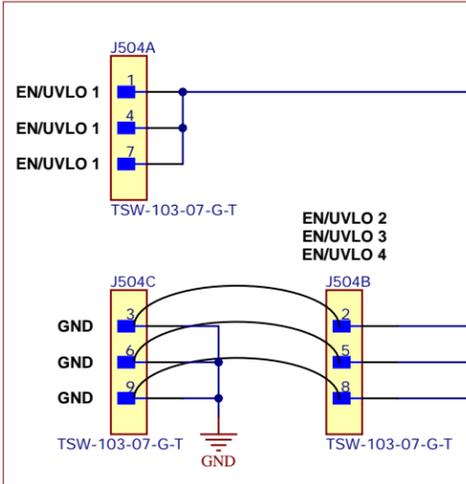
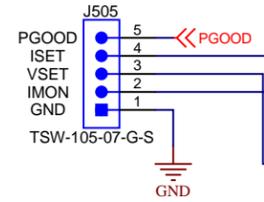


**48Vin battery (30V-60V)
@ 5A/ph**

**12Vout
TDC: 20A/ph
EDC: 25A/ph**



EN/UVLO selection for phases 2, 3, and 4.
To enable a phase, tie its EN/UVLO to the EN/UVLO of Phase 1.
To disable a phase, tie its EN/UVLO to GND (default).

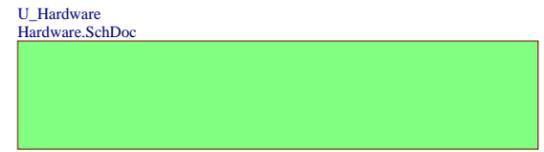


The VSET, ISET, and IMON signals of disabled phases shouldn't affect the buses.

FB are input pins. FB of disabled phases shouldn't affect the bus.

Color key

- Orange indicates configuration options
- Purple gives design/part info
- Black text is labels and miscellaneous notes

