

EZBuck Hoja de cálculo de diseño

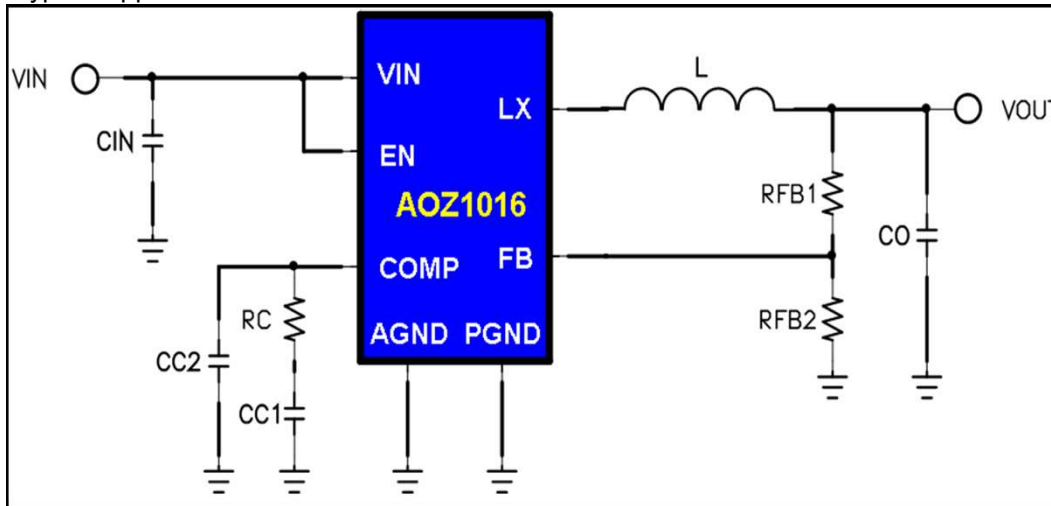
Rev. 2.1

Yellow cell es la entrada de los parametros

Blue cell son los parametros calculados

es la celda con comentario

Typical application schematic



Input Voltage = Entrada de Voltaje
Output Voltaje = Salida de voltaje
Maximum Output Current = Máxima Salida de Corriente
Maximum Output Ripple = Máximo Ripple del voltaje de salida
Ambient Temperature = Temperatura ambiente

Step1: Buck regulator IC selection

AOZ1016

Step2: Define the system specification

Enter Application Parameters

Input Voltage:	12 V
Output Voltage:	3.3 V
Maximum Output Current:	2 A
Maximum Output Voltage Ripple%:	1 %
Ambient Temperature	25 °C

Step3: Power stage component selection

Inductor Selection (L)

Recommended L:	6.84 μ H
Recommended $I_{SATURATE}$:	2.50 A
Enter The Chosen Inductor Value:	4.7 μ H
Enter The DCR of Chosen Inductor:	40 m Ω

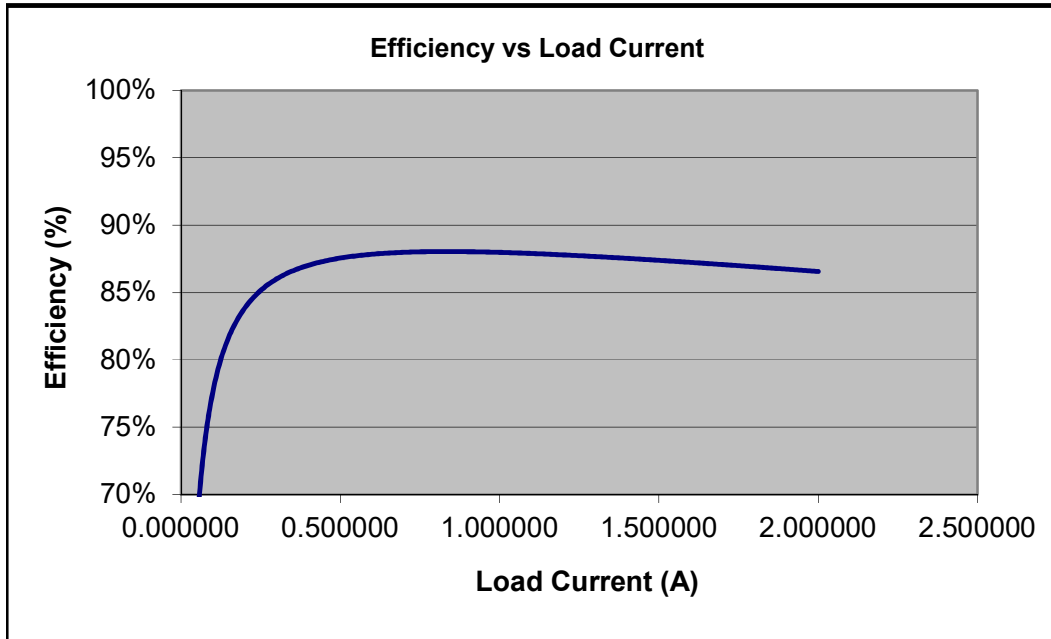
Recommended L: = Recomendado L:

