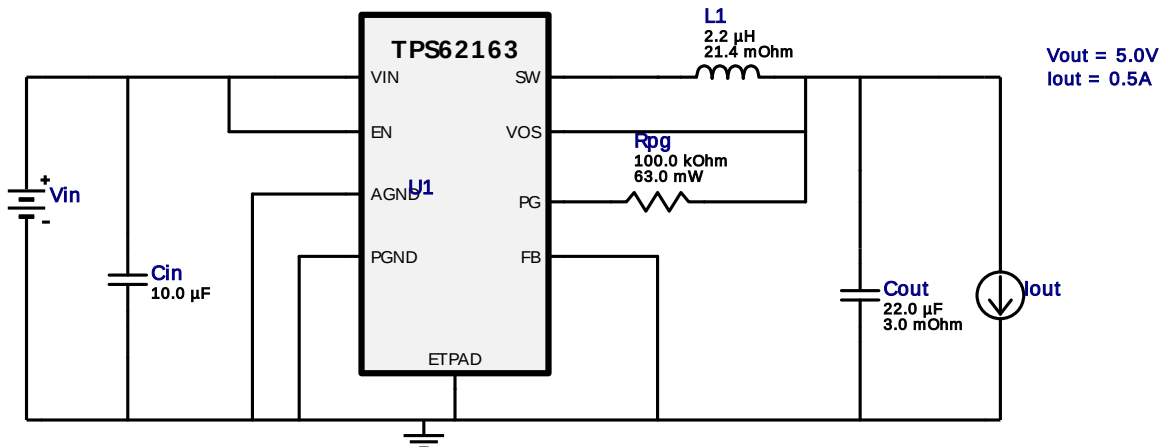


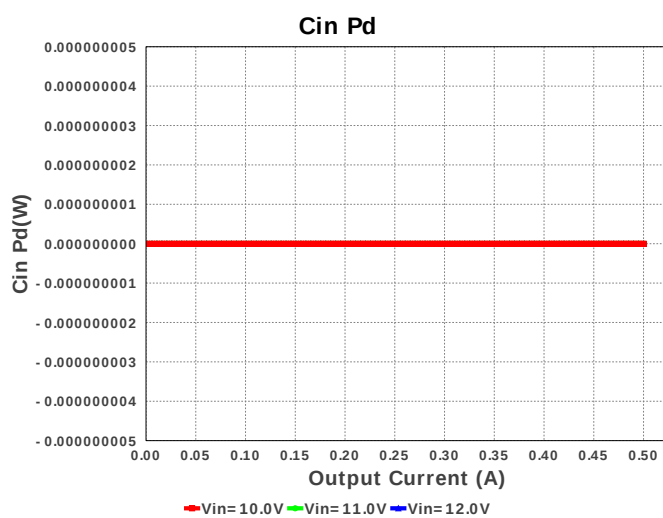
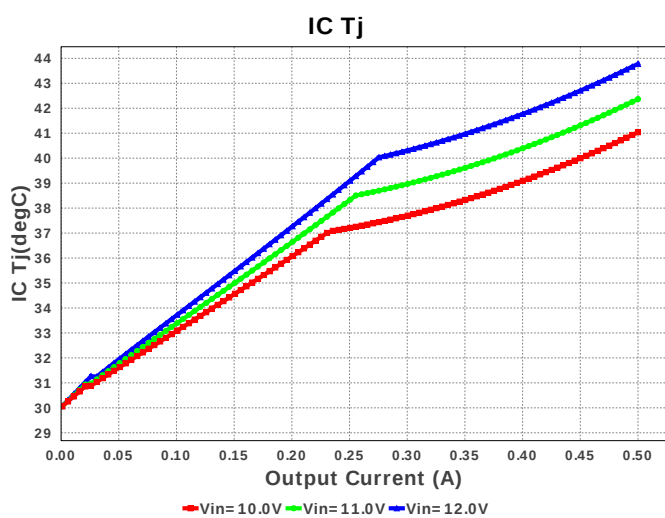
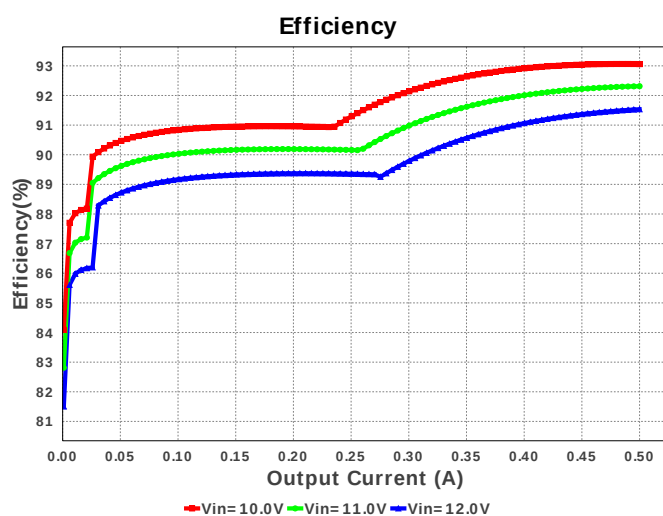
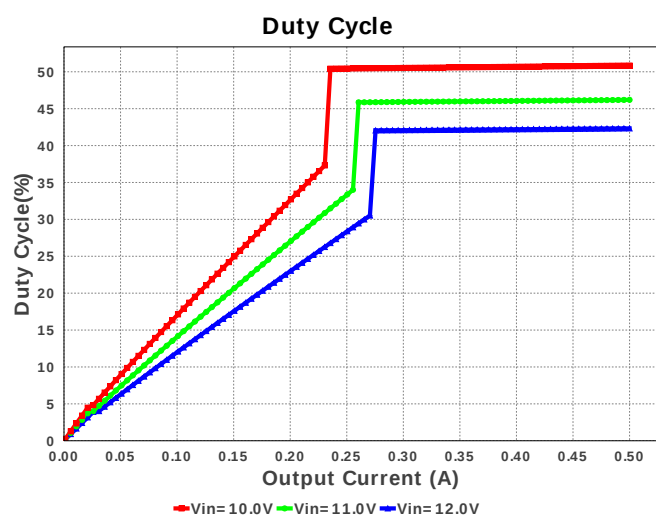
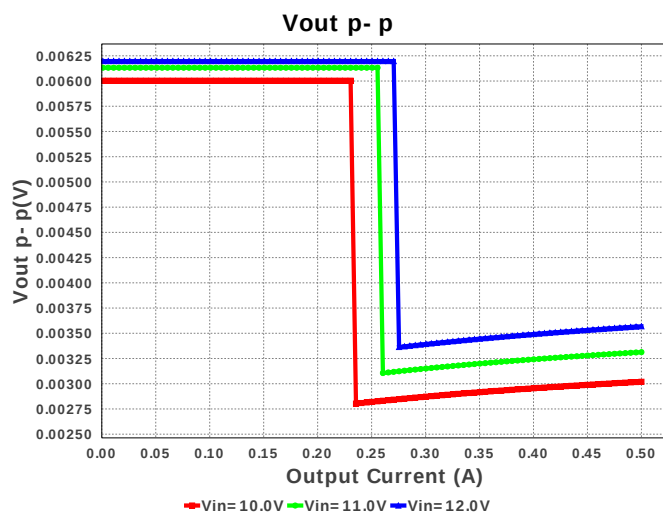
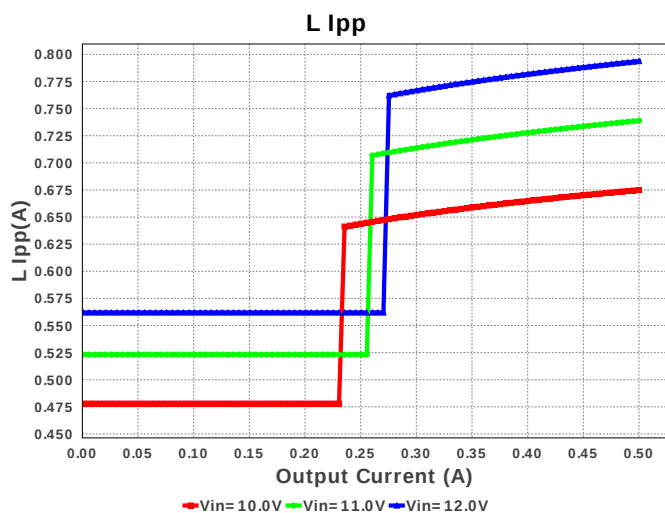
WEBENCH® Design Report

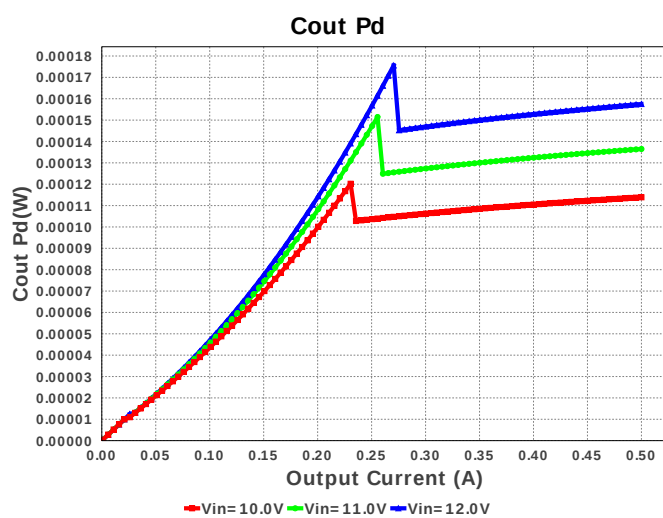
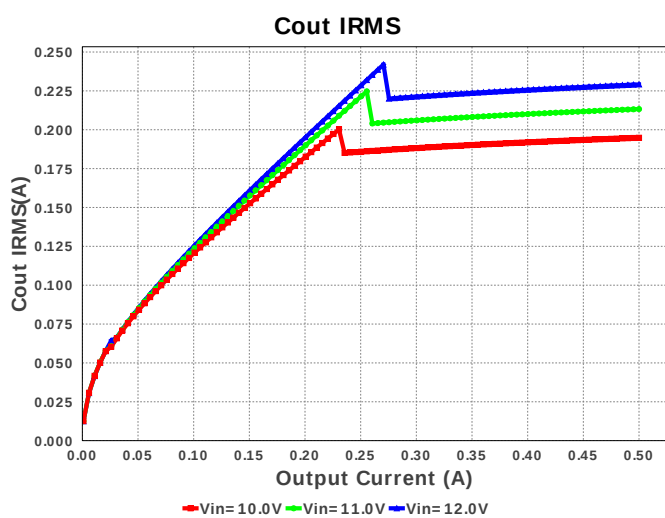
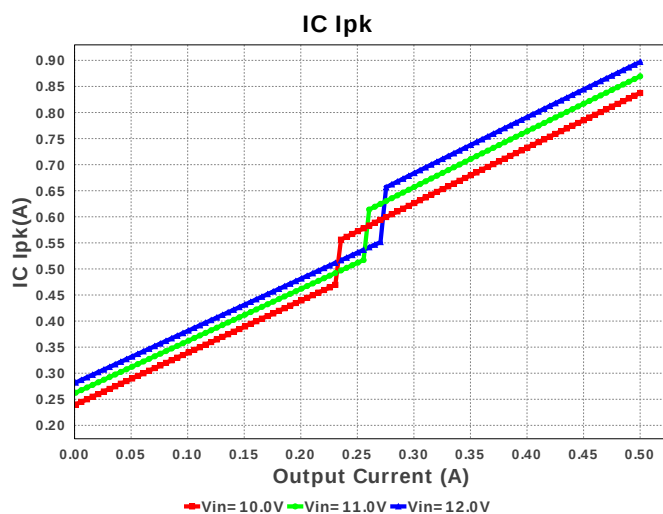
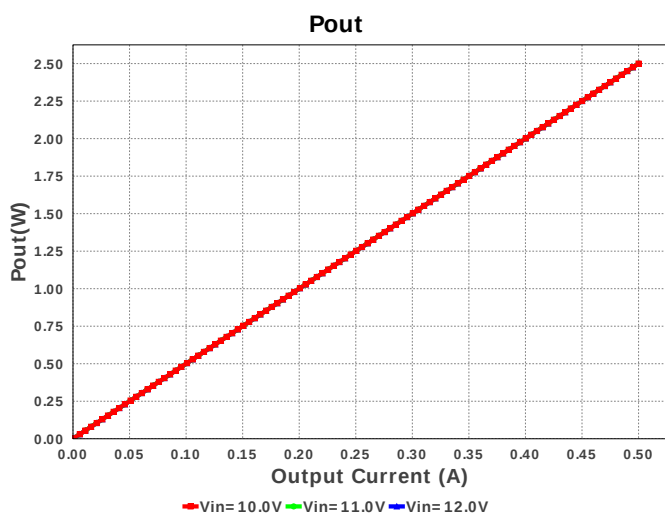
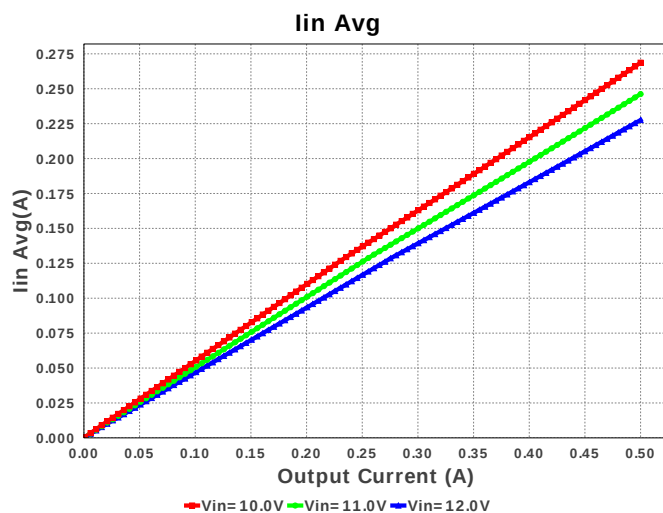
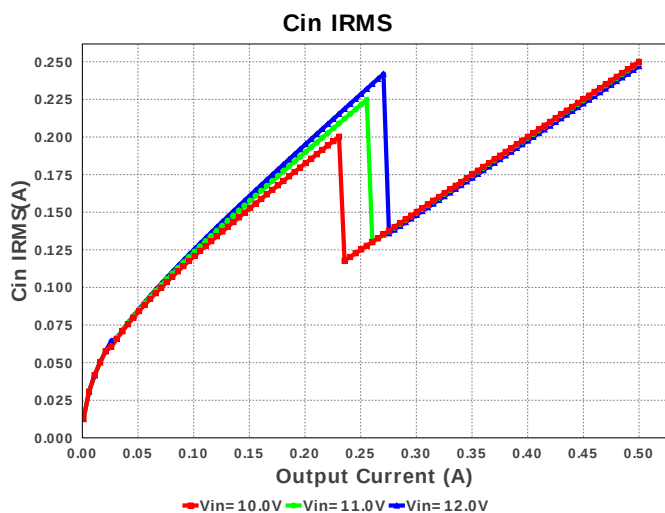
Design : 4742013/233 TPS62163DSGR
TPS62163DSGR 10.0V-12.0V to 5.00V @ 0.5A

