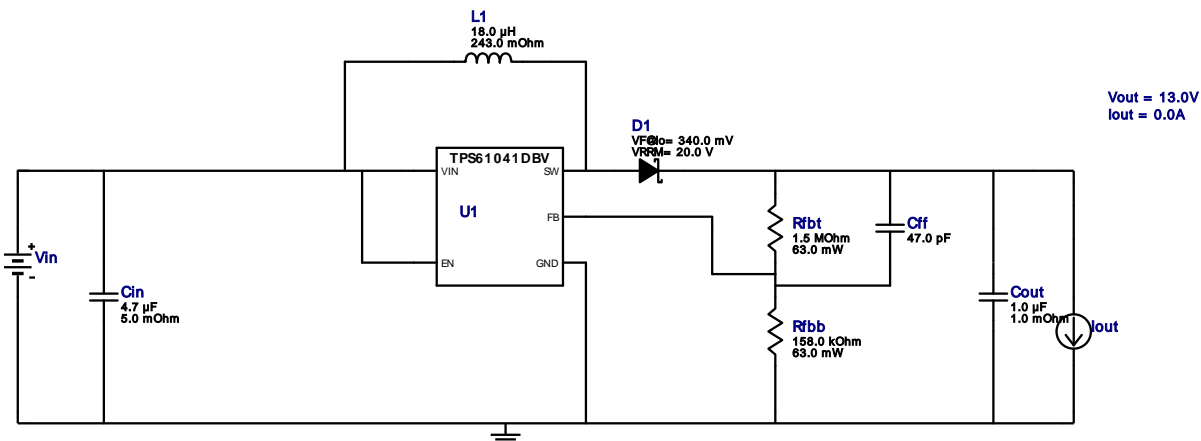


WEBENCH® Design Report

Design : 5281144/14 TPS61041DBVR
TPS61041DBVR 2.7V-4.2V to 13.00V @ 0.002A

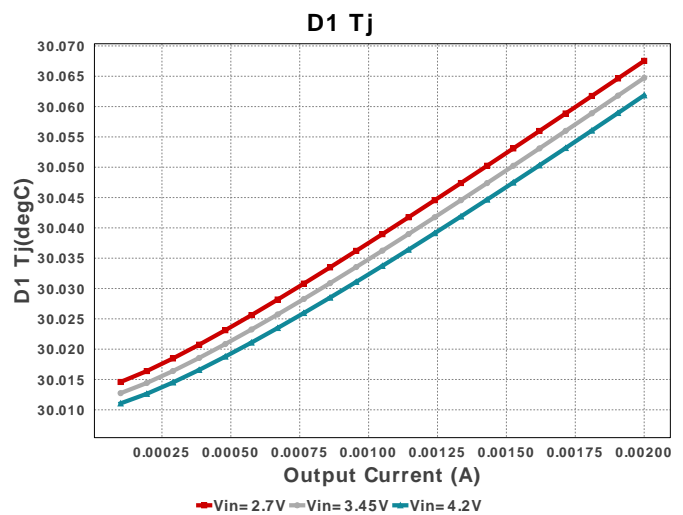
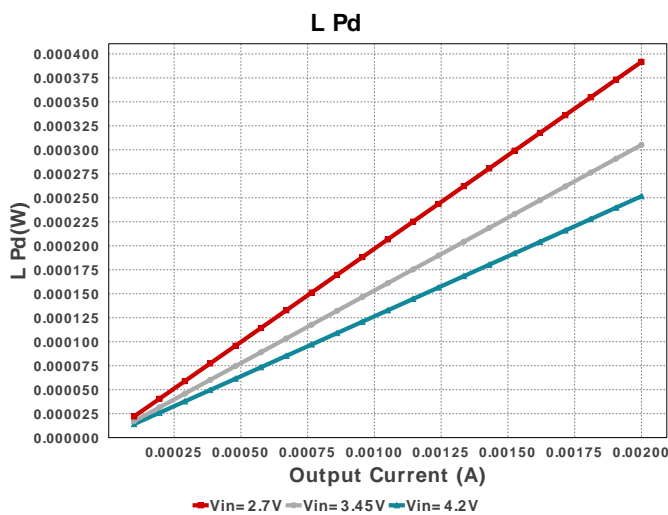
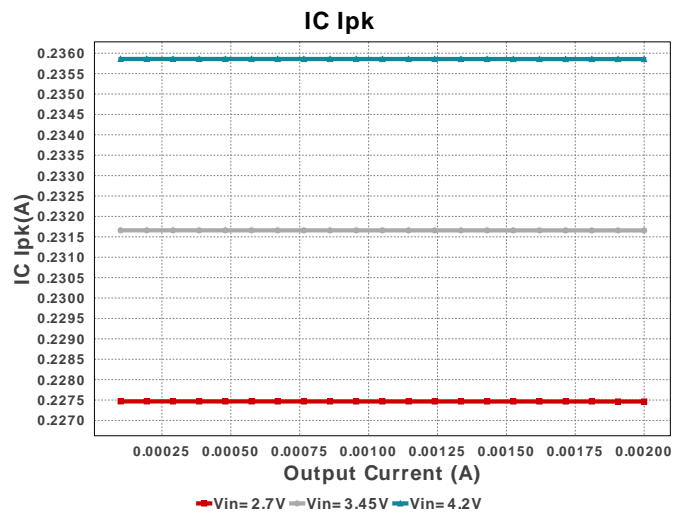
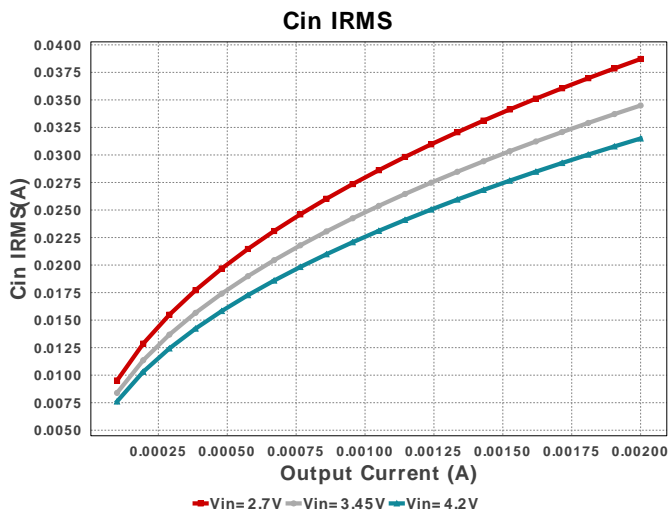
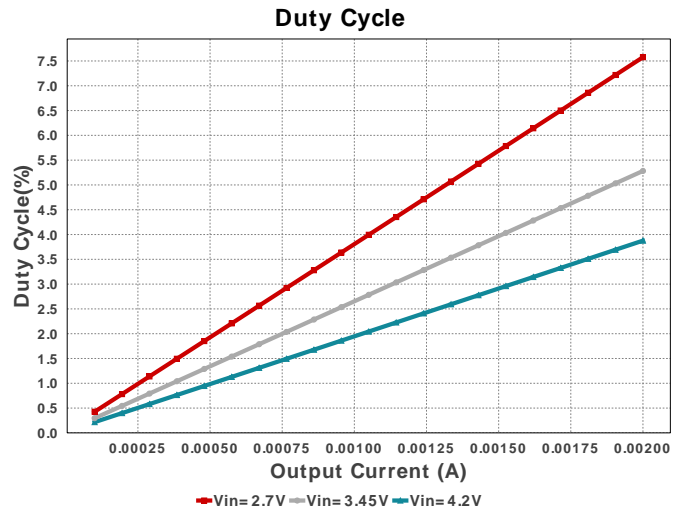
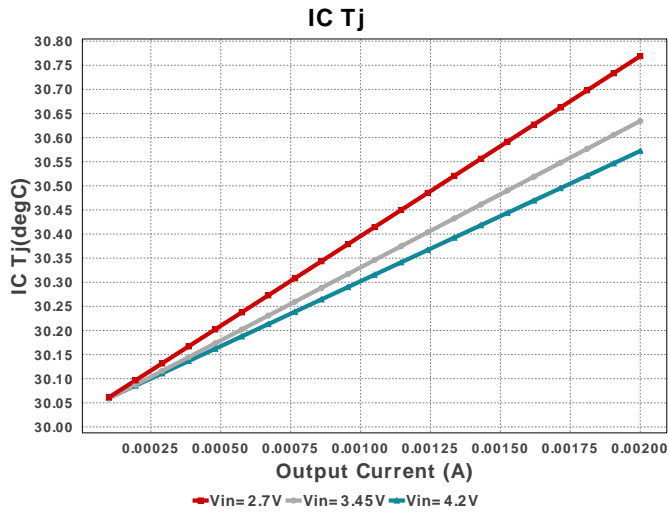


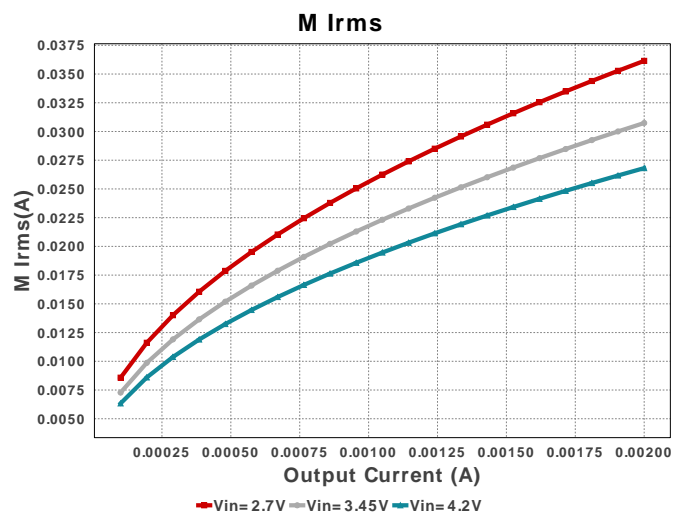
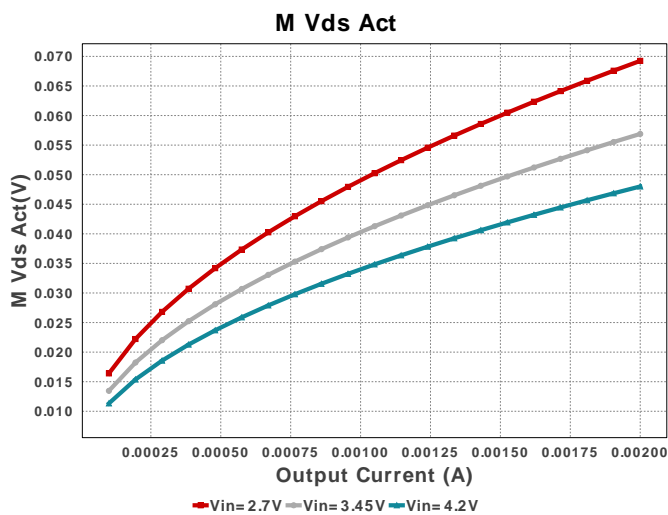
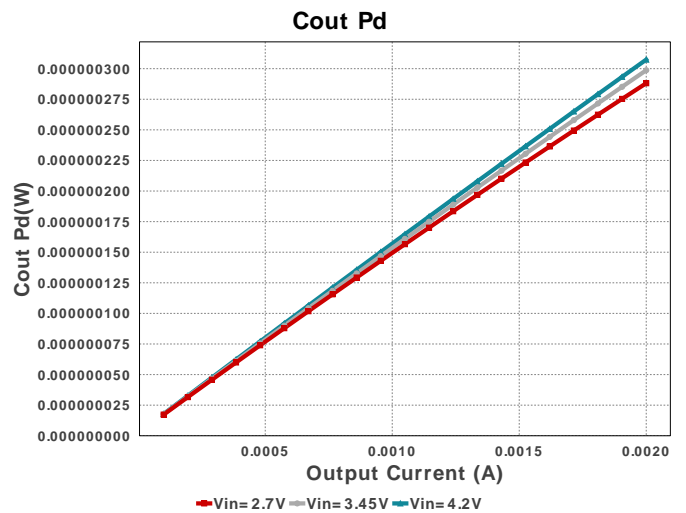
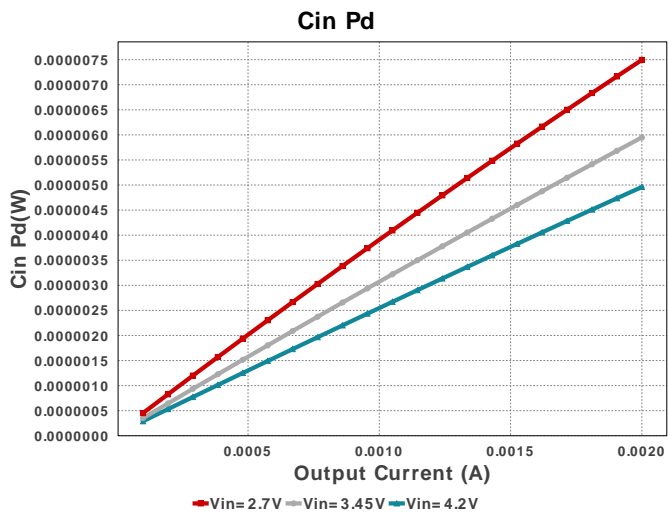
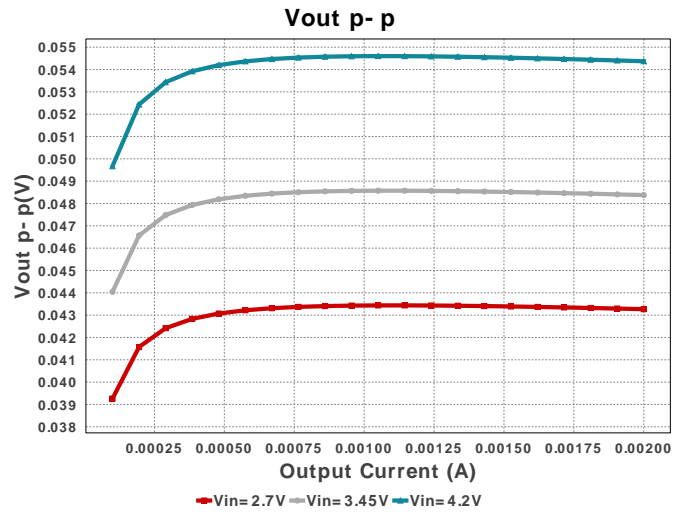
