ACDC_LinkSwitchTNZ_Buck_052621; Rev.1.0; Copyright Power Integrations 2021	INPUT	INFO	OUTPUT	UNIT	ACDC LinkSwitch-TNZ Buck
ENTER APPLICATION VARIABLES					Design Title
LINE VOLTAGE RANGE			High Line		AC line voltage range
VACMIN	207.00		207.00	V	Minimum AC line voltage
VACMAX	253.00		253.00	V	Maximum AC line voltage
fL	50.00		50.00	Hz	AC mains frequency
LINE RECTIFICATION TYPE	H		H		Line rectification type: select "F" if full wave rectification or "H" if half wave rectification
VOUT	15.00		15.00	V	Output voltage
IOUT	0.080		0.080	A	Average output current
EFFICIENCY_ESTIMATED			0.80		Efficiency estimate at output terminals
EFFICIENCY_CALCULATED			0.84		Calculated efficiency based on real components and operating point
POUT			1.20	W	Continuous output power
CIN	3.30		3.30	uF	Input capacitor
VMIN			263.5	V	Valley voltage of the rectified minimum AC line voltage
VMAX			357.8	V	Peak voltage of the maximum AC line voltage
INPUT STAGE RESISTANCE	5		5	Ohms	Input stage resistance in ohms (includes thermistor, filtering components, etc)
PLOSS_INPUTSTAGE			0.000	W	Maximum input stage loss
ENTER LINKSWITCH-TNZ VARIABLES					
OPERATION MODE			MCM		Mostly continuous mode of operation
CURRENT LIMIT MODE	STD		STD		Choose 'RED' for reduced current limit or 'STD' for standard current limit
XCAP REQUIRED	YES		YES		Select whether an X-capacitor is required or not
PACKAGE			SO-8C		Device package
DEVICE SERIES	LNK3312		LNK3312		Generic LinkSwitch-TNZ device
DEVICE CODE			LNK3312D		Required LinkSwitch-TNZ device
ILIMITMIN			0.126	A	Minimum current limit of the device
ILIMITTYP			0.136	A	Typical current limit of the device
ILIMITMAX			0.146	A	Maximum current limit of the device
RDSON			88.40	ohms	Primary switch on-time drain to source resistance at 100degC
FSMIN			62000	Hz	Minimum switching frequency
FSTYP			66000	Hz	Typical switching frequency
FSMAX			70000	Hz	Maximum switching frequency
BVDSS			725	V	Device breakdown voltage
SWITCH PARAMETERS					
VDSON			2.00	V	Switch on-time drain to source voltage estimate
VDSOFF			375.7	V	Switch off-time drain-to-source voltage stress
DUTY			0.063		Maximum duty cycle
TIME_ON_MIN			1.947	us	Switch minimum on-time
IPED_SWITCH			0.037	A	Maximum switch pedestal current
IRMS_SWITCH			0.022	A	Maximum switch RMS current

PLOSS_SWITCH			0.078	W	Maximum switch loss
THERMAL RESISTANCE OF SWITCH			100	degC/W	Net thermal resistance of the switch
T_RISE_SWITCH			7.8	degC	Maximum temperature rise of the switch in degrees Celsius
BUCK INDUCTOR PARAMETERS					
INDUCTANCE_MIN			7380	uH	Minimum design inductance required for current delivery
INDUCTANCE_TYP	8200		8200	uH	Typical design inductance required for current delivery
INDUCTANCE_MAX			9020	uH	Maximum design inductance required for current delivery
TOLERANCE_INDUCTANCE	10		10	%	Tolerance of the design inductance
DC RESISTANCE OF INDUCTOR	1.1		1.1	ohms	DC resistance of the buck inductor
FACTOR_KLOSS			0.50		Factor that accounts for "off-state" power loss to be supplied by inductor (usually between 50% to 66%)
IRMS_INDUCTOR			0.088	A	Maximum inductor RMS current
PLOSS_INDUCTOR			0.009	W	Maximum inductor losses
FREEWHEELING DIODE PARAMETERS					
VF_FREEWHEELING	1.50		1.50	V	Forward voltage drop across the freewheeling diode
PIV_RATING			600.0	V	Peak inverse voltage rating of the freewheeling diode
TRR			30	ns	Reverse recovery time of the freewheeling diode
PIV_CALCULATED			447.2	V	Computed peak inverse voltage across the freewheeling diode
IRMS_DIODE			0.086	A	Maximum diode RMS current
PLOSS_DIODE			0.132	W	Maximum freewheeling diode loss
RECOMMENDED DIODE			BYV26C		Recommended freewheeling diode
BIAS/FEEDBACK PARAMETERS					
VF_BIAS	1.10		1.10	V	Forward voltage drop of the bias diode
RBIAS	2400		2400	Ohms	Bias resistor (connected across FB and S pin). Results into IFB_BIAS value of 833.333 uA
RBP			140000	Ohms	BP pin resistor
CBP			0.1	uF	BP pin capacitor
RFB			15000	Ohms	Feedback resistor
CFB			10	uF	Feedback capacitor
C_SOFTSTART			1-10	uF	If the output voltage is greater than 12 V or total output and system capacitance is greater than 100 uF, a soft start capacitor between 1uF and 10 uF is recommended
PLOSS_FEEDBACK			0.013	W	Maximum feedback component losses
X-CAPACITOR DISCHARGE COMPONENTS					
XCAP			100.0	nF	X-capacitor in the input
TOLERANCE_RZ	0.05		5%		Tolerance of the X-capacitor discharge resistors
RZ1			2.37	MOhms	X-capacitor discharge resistor connected from the input line to Z1 pin of LinkSwitch-TNZ device

RZ2			*2.37*	*MOhms*	*X-capacitor discharge resistor connected from the input neutral to Z2 pin of LinkSwitch-TNZ device*
t_XCAP_DISCHARGE			*0.889*	*sec*	*Actual time (worst-case) to discharge the X-capacitor to 60 V after AC input disconnection*
OUTPUT CAPACITOR					
OUTPUT VOLTAGE RIPPLE			*300*	*mV*	*Desired output voltage ripple*
IRMS_COUT			*0.037*	*A*	*Maximum output capacitor RMS current*
PLOSS_COUT			*0.005*	*W*	*Maximum output capacitor power loss*
ESR_COUT			*3510*	*mOhms*	*ESR of the output capacitor*