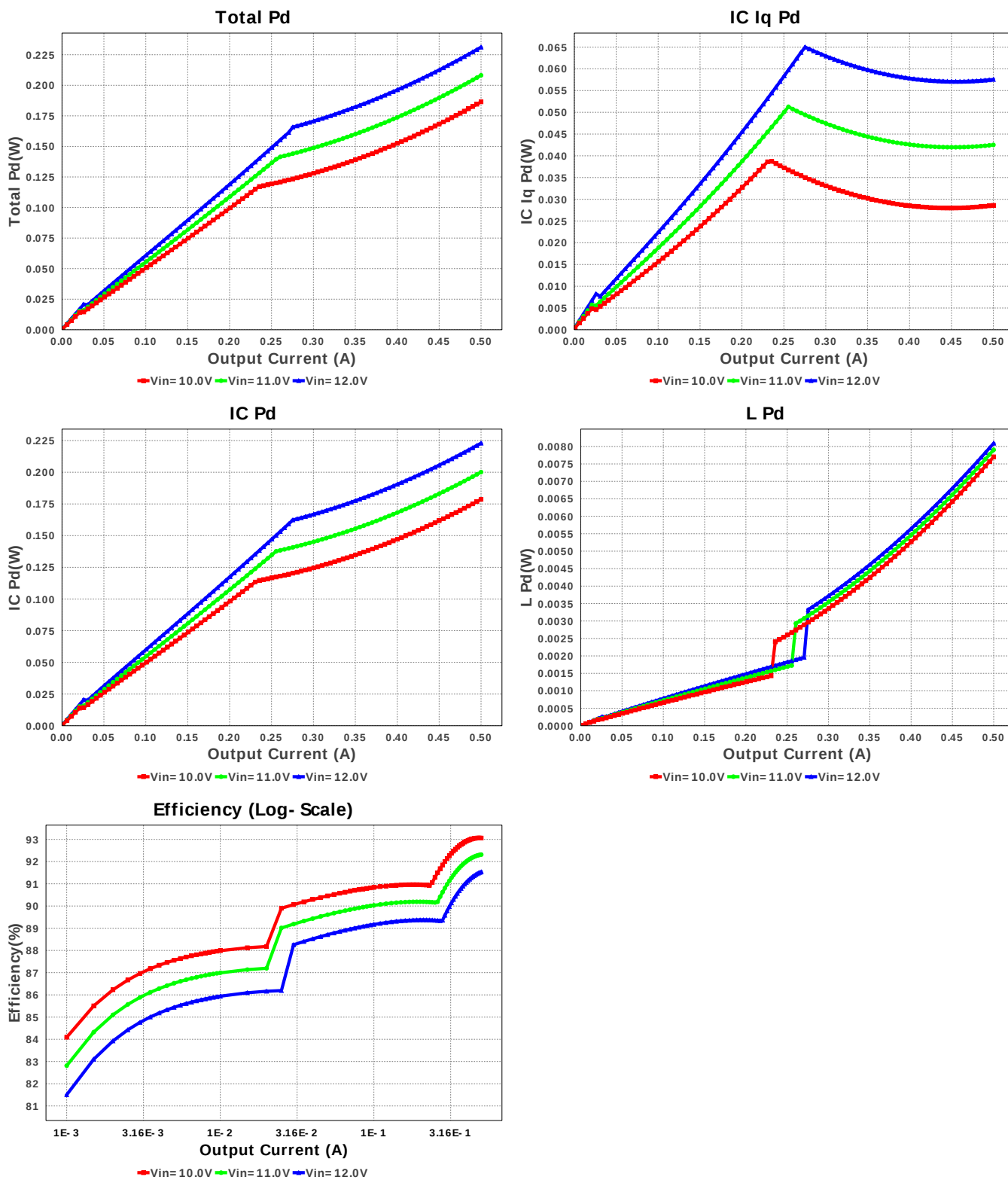


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	Taiyo Yuden	TMK316BJ106KL-T Series= X5R	Cap= 10.0 uF VDC= 25.0 V IRMS= 0.0 A	1	\$0.05	 1206 11 mm ²
2.	Cout	MuRata	GRM32ER71C226KE18L Series= X7R	Cap= 22.0 uF ESR= 3.0 mOhm VDC= 16.0 V IRMS= 0.0 A	1	\$0.28	 1210 15 mm ²
3.	L1	Coilcraft	XFL4020-222MEB	L= 2.2 µH DCR= 21.4 mOhm	1	\$0.55	 XFL4020 25 mm ²
4.	Rpg	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
5.	U1	Texas Instruments	TPS62163DSGR	Switcher	1	\$0.75	 S-PWSON-N8 10 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	247.039 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	