

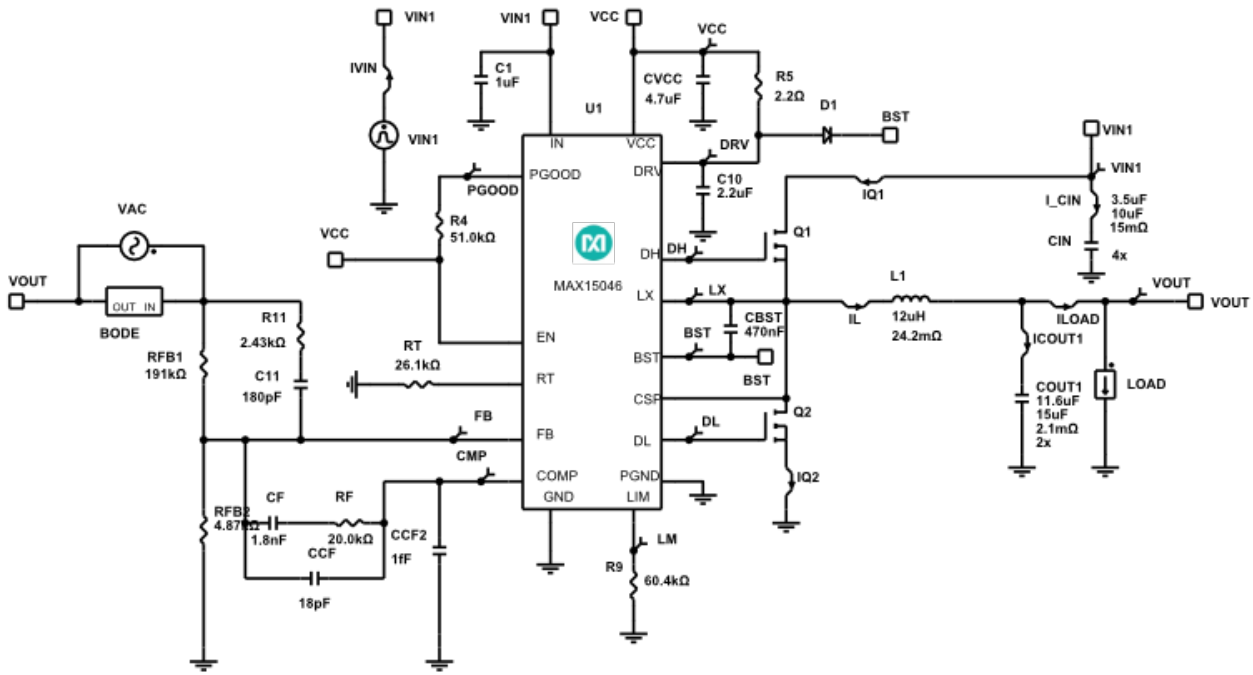
Design Requirements changed

2.0

Design Requirements

Parameter	Value
Minimum Input Voltage	29V
Maximum Input Voltage	40V
Nominal Input Voltage	32V
Input Voltage Ripple	1%
Output Voltage	24V
Output Current	4.5A
Output Voltage Ripple	1%
Load Step Start Current	4.5A
Load Step Current	2.25A
Load Step Edge Rate	5A/us
Output Voltage Load Step Over/Undershoot	3%
Performance Priority	Balance Efficiency and Size
BOM Priority	Performance
Switching Frequency	550kHz
Lock Switching Frequency	Not locked
Output Capacitor Type	Ceramic
Ambient Temperature	25°C
Inductor Current Ratio(LIR)	0.3
Soft Stop Enable	No
Enable High Power Design	Yes

Schematic



Note : Thermal Shutdown and Soft Stop are not modeled in EE-Sim.