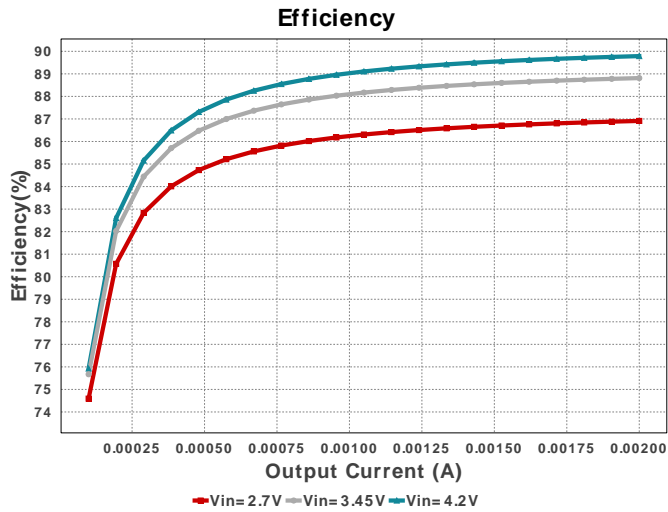
My Comments

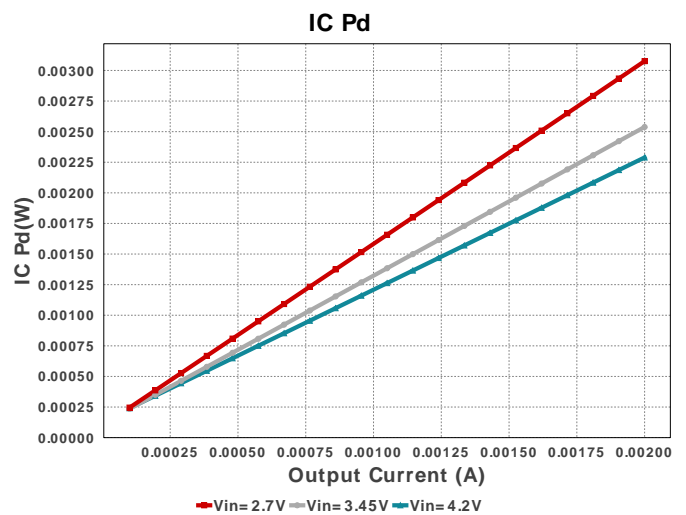
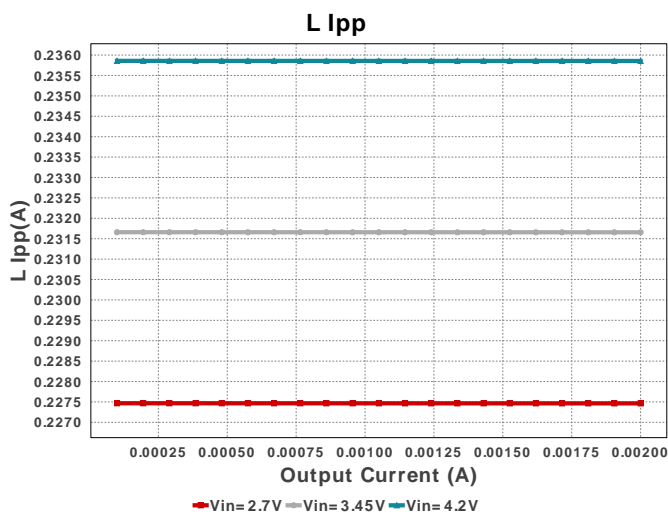
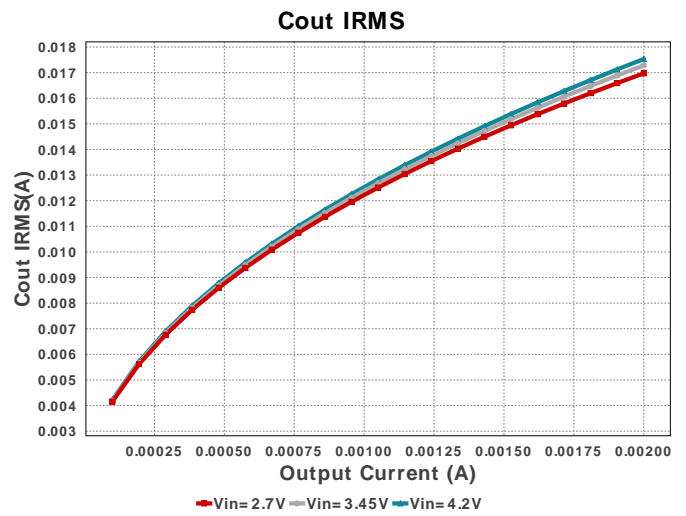
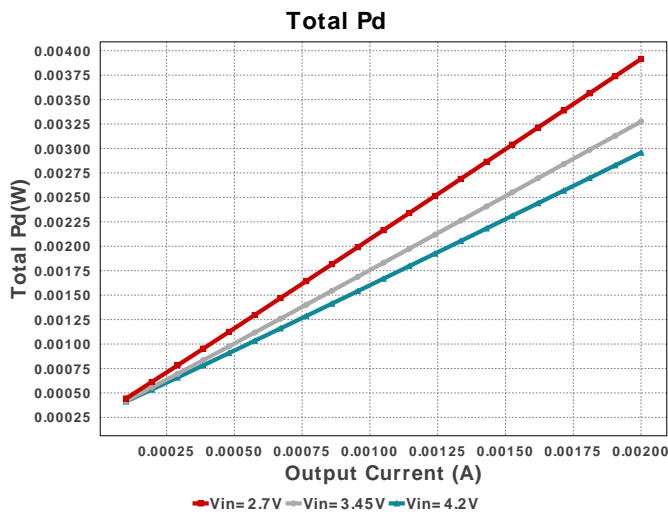
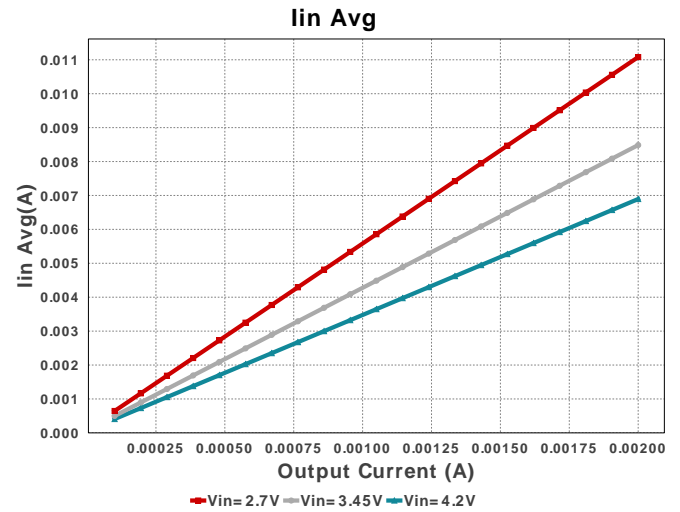
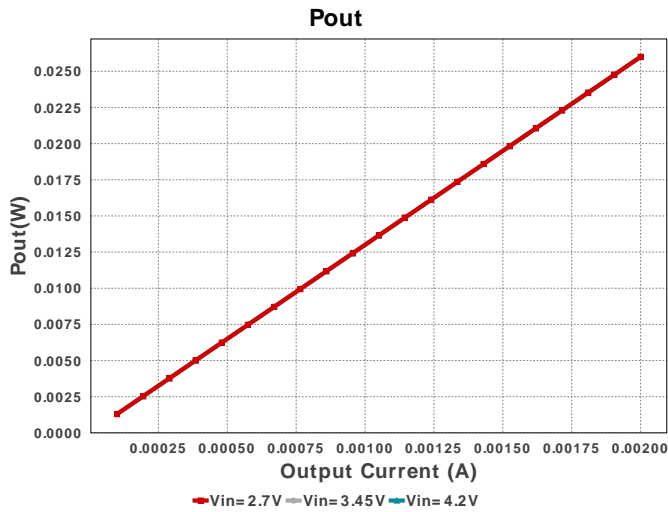
No comments

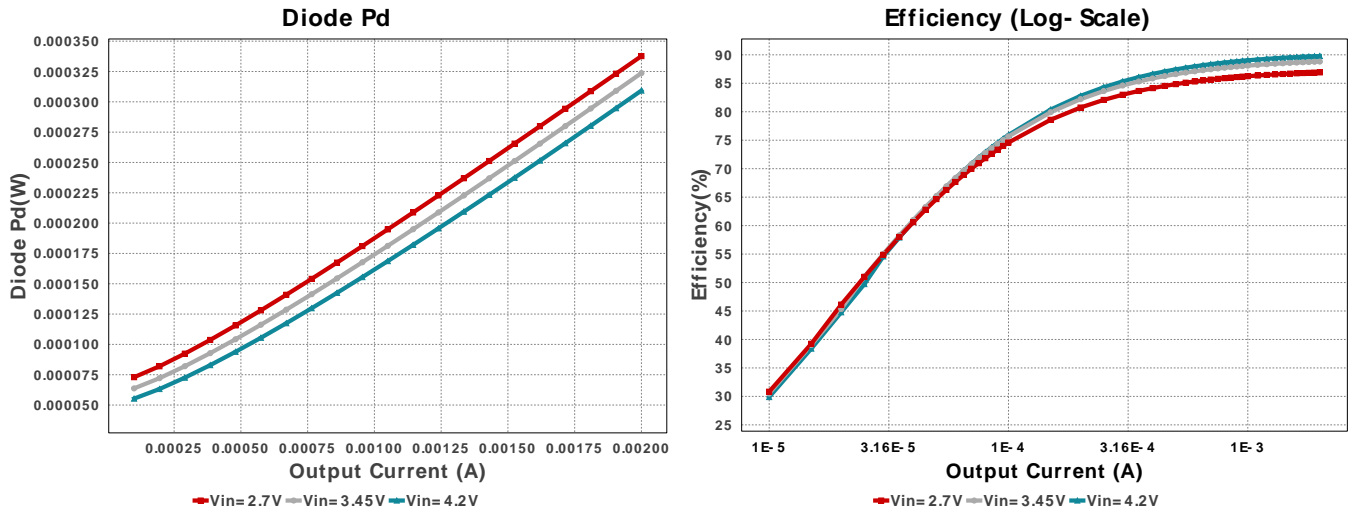
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cff	AVX	06035A470KAT2A Series= C0G/NP0	Cap= 47.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0603 5 mm ²