Recommended I saturate = Recomendado Isaturación

Enter the Chosen Inductor Value = Ingrese el valor del inductor elegido

Enter The DCR of Chosen Inductor = Ingrese el DCR del inductor elegido

Calculated Efficiency vs Load Current



Calculated Bode Plot



Capacitor Selection (C_{IN} and C_O)

Minimum Recommended Input Capacitance:	22 μF
Minimum Input Capacitor RMS current rating:	0.89 Arms
Minimum Recommended Output Capacitance:	8 μF
Maximum Output Capacitor ESR:	32 m Ω
Enter the chosen Output Capacitor Value:	44 μF
Enter the chosen Output Capacitor ESR:	3 m Ω

Output Voltage Characteristics

Estimated Output Voltage Ripple:	9 mV
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Step4: Control component selection

Feedback Resistors Selection (R_{FB1} , R_{FB2})

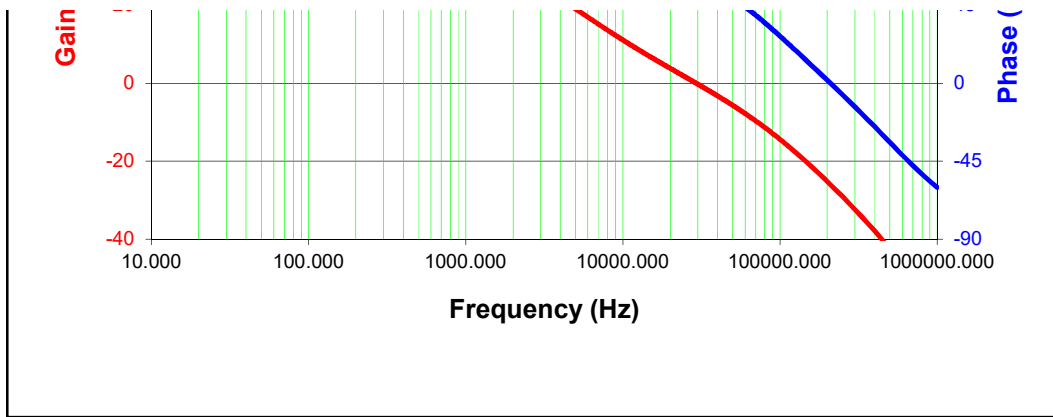
Enter a Value for R_{FB2} :	10 k Ω
Recommended Value for R_{FB1} :	31.25 k Ω

Compensation Component Selection (R_C , C_{C1} , C_{C2})

Enter Desired Crossover Frequency:	30 kHz
Recommended Value for C_{C1} :	1.967 nF
Recommended Value for R_C :	21.06 k Ω
Recommended Value for C_{C2} :	0 pF
Enter The Chosen Value for C_{C1} :	1 nF
Enter The Chosen Value for R_C :	20 k Ω
Enter The Chosen Value for C_{C2} :	0 pF

Loop Characteristics

Expected Crossover Frequency:	29.34 kHz
Expected Phase Margin:	59.93 $^\circ$



Step5: Thermal Performance

Thermal Characteristics

Internal Power Dissipation:	0.704 W
Junction Temperature:	86.28 °C

[For datasheets,evaluation note,please visit:
www.aosmd.com](http://www.aosmd.com)