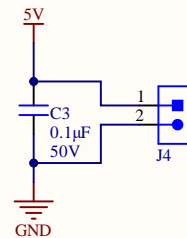
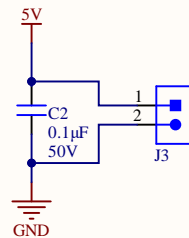
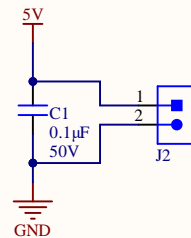
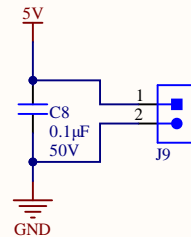
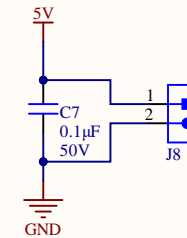
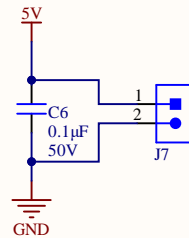
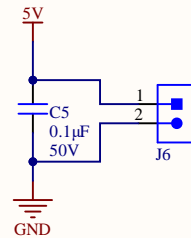
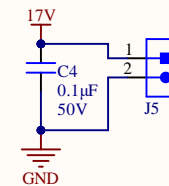


Rated Current = 16A

5V Output



17V Output



Can use 12-26AWG

MH1
MOUNTING_HOLE_6CM
MH3
MOUNTING_HOLE_6CM

MH2
MOUNTING_HOLE_6CM
MH4
MOUNTING_HOLE_6CM

Title Connectors

Size: Letter

Drawn By: Adrianna Ascalon

Date: 06/06/20

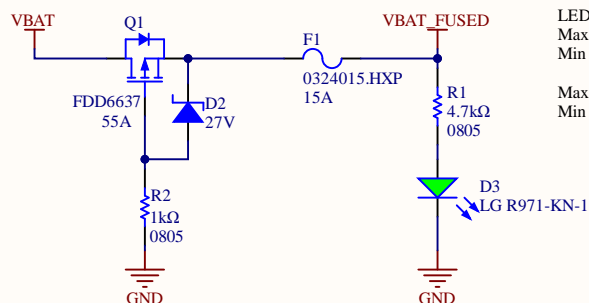
Sheet 1 of 3

File: C:\Users\Adrianna\Documents\MarsRover2020-PCB\Projects\Power Distribution Board\Rev1\SH1 - CONNEC

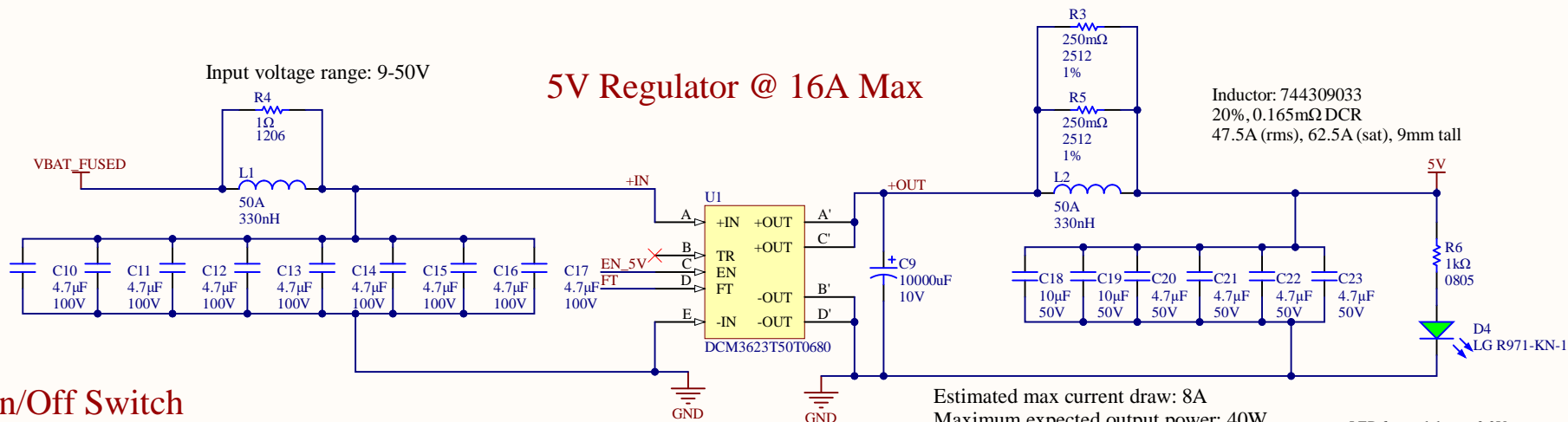
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200 University Avenue
Waterloo
Ontario
Canada N2L 3G6



