

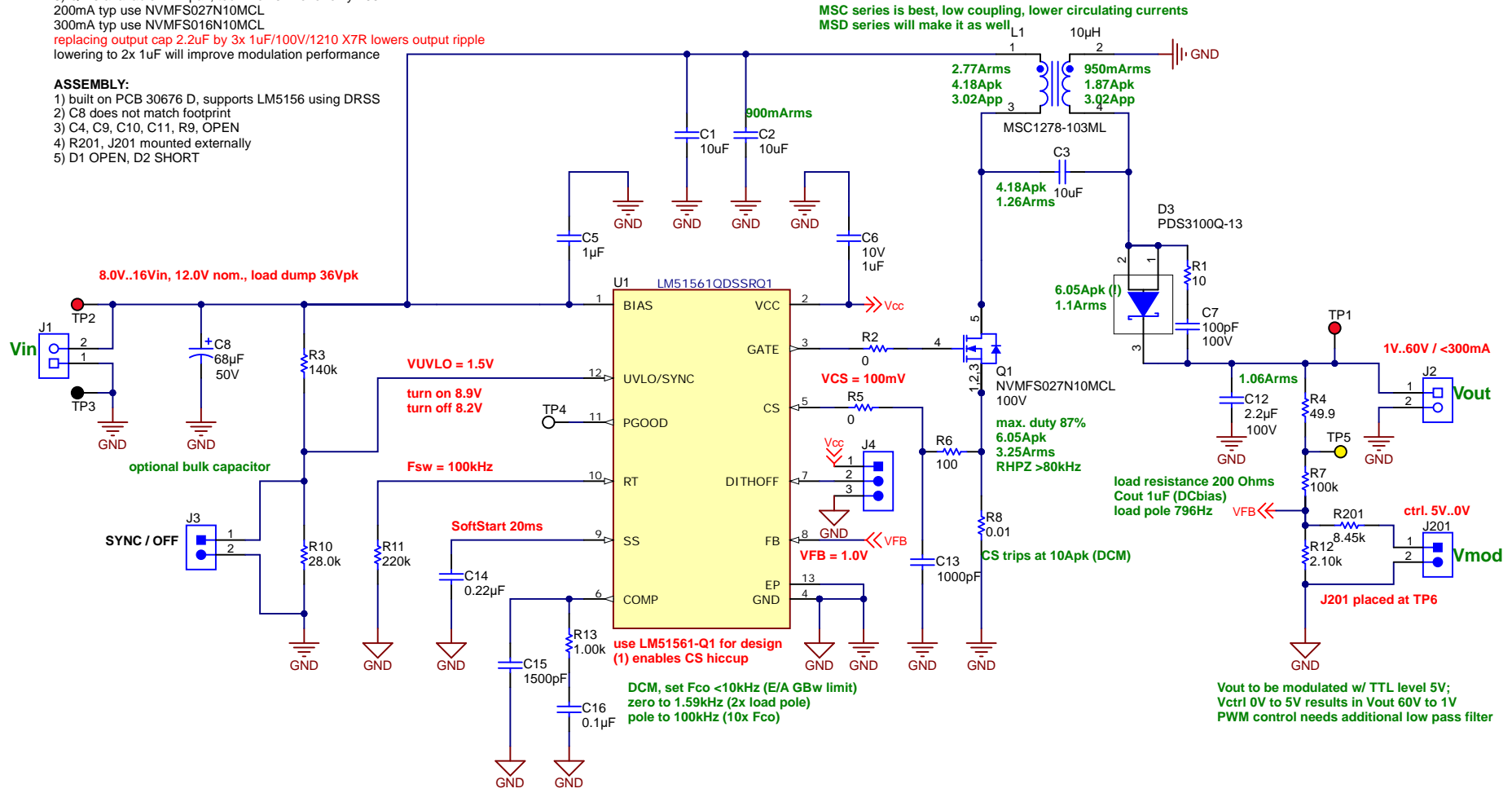
Revision History	
Revision	Notes
A	* PRELIMINARY * w/ LM5155
B	PCB 30676 RevD w/ LM5156, built & tested
C	minimized Cout to modulate up to 120Hz

NOTES:

- 1) R4 for test purpose only
- 2) stress analysis for 7Vin and DC output 60V@300mA (J201 SHORT)
- 3) Q1 is available in LFPak, too - works fine for only 100kHz:
200mA typ use NVMFS027N10MCL
300mA typ use NVMFS016N10MCL
- replacing output cap 2.2uF by 3x 1uF/100V/1210 X7R lowers output ripple
- lowering to 2x 1uF will improve modulation performance

ASSEMBLY:

- 1) built on PCB 30676 D, supports LM5156 using DRSS
- 2) C8 does not match footprint
- 3) C4, C9, C10, C11, R9, OPEN
- 4) R201, J201 mounted externally
- 5) D1 OPEN, D2 SHORT



MSC series is best, low coupling, lower circulating currents
MSD series will make it as well.

900mArms

2.77Arms
4.18Apk
3.02App

10uH
950mArms
1.87Apk
3.02App

6.05Apk (I)
1.1Arms

max. duty 87%
6.05Apk
3.25Arms
RHPZ >80kHz

CS trips at 10Apk (DCM)

use LM51561-Q1 for design
(1) enables CS hiccup

DCM, set Fco <10kHz (E/A GBw limit)
zero to 1.59kHz (2x load pole)
pole to 100kHz (10x Fco)

load resistance 200 Ohms
Cout 1uF (DCbias)
load pole 796Hz

Vout to be modulated w/ TTL level 5V;
Vctrl 0V to 5V results in Vout 60V to 1V
PWM control needs additional low pass filter

Vout is modulated (1V..60V) at Vmod (5V..0V, sinusoidal w/ DC offset, up to 120Hz)

Designed for: Public Release	Mod. Date: 3/23/2023
Project Title: Auto DCM SEPIC w/ modulated output voltage	
Sheet Title: PMP31246	
Assembly Variant: [No Variations]	Sheet: 1 of 1
File: PMP31246_RevC_Schematic.SchDoc	Size: A4
Contact: http://www.ti.com/support	



Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Number: PMP31246 | Rev: C
 SVN Rev: Not in version control
 Drawn By:
 Engineer: B.Geck

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on [ti.com](https://www.ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2023, Texas Instruments Incorporated