2.	Cin	MuRata	GRM188R60J475KE19D Series= X5R	Cap= 4.7 uF ESR= 5.0 mOhm VDC= 6.3 V IRMS= 2.0 A	1	\$0.02	0603 5 mm ²
3.	Cout	Taiyo Yuden	GMK212B7105KG-T Series= X7R	Cap= 1.0 uF ESR= 1.0 mOhm VDC= 35.0 V IRMS= 0.0 A	1	\$0.04	0805 7 mm ²
4.	D1	Fairchild Semiconductor	MBR1020VL	VF@Io= 340.0 mV VRRM= 20.0 V	1	\$0.07	SOD-123F 12 mm ²
5.	L1	Coilcraft	LPS4018-183MRB	L= 18.0 uH DCR= 243.0 mOhm	1	\$0.35	LPS4018 24 mm ²
6.	Rfbb	Vishay-Dale	CRCW0402158KFKED Series= CRCW..e3	Res= 158.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
7.	Rfbb	Vishay-Dale	CRCW04021M50FKED Series= CRCW..e3	Res= 1.5 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
8.	U1	Texas Instruments	TPS61041DBVR	Switcher	1	\$0.50	DBV0005A 15 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	38.717 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	16.974 mA	Current	Output capacitor RMS ripple current
3.	IC lpk	227.464 mA	Current	Peak switch current in IC
4.	Iin Avg	11.08 mA	Current	Average input current
5.	L lpp	227.46 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	36.146 mA	Current	Q lavg
7.	BOM Count	8	General	Total Design BOM count
8.	FootPrint	73.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	45.415 kHz	General	Switching frequency