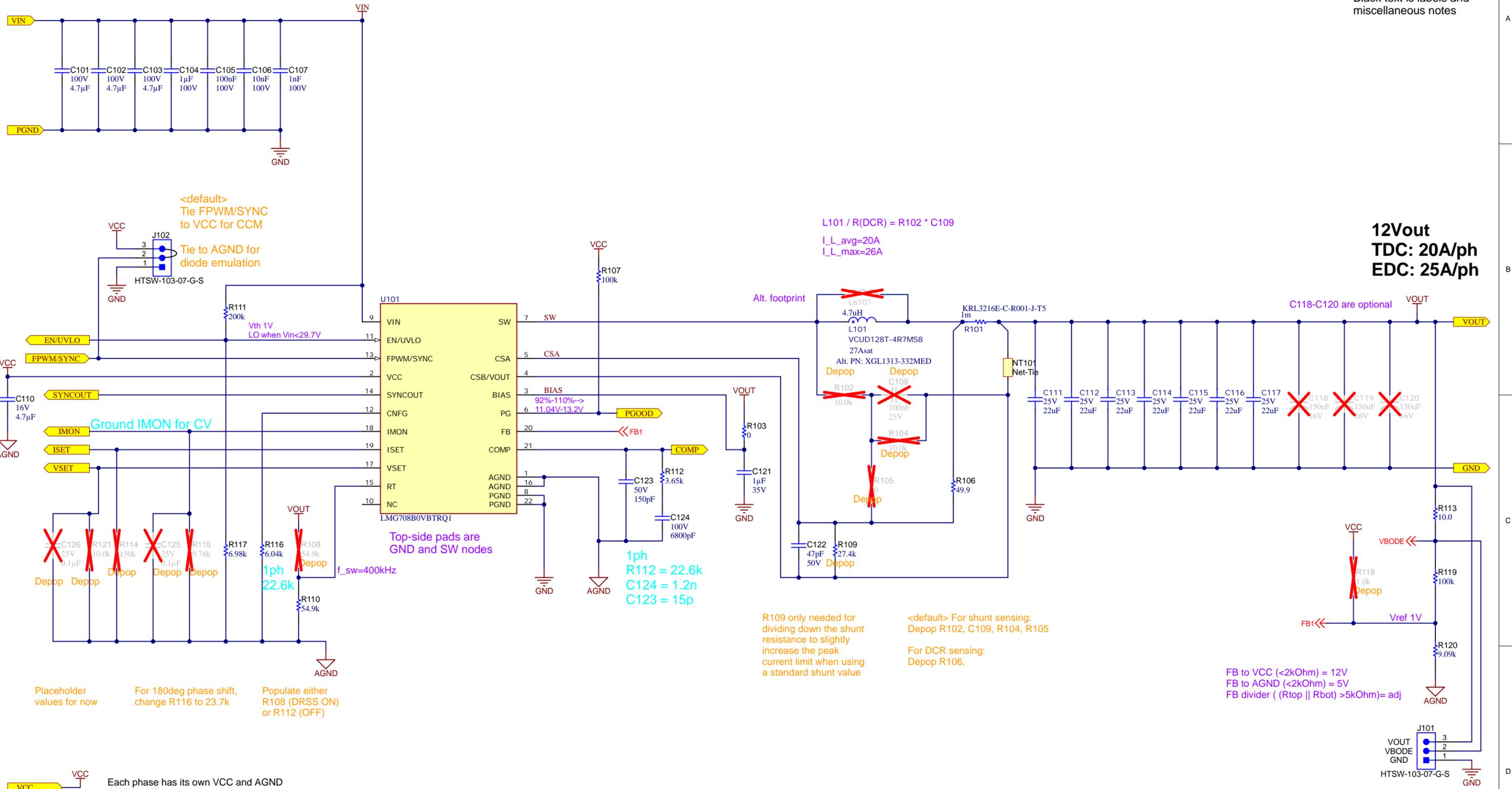


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**48Vin battery (30V-60V)
@ 5A/ph**

Color key

Orange indicates configuration options
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Black text is labels and miscellaneous notes



