eDesignSuite

L6566BH_24VDC_1.25A

AC/DC Converter Specifications

IC: L6566BH
Topology: QR FLYBACK
Input: 190 Vac - 265 Vac (≥ 47 Hz)
Output : 28 V (2 %) - 35 W
Exp. Average Efficiency: 87 %
Max. Ambient Temperature: 60 °C

Operating Conditions

@VinAC - from 190 to 265 Vac: 230 Vac
@Pout - from 0 to 35 W: 35 W

Actual

Efficiency: 87.58 %

Transformer Specifications

Isat: ≥ 1.13 A **Lp:** 1.1 mH ±10% **Leakage:** ≤ 11 µH

Primary:

Irms: ≥ 364 mA

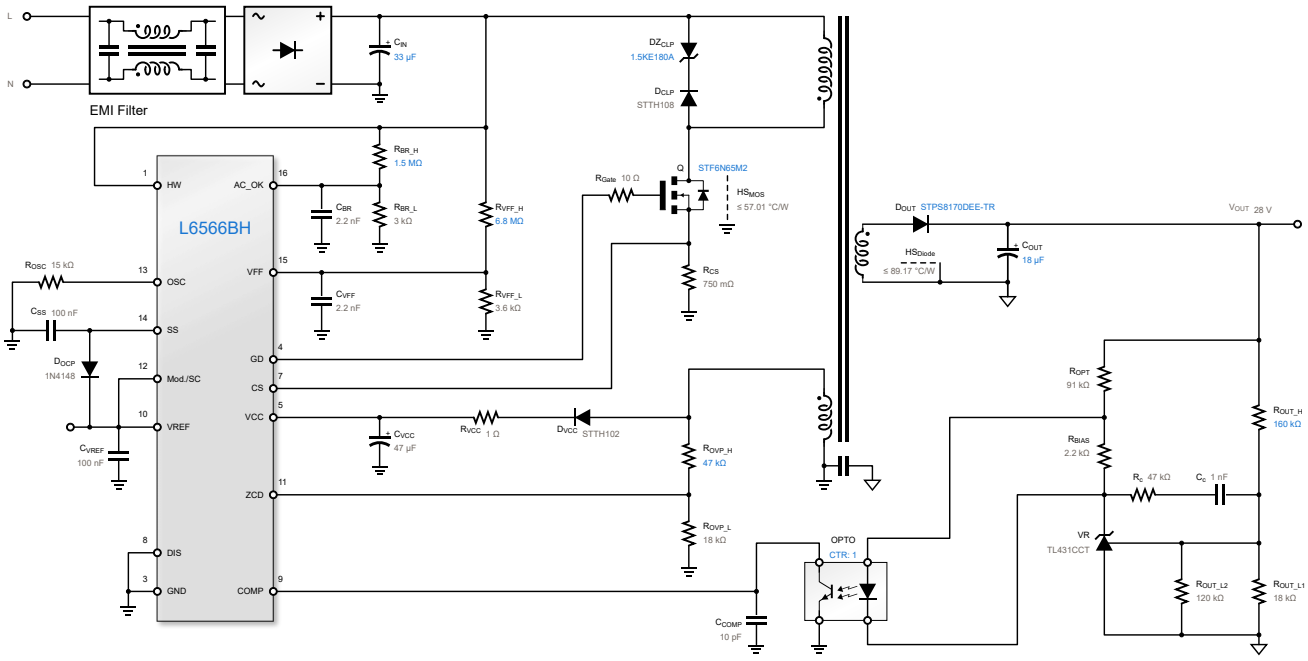
Out1:

Irms: ≥ 1.74 A **Pri/Out1 turn ratio:** 3.889

Aux:

