

# Mini Evaluation Board with DCDC (buck) : AEM10941



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*Please follow the next steps when using the AEM10941*

*mini evaluation board with DCDC (buck)*



- Step 1 :** MPP configuration (DS page 12)
- Step 2 :** System configuration (DS page 11)
- Step 3 :** LDO outputs configuration (DS page 9)
- Step 4 :** Cold-start configuration (DS page 12)
- Step 5 :** Balun for dual-cells supercapacitor (DS page 10)
- Step 6 :** Primary battery configuration (DS page 12)
- Step 7 :** Connect the storage element
- Step 8 :** Connect the primary battery
- Step 9 :** Connect the loads
- Step 10 :** Connect the source
- Step 11 :** Status

*For more information : [support@e-peas.com](mailto:support@e-peas.com)*

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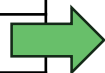
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1.

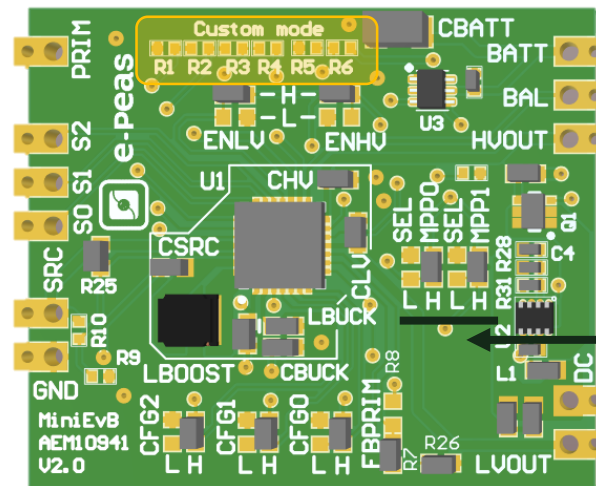
SELMPP1-0	MPPT Ratio (%)
0-0	70
0-1	75
1-0	85
1-1	90

2.

CFG2-1-0	Storage element type
H-H-H	Li-ion battery
H-H-L	Solid state Battery
H-L-H	Li-ion / NiMH battery
H-L-L	Single cell supercapacitor
L-H-H	Dual cell supercapacitor
L-H-L	Dual cell supercapacitor
L-L-H	LifePo4
L-L-L	Custom mode



Please see DS page 11 « Custom mode »  
and use the R1 – R6 resistors



1. MPP configuration  
(DS page 12)

2. System configuration (DS page 11)

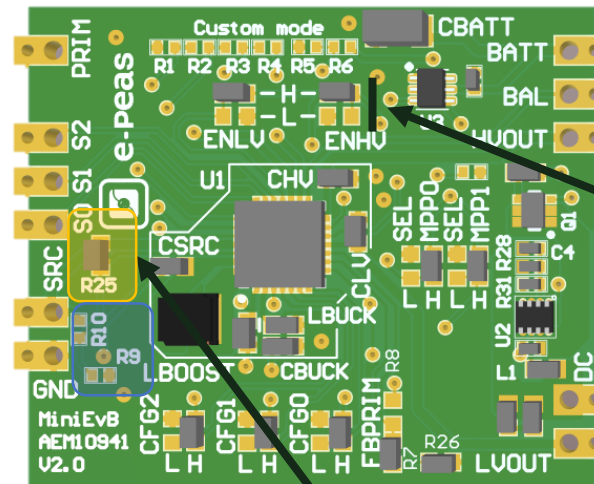
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3.

ENLV	ENHV	LVOUT	HVOUT
1	1	Enabled	Enabled
1	0	Enabled	Disabled
0	1	Disabled	Enabled
0	0	Disabled	Disabled



3.

LDO outputs configuration  
(DS page 9)

4.

Solder resistor « 0R R25 » if not used else :

$$100 \text{ k}\Omega \leq RC = R9+R10 \leq 10 \text{ M}\Omega$$

CS = coldstart voltage (> 380mV)

$$R9 = \frac{0.38}{CS} * RC$$

$$R10 = RC - R9$$

4.

Cold-start configuration  
(DS page 12)

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5.

Do not leave floating PRIM or BAL

If dual-cell supercapacitor :  
BAL connected to the node  
between the supercapacitors

**BAL = ToCN**

If not :

**BAL = GND**

6.

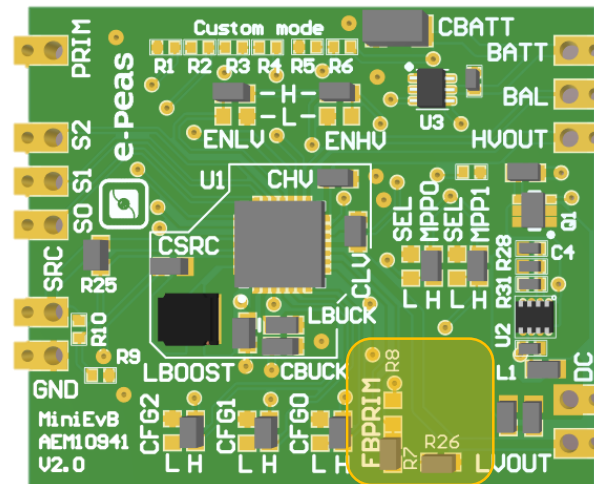
Solder resistor « 0R R26 » if no primary battery  
else