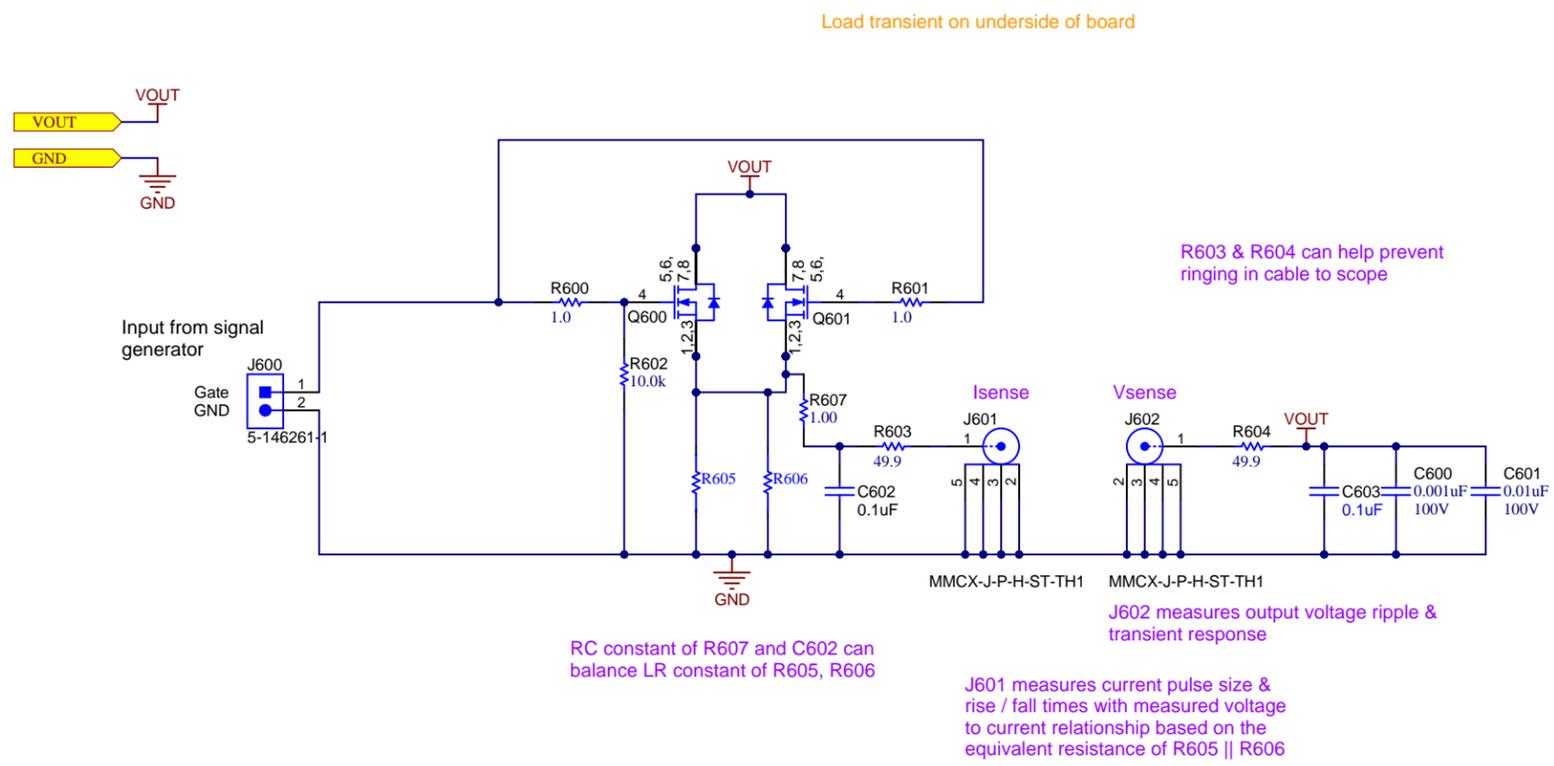
**12Vout
TDC: 20A/ph
EDC: 25A/ph**

Each phase has its own VCC and AGND (VCC1, VCC2,...) (AGND1, AGND2,...)
Setting up a Port with these Power Port objects enables each instance of this sheet to have its own local instance of the power net (VCC1, VCC2, etc.)

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| | | |
|------------------------------------------------|----------------------------------------------------------------------------|----------------------|
| Orderable: ChangeMe in variant | Designed for: Public Release | Mod. Date: 3/10/2026 |
| TID #: N/A | Project Title: 4-ph 1.2kW GaNdalf | |
| Number: PMP23595 | Rev: A | Sheet Title: |
| SVN Rev: Not in version control | Assembly Variant: 001 | Sheet: 2 of 4 |
| Drawn By: | File: Phase1_SchDoc | Size: B |
| Engineer: Hope Arnett | Contact: http://www.ti.com/support | |

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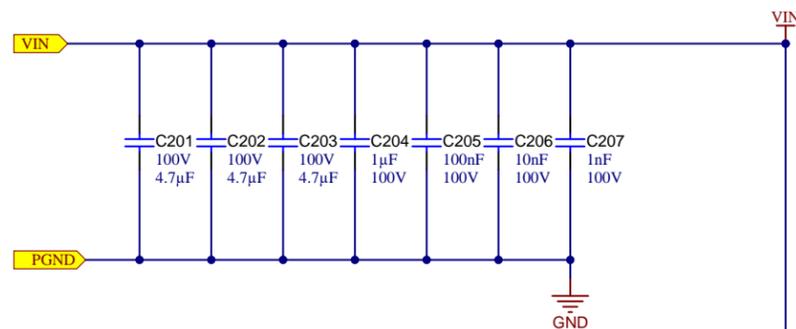
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| Orderable: ChangeMe in variant | Designed for: Public Release | Mod. Date: 7/30/2025 |
| TID #: N/A | Project Title: 4-ph 1.2kW GaN dalf | |
| Number: PMP23595 | Rev: A | Sheet Title: |
| SVN Rev: Not in version control | Assembly Variant: 001 | Sheet: 2 of 3 |
| Drawn By: | File: DynamicLoad.SchDoc | Size: B |
| Engineer: Hope Arnett | Contact: http://www.ti.com/support | |