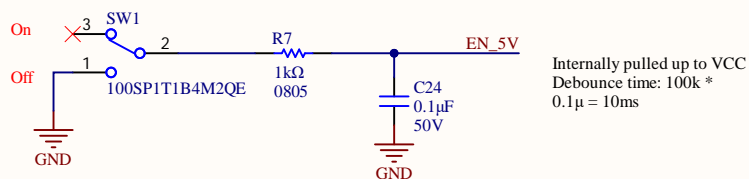
Reverse Polarity Protection



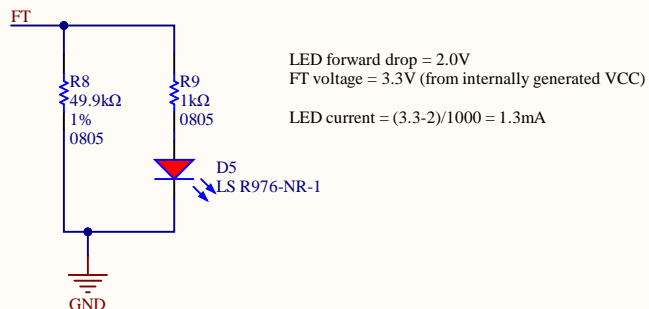
5V Regulator @ 16A Max



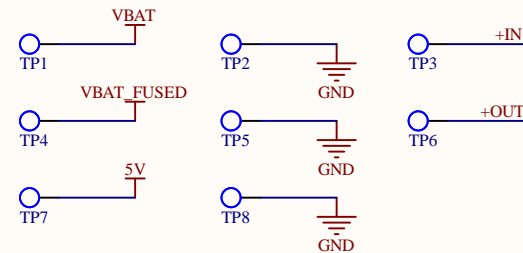
On/Off Switch



Fault Indicator

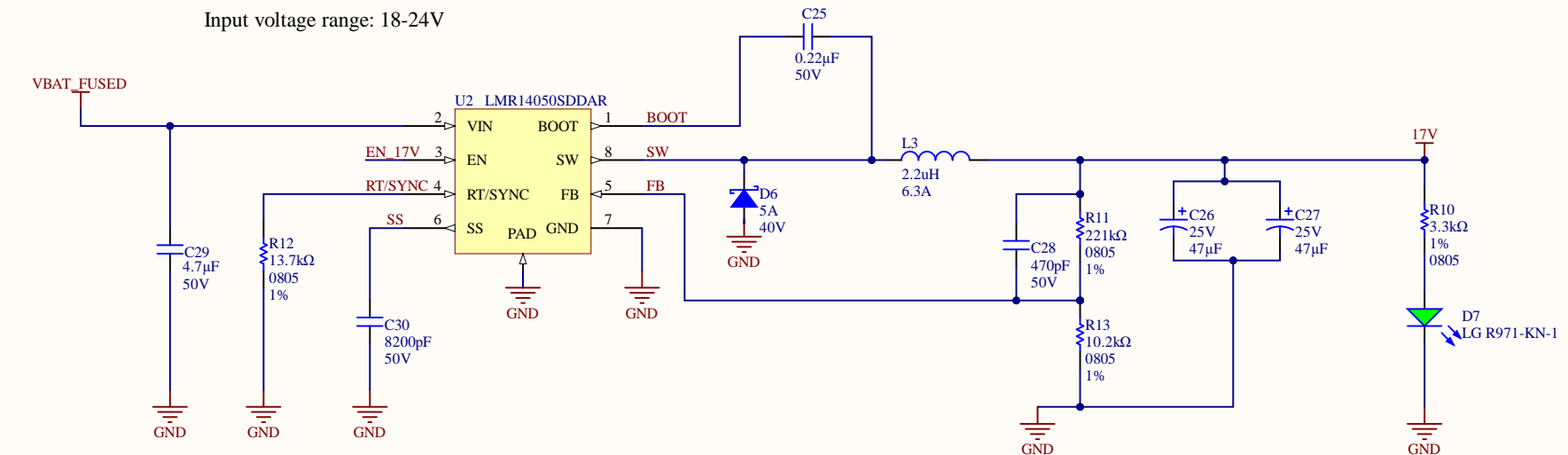


Test Points



17V Regulator @ 4A Max

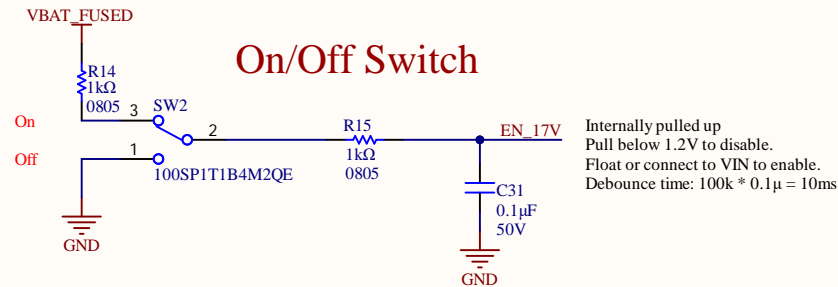
Input voltage range: 18-24V



Estimated max current draw: 1.65A
Peak efficiency: 94.8%
Output voltage ripple: 19.45mVpp

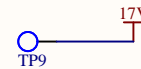
LED forward drop = 2.2V
LED current = $(17 - 2.2) / 3300 = 4.5\text{mA}$

On/Off Switch



Internally pulled up.
Pull below 1.2V to disable.
Float or connect to VIN to enable.
Debounce time: $100k \times 0.1\mu = 10\text{ms}$

Test Point



Title 17V Buck Converter

Size: Letter

Drawn By: Adrianna Ascalon

Date: 06/06/20

Sheet 3 of 3

File: C:\Users\Adrianna\Documents\MarsRover2020-PCB\Projects\Power Distribution Board\Rev1\SH3 - 17V BU