10.	IC Tolerance	25.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	69.243 mV	General	Voltage drop across the MosFET
12.	Mode	DCM	General	Conduction Mode
13.	Mode	DCM	General	PWM/PFM Mode
14.	Pout	26.0 mW	General	Total output power
15.	Total BOM	\$1.01	General	Total BOM Cost
16.	D1 Tj	30.068 degC	Op Point	D1 junction temperature
17.	Duty Cycle	7.576 %	Op Point	Duty cycle
18.	Efficiency	86.912 %	Op Point	Steady state efficiency
19.	IC Tj	30.769 degC	Op Point	IC junction temperature
20.	ICThetaJA	250.0 degC/W	Op Point	IC junction-to-ambient thermal resistance
21.	IOUT_OP	2.0 mA	Op Point	Iout operating point
22.	VIN_OP	2.7 V	Op Point	Vin operating point
23.	Vout Actual	12.939 V	Op Point	Vout Actual calculated based on selected voltage divider resistors
24.	Vout OP	13.0 V	Op Point	Operational Output Voltage
25.	Vout Tolerance	3.892 %	Op Point	Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable
26.	Vout p-p	43.268 mV	Op Point	Peak-to-peak output ripple voltage
27.	Cin Pd	7.495 μW	Power	Input capacitor power dissipation
28.	Cout Pd	288.101 nW	Power	Output capacitor power dissipation
29.	Diode Pd	337.692 μW	Power	Diode power dissipation
30.	IC Pd	3.076 mW	Power	IC power dissipation
31.	L Pd	391.716 μW	Power	Inductor power dissipation
32.	Total Pd	3.915 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	2.0 m	Maximum Output Current
2.	VinMax	4.2	Maximum input voltage
3.	VinMin	2.7	Minimum input voltage
4.	Vout	13.0	Output Voltage
5.	base_pn	TPS61041	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS61041** Product Folder : <http://www.ti.com/product/TPS61041> : contains the data sheet and other resources.

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