Color key

Orange indicates configuration options
 Purple gives design/part info
 Black text is labels and miscellaneous notes

48Vin battery (30V-60V) @ 5A/ph



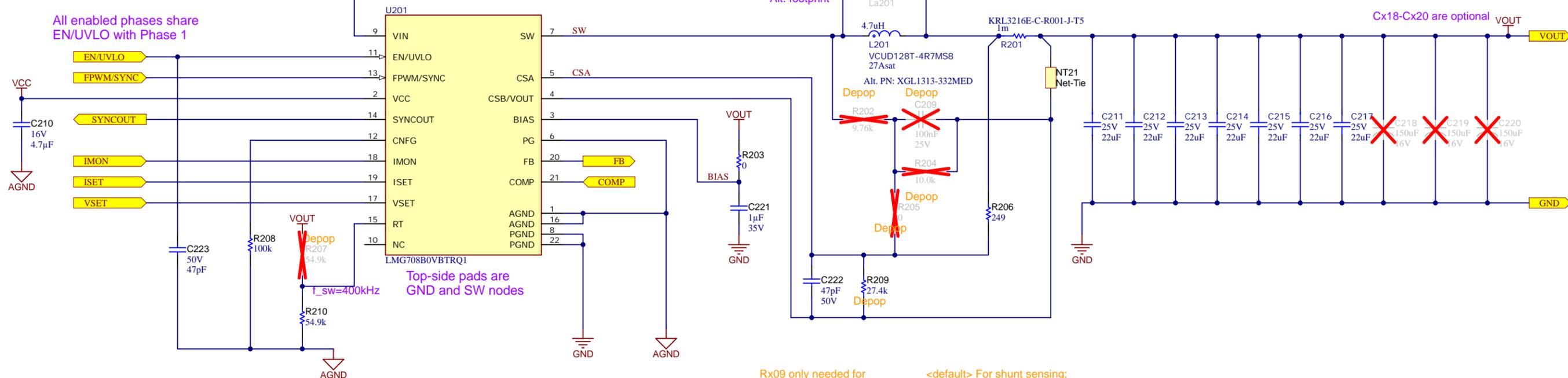
$$L2 / R(DCR) = R02 * C09$$

$$I_{L_avg}=20A$$

$$I_{L_max}=26A$$

12Vout
 TDC: TBD
 EDC: 25A/ph

All enabled phases share EN/UVLO with Phase 1



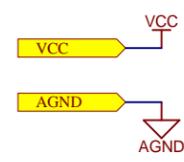
Top-side pads are GND and SW nodes

DRSS ON: Rx07
 DRSS OFF: Rx10 <default>

Rx09 only needed for dividing down the shunt resistance to slightly increase the peak current limit when using a standard shunt value

<default> For shunt sensing:
 Depop Rx02, Cx09, Rx04, Rx05

For DCR sensing:
 Depop Rx06.



Each phase has its own VCC and AGND (VCC1, VCC2,...) (AGND1, AGND2,...)

Setting up a Port with these Power Port objects enables each instance of this sheet to have its own local instance of the power net (VCC1, VCC2, etc.)