Irms: ≥ 28 mA **Pri/Aux turn ratio:** 7.226

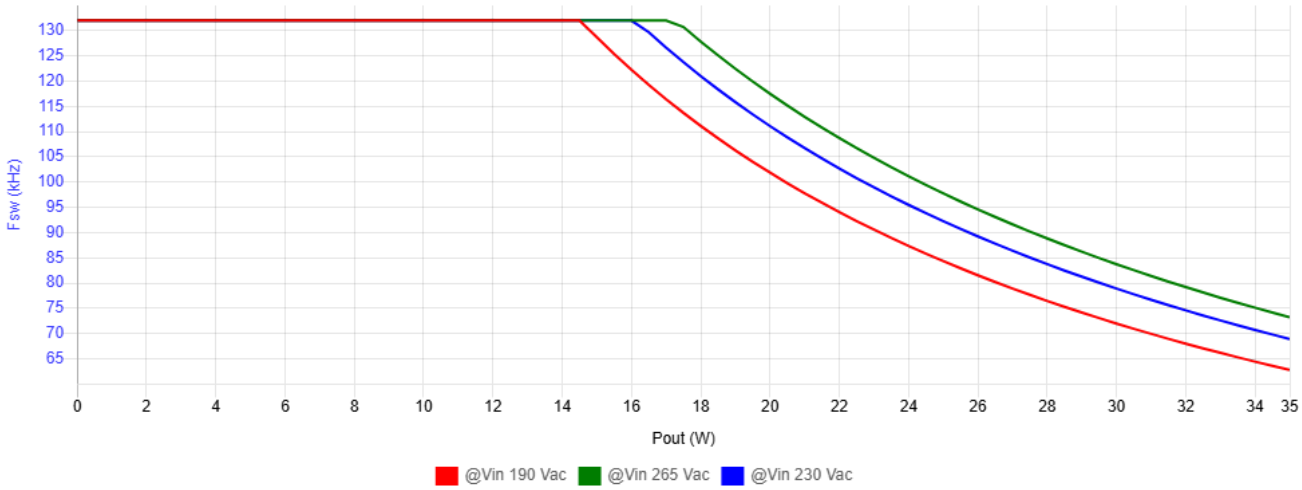
Circuit - Schematic



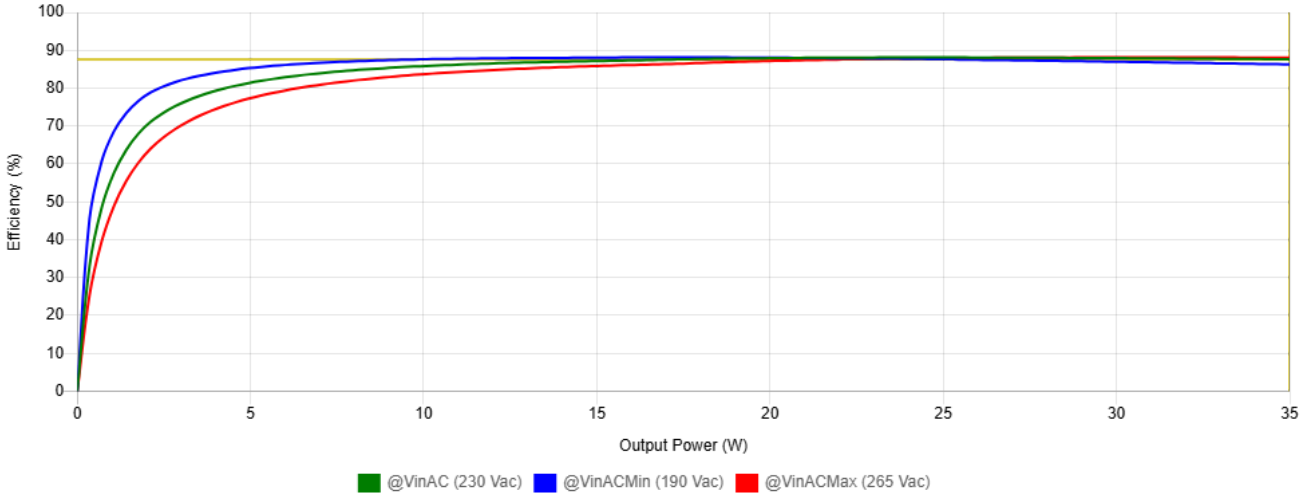
Circuit - BOM

Type	Ref	Value	Description
IC	IC	L6566BH	L6566BH - SO 16-N - STMicroelectronics
Diode	Dout	STPS8170DEE-TR	720 mA, 170 V - STMicroelectronics
MOSFET	Q	STF6N65M2	1.35 Ω, 650 V - STMicroelectronics
Transil	DZclp	1.5KE180A	180 V, 1.5 kW Transil - STMicroelectronics
Voltage Reference	VR	TL431CCT	2.5 V - STMicroelectronics
Transformer	T		Ideal Transformer
Capacitor	Cin	33 µF	33 µF
Capacitor	Cout	18 µF	35 V - 20% - Würth Elektronik - 875115645010
Resistor	Rbr_h	1.5 MΩ	- 500 VHigh Voltage Resistor - 1% 100 ppm/°C
Resistor	Rout_h	160 kΩ	160 kΩ
Resistor	Rovp_h	47 kΩ	Standard Resistor - 5% 250 ppm/°C
Resistor	Rvff_h	6.8 MΩ	- 500 VHigh Voltage Resistor - 1% 100 ppm/°C
Diode	BD	generic	970.17 mA, 600 V -
Capacitor	Cbr	2.2 nF	50 V Standard ceramic capacitor
Capacitor	Cc	1 nF	1 nF
Capacitor	Ccomp	10 pF	10 pF