229.152 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	896.902 mA	Current	Peak switch current in IC
4.	Iin Avg	227.6 mA	Current	Average input current
5.	L Ipp	793.8 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	5	General	Total Design BOM count
7.	FootPrint	63.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	2.401 MHz	General	Switching frequency
9.	Pout	2.5 W	General	Total output power
10.	Total BOM	\$1.64	General	Total BOM Cost
11.	Vout OP	5.0 V	Op_Point	Operational Output Voltage

#	Name	Value	Category	Description
12.	Duty Cycle	42.327 %	Op_point	Duty cycle
13.	Efficiency	91.535 %	Op_point	Steady state efficiency
14.	IC Tj	43.777 degC	Op_point	IC junction temperature
15.	ICThetaJA	61.8 degC/W	Op_point	IC junction-to-ambient thermal resistance
16.	IOUT_OP	500.0 mA	Op_point	Iout operating point
17.	VIN_OP	12.0 V	Op_point	Vin operating point
18.	Vout p-p	3.569 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
20.	Cout Pd	157.531 μ W	Power	Output capacitor power dissipation
21.	IC Iq Pd	57.555 mW	Power	IC Iq Pd
22.	IC Pd	222.936 mW	Power	IC power dissipation
23.	L Pd	8.092 mW	Power	Inductor power dissipation
24.	Total Pd	231.196 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	500.0 m	Maximum Output Current
2.	VinMax	12.0	Maximum input voltage
3.	VinMin	10.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	TPS62163	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. Feature Highlights: DCS-Control(TM) Architecture with upto 1A output current, 3V to 17V Input Voltage Range, 5V Fixed Output voltage, Seamless Power Save Mode for Light Load Efficiency, Power Good Output, 100% Duty Cycle mode, Short Circuit Protection, Thermal Shutdown

2. **TPS62163** Product Folder : <http://www.ti.com/product/TPS62163> : contains the data sheet and other resources.

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