Mini Evaluation Board with DCDC (buck) : AEM10941

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

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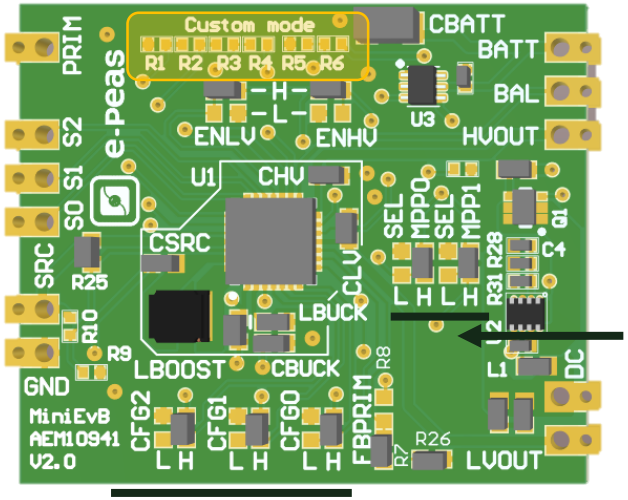
1.

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



1. MPP configuration (DS page 12)

2. System configuration (DS page 11)

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

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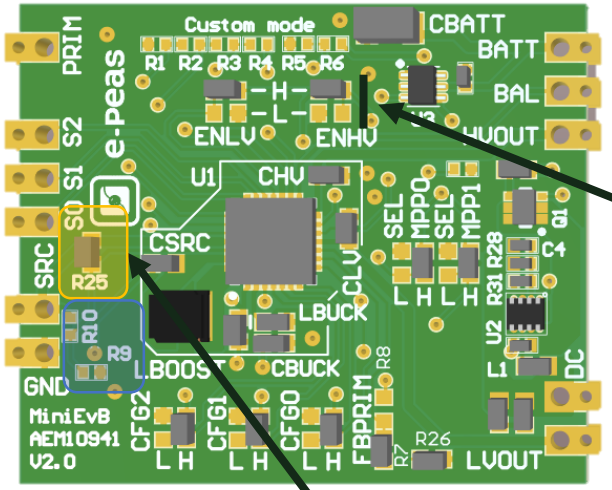
3.

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. Cold-start configuration (DS page 12)

4.

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

100 kΩ ≤ RC = R9+R10 ≤ 10 MΩ
CS = coldstart voltage (> 380mV)

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

R10 = RC – R9

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5.

Do not leave floating PRIM or BAL

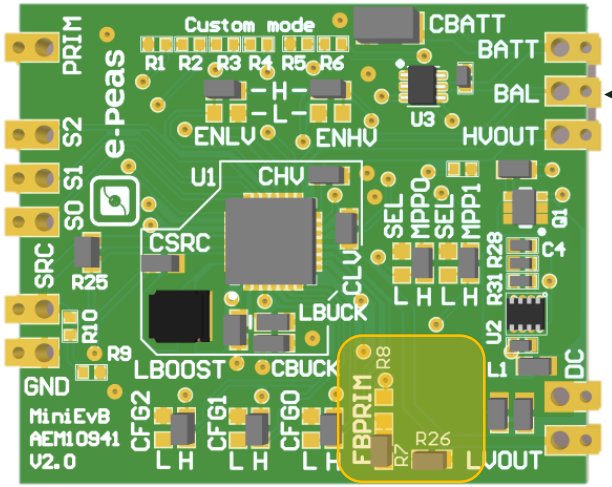
If dual-cell supercapacitor :

BAL connected to the node between the supercapacitors

BAL = ToCN

If not :

BAL = GND



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

6.