$$100 \text{ k}\Omega \leq RP = R7+R8 \leq 500 \text{ k}\Omega$$

$V_{PRIM\_MIN}$  = minimum voltage on PRIM

$$R7 = \left( \frac{V_{PRIM\_MIN}}{4} * RP \right) / 2.2 \text{ V}$$

$$R8 = RP - R7$$



5. Balun for dual-cells  
supercapacitor  
(DS page 10)

6. Primary battery configuration  
(DS page 12)

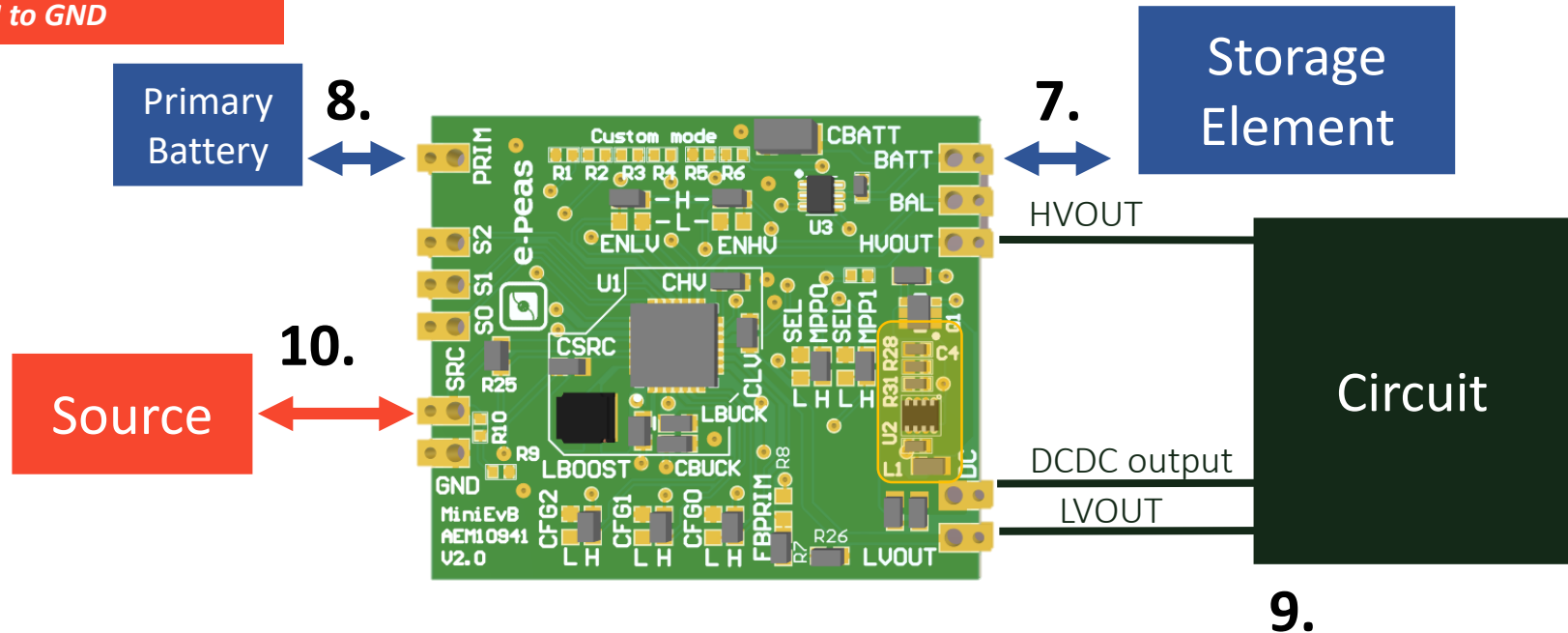
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If no primary battery, please connect  
PRIM to GND



U2 DCDC = [TPS62821](#)

R28 (=R1) and R31 (=R2) define output voltage as described [table 3](#) page 11.

By default, DCDC output voltage is defined at 3.3 V.

C4 =  $C_{ff}$  in datasheet.

L1 = 470nH.

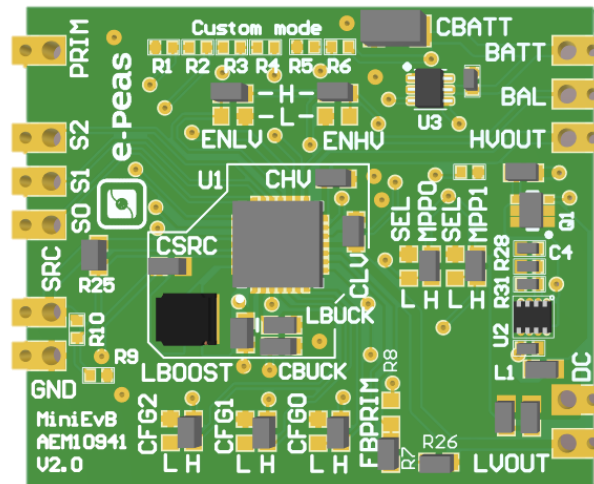
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**11.** AEM Status →



**11.**

**STATUS0** = Asserted when the LDOs can be enabled

**STATUS1** = Asserted if the battery voltage falls under Vovdis

**STATUS2** = Asserted when the AEM performs the MPP tracking

For more information : [support@e-peas.com](mailto:support@e-peas.com)

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