BOM

Ref	Qty	Part Number	Manufacturer	Description
U1	1	MAX15046C	Maxim Integrated	40V, High-Performance, Synchronous Buck Controller
C1	1	GCJ31MR71H105KA12L	Murata Manufacturing	Cap Ceramic 1uF 50V X7R 10% Pad SMD 1206 Soft Termination 125°C Automotive T/R
C10	1	LMK107B7225KA-T	Taiyo Yuden	Cap Ceramic 2.2uF 10V X7R 10% Pad SMD 0603 125°C T/R
C11	1	CC0402KRX7R9BB181	Yageo	Cap Ceramic 180pF 50V X7R 10% Pad SMD 0402 125°C T/R
CBST	1	CC0805KKX7R8BB474	Yageo	Cap Ceramic 0.47uF 25V X7R 10% Pad SMD 0805 125°C T/R
CCF	1	C0402C180K5GACTU	KEMET Corporation	Cap Ceramic 18pF 50V C0G 10% Pad SMD 0402 125°C Extreme Low ESR T/R
CF	1	CC0603KRX7R9BB182	Yageo	Cap Ceramic 0.0018uF 50V X7R 10% Pad SMD 0603 125°C T/R
CIN	4	GRM32ER71H106KA12	Murata Manufacturing	Cap 10uF 50V X7R 1210 10% 2mOhm Active
COUT1	2	CGA9P3X7S2A156M250KB	TDK	Cap 15uF 100V X7S 2220 20% 2.1mOhm 1.86nH Active
CVCC	1	LMF212B7475KGHT	Taiyo Yuden	Cap Ceramic 4.7uF 10V X7R 10% Pad SMD 0805 125°C Automotive T/R

D1	1	ZHCS506QTA	Diodes Incorporated	Rectifier Diode Schottky 60V 0.5A 10ns Automotive 3-Pin SOT-23 T/R
L1	1	XGL6060-123MEC	Coilcraft	Inductor 12 uH 20% 24.2mOhm max 6.1Arms @20C 8.3Arms @40C 3.4Asat @-10% 5.1Asat @-20% 6.7Asat @-30% 6.1mmHt 46.37mm^2 XGL6060 Active
Q1	1	FDT86102LZ	Fairchild Semiconductor	Trans MOSFET N-CH 100VDS 38mOhm@4.5V 35mOhm@6V 28mOhm@10V 8.3nC 3.5nC 1.12nF 0.181nF 150°C 6.6A 2.2W 12°C/W 1.8mm 53.6mm^2 SOT-223 4L Active
Q2	1	FDT86102LZ	Fairchild Semiconductor	Trans MOSFET N-CH 100VDS 38mOhm@4.5V 35mOhm@6V 28mOhm@10V 8.3nC 3.5nC 1.12nF 0.181nF 150°C 6.6A 2.2W 12°C/W 1.8mm 53.6mm^2 SOT-223 4L Active
R4	1	ERJ3GEYJ513V	Panasonic	Res Thick Film 0603 51K Ohm 5% 0.1W(1/10W) ±200ppm/°C Pad SMD Automotive T/R
R5	1	ERJ2GEJ2R2X	Panasonic	Res Thick Film 0402 2.2 Ohm 5% 0.1W(1/10W) -100ppm/°C to 600ppm/°C Pad SMD Automotive T/R
R9	1	RC0603FR-0760K4L	Yageo	Res Thick Film 0603 60.4K Ohm 1% 0.1W(1/10W) ±100ppm/°C Pad SMD T/R
R11	1	ERJ3EKF2431V	Panasonic	Res Thick Film 0603 2.43K Ohm 1% 0.1W(1/10W) ±100ppm/°C Pad SMD Automotive T/R
RF	1	CPF0603F20KC1	TE Connectivity	Res Thin Film 0603 20K Ohm 1% 0.063W(1/16W) ±50ppm/°C Epoxy Pad SMD Medical T/R
RFB1	1	ERJ3EKF1913V	Panasonic	Res Thick Film 0603 191K Ohm 1% 0.1W(1/10W) ±100ppm/°C Pad SMD Automotive T/R
RFB2	1	CPF0603F4K87C1	TE Connectivity	Res Thin Film 0603 4.87K Ohm 1% 0.063W(1/16W) ±50ppm/°C Epoxy Pad SMD Medical T/R
RT	1	ERJ3EKF2612V	Panasonic	Res Thick Film 0603 26.1K Ohm 1% 0.1W(1/10W) ±100ppm/°C Pad SMD Automotive T/R