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

100 kΩ ≤ RP = R7+R8 ≤ 500 kΩ

VPRIM_MIN = minimum voltage on PRIM

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

R8 = RP – R7

6. Primary battery configuration (DS page 12)

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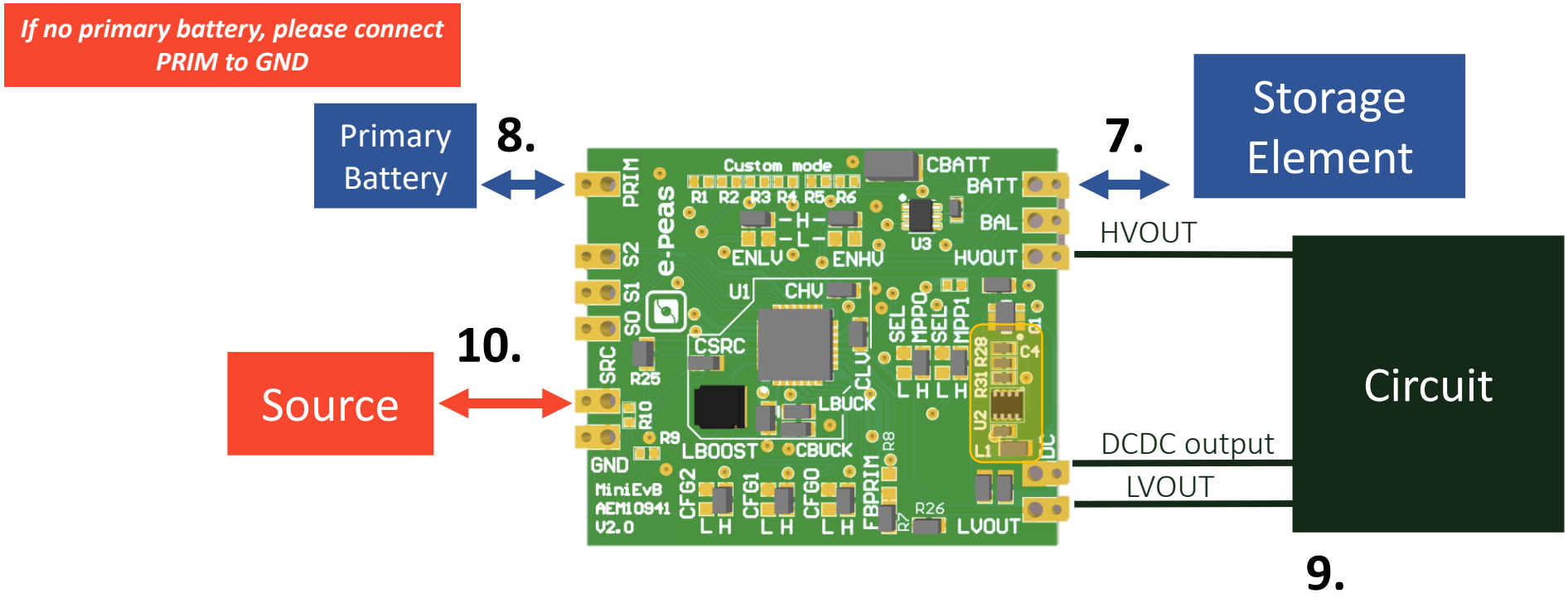

U2 DCDC = [TPS62821]

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 = Cff in datasheet.

L1 = 470nH.

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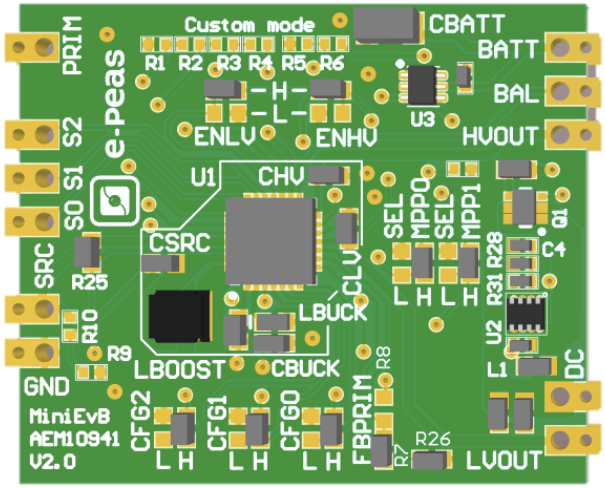
11. AEM Status →



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

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