Capacitor	Css	100 nF	50 V Standard ceramic capacitor
Capacitor	Cvcc	47 µF	35 V Electrolytic capacitor
Capacitor	Cvff	2.2 nF	50 V Standard ceramic capacitor
Capacitor	Cvref	100 nF	50 V Standard ceramic capacitor
Diode	Dclp	STTH108	800 V Diode
Diode	Docp	1N4148	Fast signal diode
Diode	Dvcc	STTH102	0 A, 200 V - STMicroelecronics
Heatsink	HSdiode	≤ 89.17 °C/W	Heatsink: Rth ≤ 89.17 °C/W
Heatsink	HSmos	≤ 57.01 °C/W	Heatsink: Rth ≤ 57.01 °C/W
OptoCoupler	Opto	CTR: 1	Optocoupler - CTR: 1
Resistor	Rbias	2.2 kΩ	2.2 kΩ
Resistor	Rbr_l	3 kΩ	High Voltage Resistor - 1% 100 ppm/°C
Resistor	Rc	47 kΩ	47 kΩ
Resistor	Rcs	750 mΩ	1/4W Resistor - 5% 250 ppm/°C
Resistor	Rgate	10 Ω	Standard Resistor - 5% 250 ppm/°C
Resistor	Ropt	91 kΩ	91 kΩ
Resistor	Rosc	15 kΩ	Standard Resistor - 1% 100 ppm/°C
Resistor	Rout_l1	18 kΩ	18 kΩ
Resistor	Rout_l2	120 kΩ	120 kΩ
Resistor	Rovp_l	18 kΩ	Standard Resistor - 5% 250 ppm/°C
Resistor	Rvcc	1 Ω	1 Ω
Resistor	Rvff_l	3.6 kΩ	High Voltage Resistor - 1% 100 ppm/°C

