: Connect the Photovoltaic Cell

- Internal Boost efficiency Vs. input voltage in Low Power mode:



- Internal Boost efficiency Vs. input voltage in High Power mode:



STEP 4: Check the Status

Symbol	Logic Level	Low	High
Logic output pins			
ST_STO	Logic output levels on the status STO pins	GND	V _{STO}