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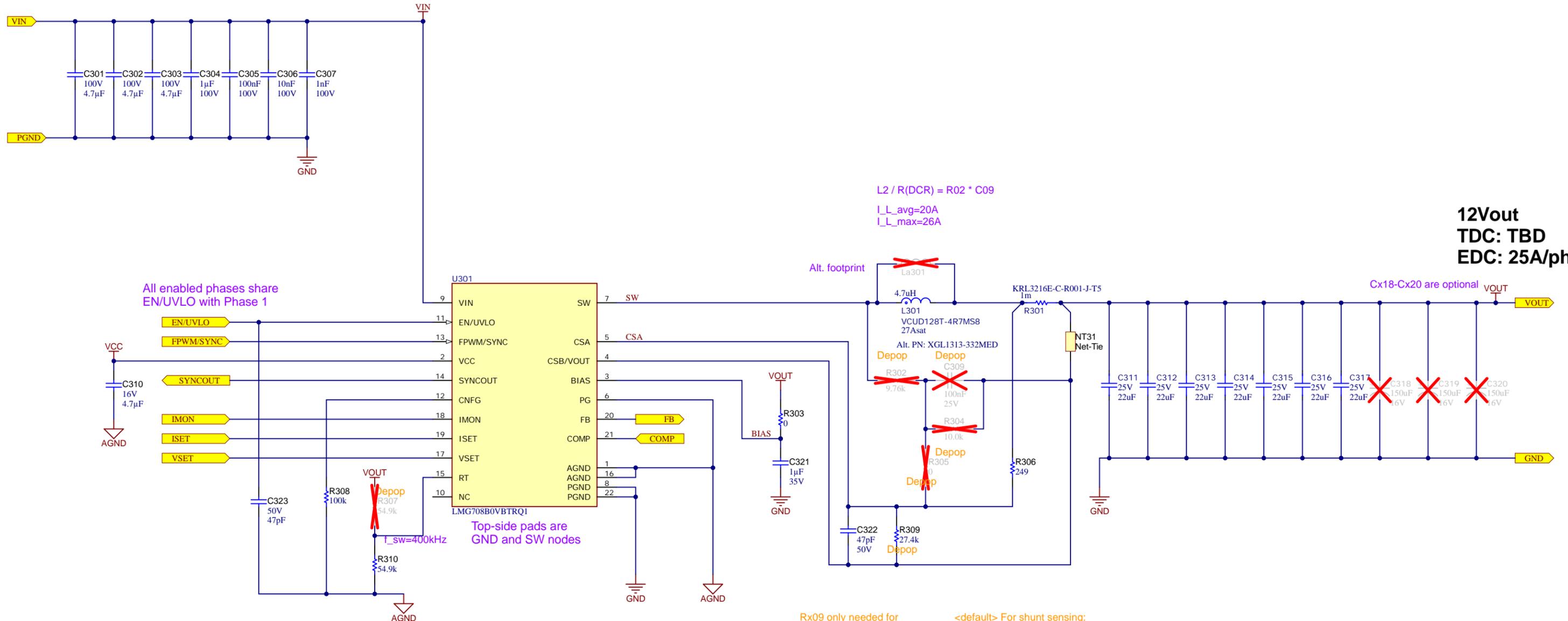
| | | |
|------------------------------------------------|----------------------------------------------------------------------------|----------------------|
| Orderable: ChangeMe in variant | Designed for: Public Release | Mod. Date: 3/10/2026 |
| TID #: N/A | Project Title: 4-ph 1.2kW GaNdalf | |
| Number: PMP23595 | Rev: A | Sheet Title: |
| SVN Rev: Not in version control | Assembly Variant: 001 | Sheet: 3 of 4 |
| Drawn By: | File: ModularPhases_SchDoc | Size: B |
| Engineer: Hope Arnett | Contact: http://www.ti.com/support | |



**48Vin battery (30V-60V)
@ 5A/ph**

Color key

Orange indicates configuration options
Purple gives design/part info
Black text is labels and miscellaneous notes



$L2 / R(DCR) = R02 * C09$
 $I_L_avg=20A$
 $I_L_max=26A$

12Vout
TDC: TBD
EDC: 25A/ph

All enabled phases share EN/UVLO with Phase 1

Top-side pads are GND and SW nodes

DRSS ON: Rx07
 DRSS OFF: Rx10 <default>

Rx09 only needed for dividing down the shunt resistance to slightly increase the peak current limit when using a standard shunt value

<default> For shunt sensing: Depop Rx02, Cx09, Rx04, Rx05
 For DCR sensing: Depop Rx06.