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Comment	Description	Designator	Footprint	LibRef	Quantity
0.1µF	CAP CER 0.1UF 50V X7R 0805	C1, C2, C3, C4, C5, C6, C7, C8, C24, C31	CAPC2012X140N	CAP_0.1uF_50V_0805	10
URS1A103MHD1TN	CAP ALUM 10000UF 20% 10V RADIAL	C9	CAP_UBY_18X25_NC	URS1A103MHD1TN	1
4.7µF	CAP CER 4.7UF 100V X7R 2220	C10, C11, C12, C13, C14, C15, C16, C17	CAPC5750X7R2A	CAP_4.7uF_100V_2220	8
10uF	CAP CER 10UF 50V X5R 1206	C18, C19	CAPC1206(3216)	CAP_10uF_50V_1206	2
4.7µF	CAP CER 4.7UF 50V X7R 1206	C20, C21, C22, C23	CAPC1206(3216)	CAP_4.7uF_50V_1206	4
GRM21BR71H224MA01L	CAP CER 0.22UF 50V X7R 0805	C25	CAP 0805_2012	GRM21BR71H224MA01L	1
47µF	CAP ALUM POLY 47UF 20% 25V SMD	C26, C27	25SVPF47M	25SVPF47M	2
470pF	CAP CER 470PF 50V X7R 0805	C28	CAP 0805_2012	CAP_470pF_50V_0805	1
GRM31CR71H475KA12L	CAP CER 4.7UF 50V X7R 1206	C29	CAPC1206(3216)	GRM31CR71H475KA12L	1
8200pF	CAP CER 8200PF 50V X7R 0805	C30	CAP 0805_2012	CAP_8200pF_50V_0805	1
SMAJ22A-E3/61	TVS DIODE 22V 35.5VC SMA	D1	DO-214AC_UNI	SMAJ22A-E3/61	1
DIO_ZENER_27V	DIODE ZENER 27V 250MW SOT23	D2	SOT23-3	DIO_ZENER_27V	1
LG R971-KN-1	LED GREEN DIFFUSED 0805 SMD	D3, D4, D7	LED_0805_LINE	DIO_LED_G	3
LS R976-NR-1	LED RED DIFFUSED 0805 SMD	D5	LED_0805_LINE	DIO_LED_R	1
B540C-13-F	DIODE SCHOTTKY 40V 5A SMC	D6	DO214AB SMC	B540C-13-F	1
0324015.HXP	FUSE CERM 15A 250VAC 125VDC 3AB	F1	FUSE	0324015.HXP	1
1935161	TERM BLK 2POS SIDE ENTRY 5MM	J1, J2, J3, J4, J5, J6, J7, J8, J9	1935161	CON_2M_TERM	9
744309033	IND 330NH 47.5A 0.165 MOHM	L1, L2	WE-HCM 1390	744309033	2
SRN8040-2R2Y	FIXED IND 2.2UH 6.3A 13 MOHM SMD	L3	IND_BOURNS_SRN80	SRN8040-2R2Y	1
MOUNTING_HOLE_6CM	MOUNTING_HOLE_6CM	MH1, MH2, MH3, MH4	MOUNTING_HOLE	MOUNTING_HOLE_6CM	4
FDD6637	MOSFET P-CH 35V 13A DPAK	Q1	D-PAK	FDD6637	1
RES_4.7kΩ_0805	RES SMD 4.7K OHM 5% 1/8W 0805	R1	RESC2012X60N	RES_4.7kΩ_0805	1
1kΩ	RES SMD 1K OHM 1% 1/8W 0805, RES SMD 100K OHM 0.5% 1/8W 0805	R2, R6, R7, R9, R14, R15	RESC2012X60N	RES_1kΩ_0805, RES_100kΩ_0805	6
WSL2512R2500FEA	RES 0.25 OHM 1% 1W 2512	R3, R5	RESC6432X89X76NL25T25	RES_250mΩ_2512	2
RES_1Ω_1206	RES 1 OHM 5% 1/4W 1206	R4	RESC1206(3216)_N	RES_1Ω_1206	1
49.9kΩ	RES SMD 49.9K OHM 1% 1/8W 0805	R8	RESC2012X60N	RES_49.9kΩ_0805	1
3.3kΩ	RES SMD 3.3K OHM 1% 1/8W 0805	R10	RESC2012X60N	RES_3.3kΩ_0805	1
221kΩ	RES SMD 221K OHM 1% 1/8W 0805	R11	RESC2012X60N	RES_221kΩ_0805	1
13.7kΩ	RES SMD 13.7K OHM 1% 1/8W 0805	R12	RESC2012X60N	RES_13.7kΩ_0805	1
10.2kΩ	RES SMD 10.2K OHM 1% 1/8W 0805	R13	RESC2012X60N	RES_10.2kΩ_0805	1
100SP1T1B4M2QE	SWITCH TOGGLE SPDT 5A 120V	SW1, SW2	100SP1T1B4M2QE	SW_SPDT	2
TESTPOINT_LOOP	PC TEST POINT MINIATURE WHITE	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9	TESTPOINT_LOOP	TESTPOINT_LOOP	9
DCM3623T50T0680	DC DC CONVERTER 5V 80W	U1	DCM3623T50T0680	DCM3623T50T0680	1
LMR14050SDDAR	IC REG BUCK ADJUSTABLE 5A 8SOPWR	U2	8-PowerSOIC	LMR14050SDDAR	1