Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
N/A	N/A	N/A	N/A	N/A

Bridge configuration
if AFE1 as bridge, SMT R208/R209/R210/R211, noSMT C110_A1/R145_A1, Short J9/J12/J13
if use BQ79600 as bridge, no SMT R208/R209/R210/R211, SMT C110_A1/R145_A1

Place Block Diagram here (if appropriate) or delete this text box.
If using a block diagram from another tool, save the picture as a .bmp file.
Then, use menu Place|Drawing Tools|Graphic to insert the .png/.svg/.bmp file on the schematic.

J5A
141114-210810
PGND
BMU_WAKEOUT_C
CAN0_CANH
CAN0_CANL

J5C
141114-210810
MNT_1
MNT_2

J5B
141114-210810
LV24V
BMU_WAKEIN_C
CAN0_CANL
CAN0_CANH

U_TIDA-010279 BMU_Hardware
TIDA-010279 BMU_Hardware.SchDoc

MCU0
TIDA-010279 BMU_CAN MCU.SchDoc
LV24V
PGND
BMU_WAKEIN_C
BMU_WAKEOUT_C
CAN0_CANH
CAN0_CANL
AFE_RX
AFE_TX
AFE_FLT
GND_Stage2

S1
LV24V
PGND

R208 0
R209 0
R210 0
R211 0

A1
TIDA-010279 BMU_stack0.SchDoc
A2
TIDA-010279 BMU_stack0.SchDoc
A3
TIDA-010279 BMU_stack0.SchDoc
A4
TIDA-010279 BMU_stack0.SchDoc

ModuleP, CELL18, CELL17, CELL16, CELL15, CELL14, CELL13, CELL12, CELL11, CELL10, CELL9, CELL8, CELL7, CELL6, CELL5, CELL4, CELL3, CELL2, CELL1, CELL0, ModuleN, CELL_BB
TS1, TS2, TS3, TS4, TS5, TS6, TS7, TS8, TS9, TS10, TS11, TS12, TS13, TS14
COMML_P_OPT, COMML_N_OPT, COMMH_P_OPT, COMMH_N_OPT
RX/GPIO0, TX/GPIO1, NFAULT/GPIO2, GND

C158 2200pF 100V
C159 2200pF 100V
C160 2200pF 100V
C161 2200pF 100V
C162 2200pF 100V
C163 2200pF 100V
C164 2200pF 100V
C165 2200pF 100V
T2 T3 T4
74941301

J7
BMU_COMML_P
BMU_OMML_N
T1
LKBMT10B
C156 100pF

J8
BMU_COMMH_N
BMU_COMMH_P
T5
LKBMT10B
C166 100pF

Orderable:	Designed for: Public Release	Mod. Date: 2026/6/5
TID #: TIDA-010279	Project Title: Up to 1500V Stackable Battery Management Unit R	
Number: TIDA-010279 Rev: E1	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: BQ78706*4	Sheet: 1 of 4
Drawn By:	File: TIDA-010279 BMU_Schematic_Block.SchDoc	Size: B
Engineer: Junhua Yan	Contact: http://www.ti.com/support	

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http://www.ti.com

Storage

Cell balancing

Power Cap

Status indiation
1 shutdown: No on
2 wake and normal: 2 Green
3 wake and abnormal: 1 green

U1_A1
BQ78706PAP

R257:100k pullup only for AFE1 in CAN, others short to AVDD

100mA CB current

Cell voltage

Input ESD protection

Cell temperature

20 Thermistor input with 400ms refresh
TSx is input to GPIO ADC
TCx_C is connector input
TSR1&2 is set >125C/<1k(0.8k) for PTC ERT-J1VG103GA
TSR1&2 is set <-40C/ <5k(3k) for TMP6131DECR

1.Two TMUX populated to sense 2022(2 self test) temp per AFE for full temp using BQ78718.
2.One TMUX populated to sense 1415(1 self test) temp per AFE for full temp using BQ78706 by GPIO17 and TMUX(GPIO811)
3.No TMUX populated to sense 11 temp per AFE for half temp using BQ78706(7+1BB) by GPIO18. TS14+TS7 is near to GPIO7/8

1. TS15~TS20, 3 GND
2. TS14,TS4, 1 GND
3. One connector not used 40pin

NPN Power Supply-150V

Communication

ESD652 ?