Each phase has its own VCC and AGND (VCC1, VCC2,...) (AGND1, AGND2,...)
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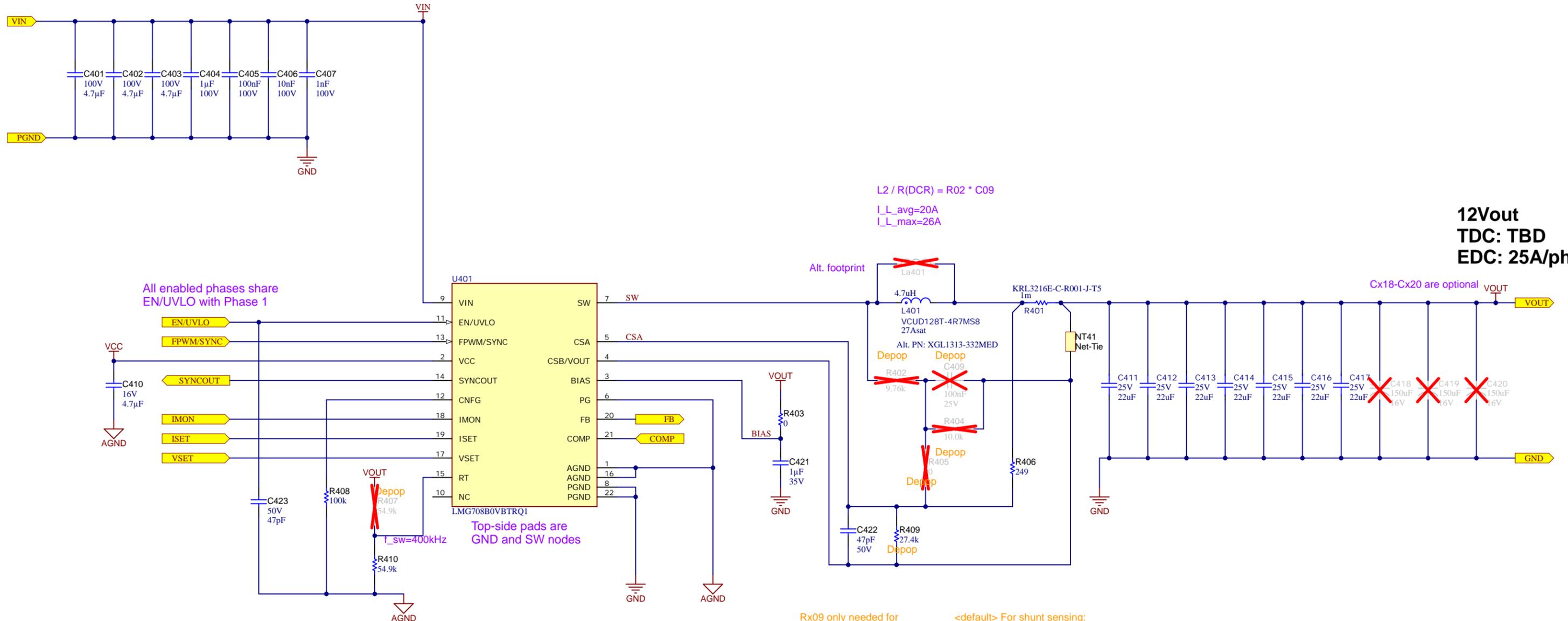
| | | |
|------------------------------------------------|----------------------------------------------------------------------------|----------------------|
| Orderable: ChangeMe in variant | Designed for: Public Release | Mod. Date: 3/10/2026 |
| TID #: N/A | Project Title: 4-ph 1.2kW GaNdalf | |
| Number: PMP23595 | Rev: A | Sheet Title: |
| SVN Rev: Not in version control | Assembly Variant: 001 | Sheet: 3 of 4 |
| Drawn By: | File: ModularPhases_SchDoc | Size: B |
| Engineer: Hope Arnett | Contact: http://www.ti.com/support | |