Switching Freq

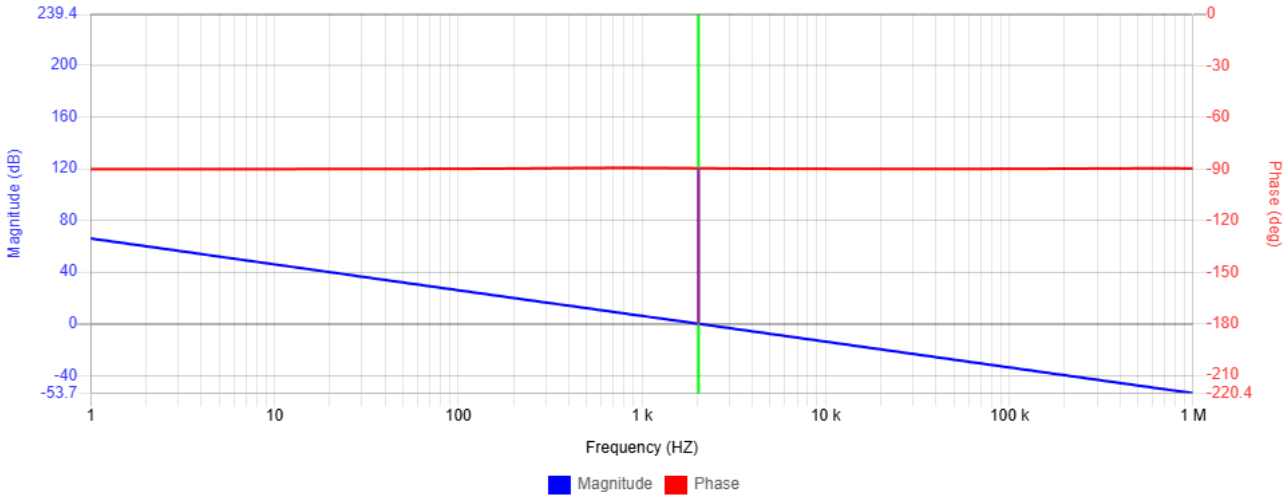


Efficiency: 87.58 %



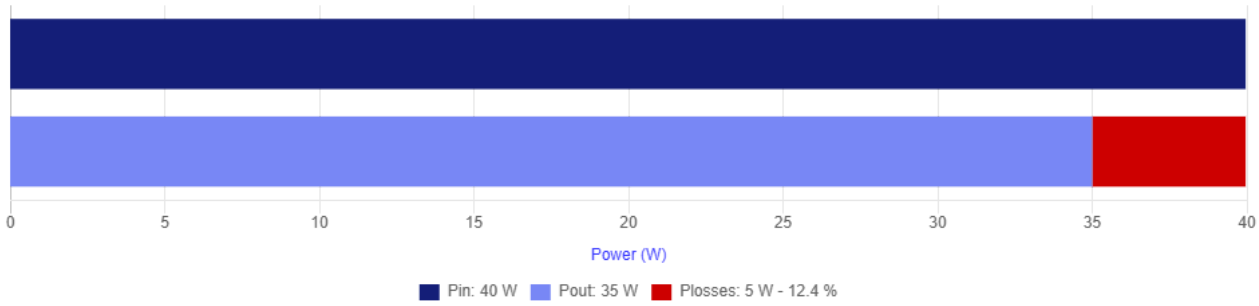
Feedback

Bode: fc = 2.04 kHz - phase margin = 90.5 °

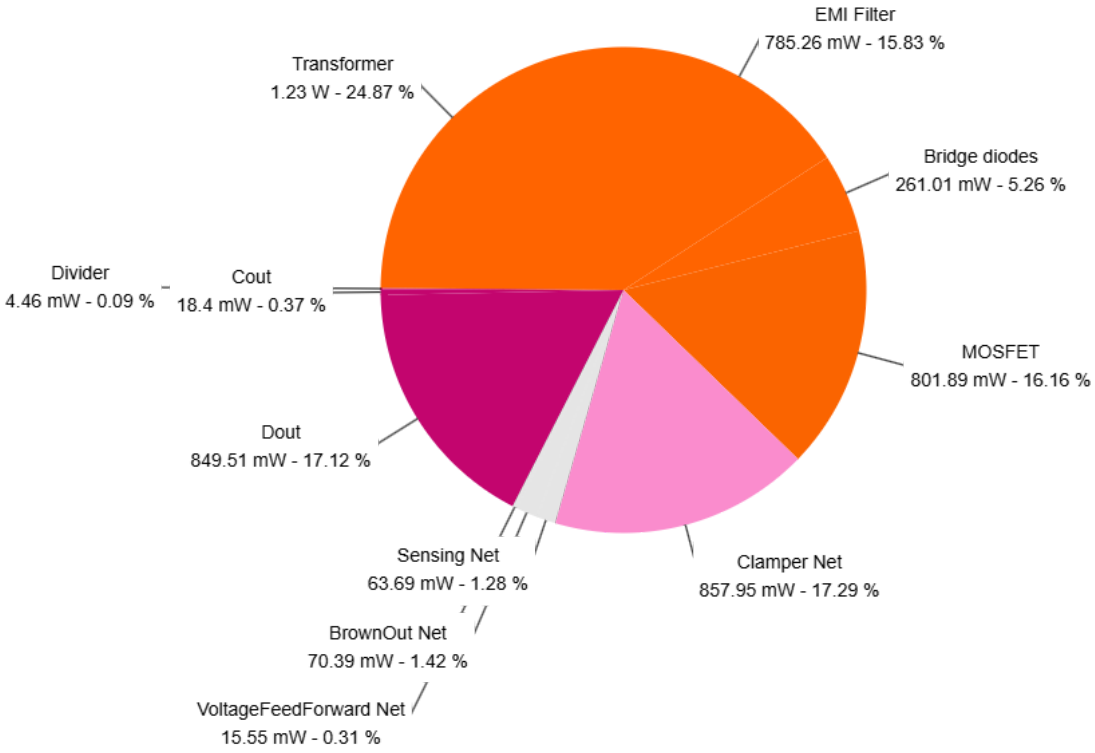


Feedback

Efficiency: 87.6 %



Losses details



Feedback