Cell channel config
12*4: short 6 resistors
13*4: short 5 resistors
18*3: No shart and SMT BQ79718

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Number: TIDA-010279	Rev: E1	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: BQ78706*4	Sheet: 2 of 4
Drawn By:		File: TIDA-010279 BMU_stack0.SchDoc	Size: C
Engineer: Junhua Yan		Contact: http://www.ti.com/support	

Storage Systems

Cell balancing

Power Cap

Status indiation
1 shutdown: No on
2 wake and normal: 2 Green
3 wake and abnormal: 1 green

U1_A2
BQ78706PAP

R257:100k pullup only for AFE1 in CAN, others short to AVDD

100mA CB current

Cell voltage

Input ESD protection

Cell temperature

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TSx is input to GPIO ADC
TCx_C is connector input
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SVN Rev: Not in version control		Assembly Variant: BQ78706*4	Sheet: 2 of 4
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Engineer: Junhua Yan		Contact: http://www.ti.com/support	

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Cell balancing

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U1_A4
BQ78706PAP

100mA CB current

Cell voltage

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Cell temperature

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NPN Power Supply-150V

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Number: TIDA-010279	Rev: E1	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: BQ78706*4	Sheet: 2 of 4
Drawn By:		File: TIDA-010279 BMU_stack0.SchDoc	Size: C
Engineer: Junhua Yan		Contact: http://www.ti.com/support	

Storage Systems

http://www.ti.com

H1 1 NY PMS 440 0025 PH

H2 1 NY PMS 440 0025 PH

H3 1 NY PMS 440 0025 PH

H4 1 NY PMS 440 0025 PH

H5 1902C

H6 1902C

H7 1902C

H8 1902C

H9 SJ-5303 (CLEAR)

H10 SJ-5303 (CLEAR)

H11 SJ-5303 (CLEAR)

H12 SJ-5303 (CLEAR)

FID1

FID2

FID3

PCB Number: TIDA-010279
PCB Rev: E1

PCB LOGO
Texas Instruments

CE Mark

PCB LOGO
FCC disclaimer

PCB LOGO
WEEE logo

You should delete the nylon screws/standoffs and/or the bumpons as needed for your design (or substitute other parts from Hardware.IntLib). Bumpons are cheaper, but provide less clearance.

Deleting anything else from this page may result in your EVM submission being rejected (until you add them back).

Update the Label Text in the Label Table as needed for each Assembly Variant.

You should delete this note too.

Variant/Label Table	
Variant	Label Text
001	ChangeMe!
002	ChangeMe!

LBL1
PCB Label
THT-14-423-10
Size: 0.65" x 0.20 "

ZZ1
Label Assembly Note
This Assembly Note is for PCB labels only

ZZ2
Assembly Note
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3
Assembly Note
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ4
Assembly Note
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

Orderable:	Designed for: Public Release	Mod. Date: 2024/12/12
TID #: TIDA-010279	Project Title: Up to 1500V Stackable Battery Management Unit R	
Number: TIDA-010279 Rev: E1	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: BQ78706*4	Sheet: 3 of 4
Drawn By:	File: TIDA-010279 BMU_Hardware.SchDoc	Size: B
Engineer: Junhua Yan	Contact: http://www.ti.com/support	

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Storage

backchannel UART from XDS110 to M0 UART0

RESET Button

Unpopulate J9 to enable MCU power consumption measure

Please keep R223, C172 close to MCU pin

MSPM0G3519SPMR

Crystals

LFXT(32768Hz)

HFXT(40MHz)

Please keep R229 close to MCU pin

ROSC

TPS7B8133QDRVRQ1

LMR51406YDBVR

UCC33421-Q1

UCC33420

ISO6721FQDWVRQ1

ISO7831DWW

TCAN1044DDFRQ1

Populate PTCAN0044AVDDFRQ1

Reserved_DNP

Populate 60.4R for main node, otherwise 1k

Populate NUP2105LT1G for CAN.
Populate SESDONCAN0LT1G for CAN-FD.

PU - Standby when reset
PD - No standby

Orderable:		Designed for: Public Release	Mod. Date: 2026/4/23
TID #: TIDA-010279		Project Title: Up to 1500V Stackable Battery Management Unit R	
Number: TIDA-010279	Rev: E1	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: BQ78706*4	Sheet: 4 of 4
Drawn By:		File: TIDA-010279 BMU_CAN MCU.SchDoc	Size: C
Engineer: Junhua Yan		Contact: http://www.ti.com/support	

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Last updated 10/2025