

ACDC_LinkSwitchTN2-Buck_07062 2; Rev.1.6; Copyright Power Integrations 2022	INPUT	INFO	OUTPUT	UNIT	ACDC_LinkSwitchTN2 Buck
ENTER APPLICATION VARIABLES					Design Title
LINE VOLTAGE RANGE			Universal		AC line voltage range
VACMIN			85.00	V	Minimum AC line voltage
VACTYP			115.00	V	Typical AC line voltage
VACMAX			265.00	V	Maximum AC line voltage
fL			60.00	Hz	AC mains frequency
LINE RECTIFICATION TYPE	H		H		Select 'F'full wave rectification or 'H'half wave rectification
VOUT			12.00	V	Output voltage
IOUT	0.185		0.185	A	Average output current
EFFICIENCY_ESTIMATED			0.80		Efficiency estimate at output terminals
EFFICIENCY_CALCULATED			0.75		Calculated efficiency based on real components and operating point
POUT			2.22	W	Continuous Output Power
CIN			10.00	uF	Input capacitor
VMIN			80.8	V	Valley of the rectified input voltage
VMAX			374.8	V	Peak of the rectified maximum input AC voltage
T_AMBIENT			50	degC	Operating ambient temperature in degrees celcius
INPUT STAGE RESISTANCE			10	Ohms	Input stage resistance in ohms (includes fuse, thermistor, filtering components)
PLOSS_INPUTSTAGE			0.011	W	Input stage losses estimate
ENTER LINKSWITCH-TN2 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
PACKAGE	PDIP-8C		PDIP-8C		Select the device package
DEVICE SERIES	Auto		LNK32X5		Generic LinkSwitch-TN2 device
DEVICE CODE			LNK3205P		Required LinkSwitch-TN2 device
ILIMITMIN			0.350	A	Minimum current limit of the device
ILIMITTYP			0.375	A	Typical current limit of the device
ILIMITMAX			0.401	A	Maximum current limit of the device
RDSON			22.10	ohms	MOSFET's 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
VDSON			2.00	V	MOSFET on-time drain to source voltage estimate
DUTY			0.16		Maximum duty cycle
TIME_ON			2.578	us	MOSFET conduction time at the minimum line voltage
TIME_ON_MIN			0.662	us	MOSFET conduction time at the maximum line voltage
KP_TRANSIENT			0.238		KP under condition of a transient
IRMS_MOSFET			0.083	A	MOSFET RMS current
PLOSS_MOSFET			0.394	W	Primary MOSFET loss estimate

<b>BUCK INDUCTOR PARAMETERS</b>					
INDUCTANCE_MIN			612	<i>uH</i>	<i>Minimum design inductance required for power delivery</i>
INDUCTANCE_TYP			680	<i>uH</i>	<i>Typical design inductance required for power delivery</i>
INDUCTANCE_MAX			748	<i>uH</i>	<i>Maximum design inductance required for power delivery</i>
TOLERANCE_INDUCTANCE			10	%	<i>Tolerance of the design inductance</i>
DC RESISTANCE OF INDUCTOR			2.0	<i>ohms</i>	<i>DC resistance of the buck inductor</i>
FACTOR_LOSS			0.900		<i>Factor that accounts for off-state power loss to be supplied by inductor</i>
IRMS_INDUCTOR			0.208	<i>A</i>	<i>Inductor RMS current</i>
PLOSS_INDUCTOR			0.087	<i>W</i>	<i>Inductor losses</i>
<b>FREEWHEELING DIODE PARAMETERS</b>					
VF_FREEWHEELING			0.70	<i>V</i>	<i>Forward voltage drop of the freewheeling diode</i>
PIV			468	<i>V</i>	<i>Peak inverse voltage of the freewheeling diode</i>
IRMS_DIODE			0.191	<i>A</i>	<i>Diode RMS current</i>
TRR			30	<i>ns</i>	<i>Required reverse recovery time of the selected diode</i>
PLOSS_DIODE			0.241	<i>W</i>	<i>Freewheeling diode losses</i>
RECOMMENDED DIODE			BYV26C	<i>W</i>	<i>Recommended freewheeling diode</i>
<b>BIAS/FEEDBACK PARAMETERS</b>					
VF_BIAS			0.70	<i>V</i>	<i>Forward voltage drop of the bias diode</i>
RBIAS			2490	<i>Ohms</i>	<i>Bias resistor</i>
CBP			0.1	<i>uF</i>	<i>BP pin capacitor</i>
RFB			11800	<i>Ohms</i>	<i>Feedback resistor</i>
CFB			10	<i>uF</i>	<i>Feedback capacitor</i>
C_SOFTSTART			1-10	<i>uF</i>	<i>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</i>
PLOSS_FEEDBACK			0.010	<i>W</i>	<i>Feedback section losses</i>
<b>OUTPUT CAPACITOR</b>					
OUTPUT VOLTAGE RIPPLE			240	<i>mV</i>	<i>Desired output voltage ripple</i>
IRIPPLE_COUT			0.330	<i>A</i>	<i>Output capacitor ripple current</i>
ESR_COUT			727	<i>mOhms</i>	<i>Maximum ESR of the output capacitor</i>