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**48Vin battery (30V-60V)
@ 5A/ph**

Color key

Orange indicates configuration options
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$L2 / R(DCR) = R02 * C09$
 $I_L_avg=20A$
 $I_L_max=26A$

12Vout
TDC: TBD
EDC: 25A/ph

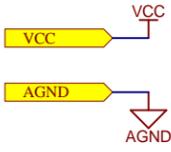
All enabled phases share EN/UVLO with Phase 1

Top-side pads are GND and SW nodes

DRSS ON: Rx07
 DRSS OFF: Rx10 <default>

Rx09 only needed for dividing down the shunt resistance to slightly increase the peak current limit when using a standard shunt value

<default> For shunt sensing: Depop Rx02, Cx09, Rx04, Rx05
 For DCR sensing: Depop Rx06.

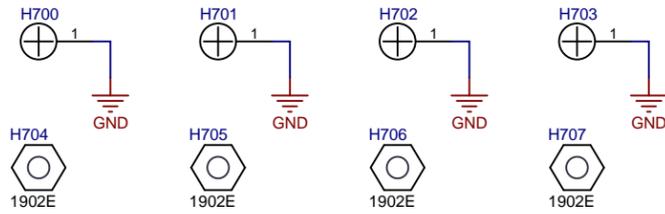


Each phase has its own VCC and AGND (VCC1, VCC2,...) (AGND1, AGND2,...)
 Setting up a Port with these Power Port objects enables each instance of this sheet to have its own local instance of the power net (VCC1, VCC2, etc.)

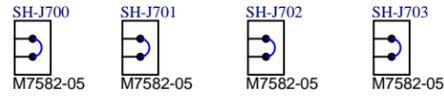
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| Orderable: ChangeMe in variant | Designed for: Public Release | Mod. Date: 3/10/2026 |
| TID #: N/A | Project Title: 4-ph 1.2kW GaNdalf | |
| Number: PMP23595 | Rev: A | Sheet Title: |
| SVN Rev: Not in version control | Assembly Variant: 001 | Sheet: 3 of 4 |
| Drawn By: | File: ModularPhases_SchDoc | Size: B |
| Engineer: Hope Arnett | Contact: http://www.ti.com/support | |





The design will have a heatsink.
 One version will cover both the controllers and the inductors (to maximize heatsink surface area).
 Another version will just cover the controllers.
 Design/manufacturing is in-progress.



PCB Number: PMP23595
 PCB Rev: A

PCB LOGO
 Texas Instruments



PCB LOGO
 FCC disclaimer

PCB LOGO
 WEEE logo



ZZ700
Label Assembly Note
 This Assembly Note is for PCB labels only

ZZ701
Assembly Note
 These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ702
Assembly Note
 These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ703
Assembly Note
 These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

| | | |
|------------------------------------------------|----------------------------------------------------------------------------|----------------------|
| Orderable: ChangeMe in variant | Designed for: Public Release | Mod. Date: 3/12/2026 |
| TID #: N/A | Project Title: 4-ph 1.2kW GaNdalf | |
| Number: PMP23595 | Rev: A | Sheet Title: |
| SVN Rev: Not in version control | Assembly Variant: 001 | Sheet: 4 of 4 |
| Drawn By: | File: Hardware_SchDoc | Size: B |
| Engineer: Hope Arnett | Contact: http://www.ti.com/support | |

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