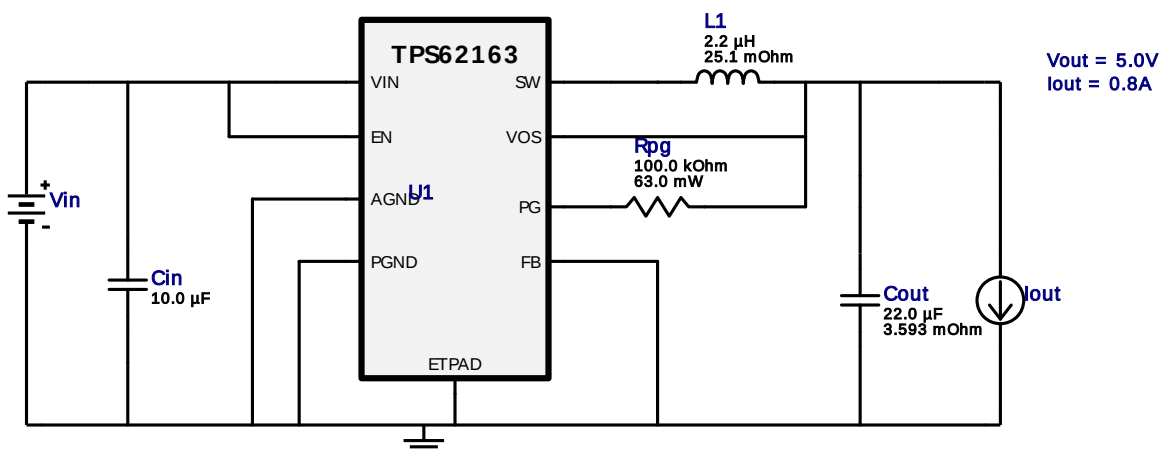


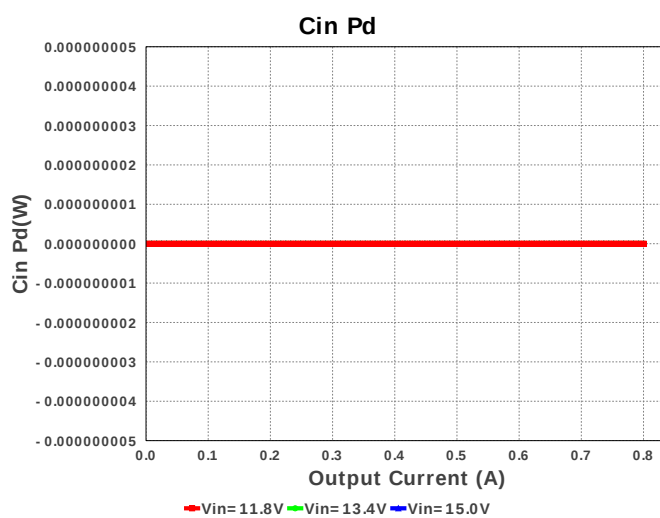
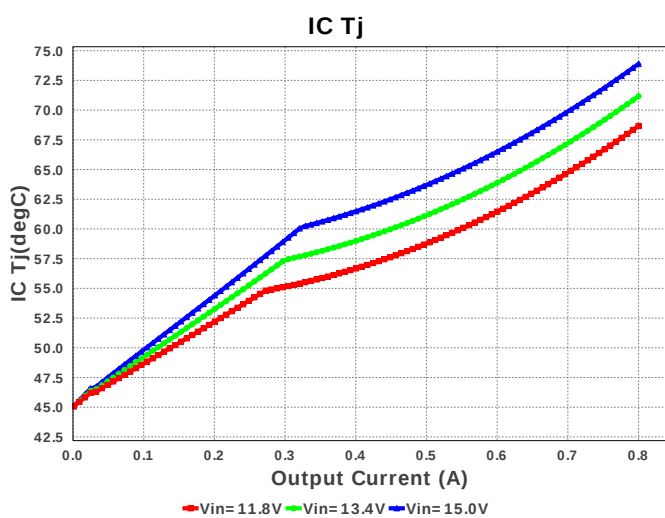
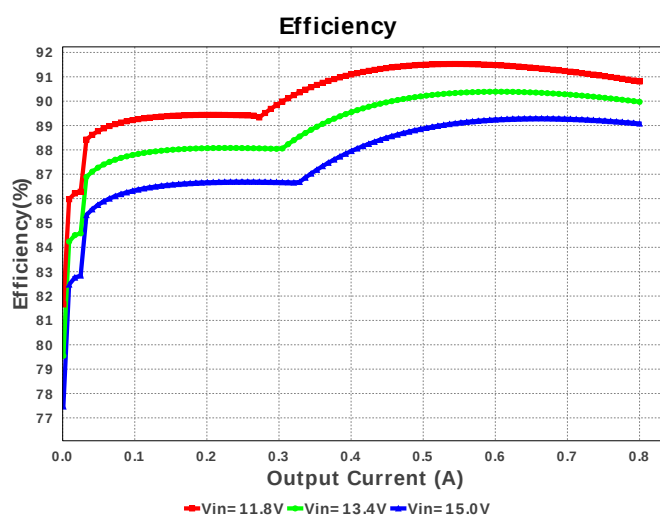
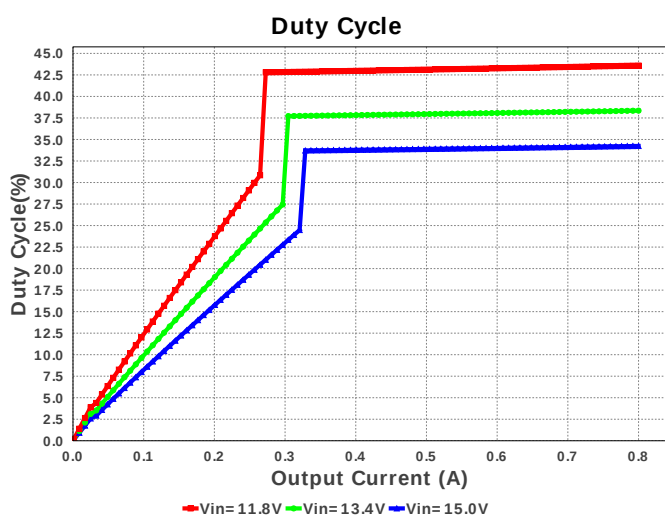
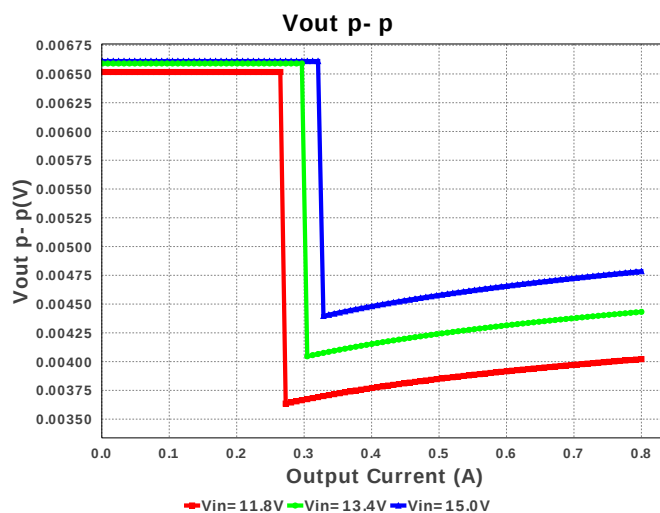
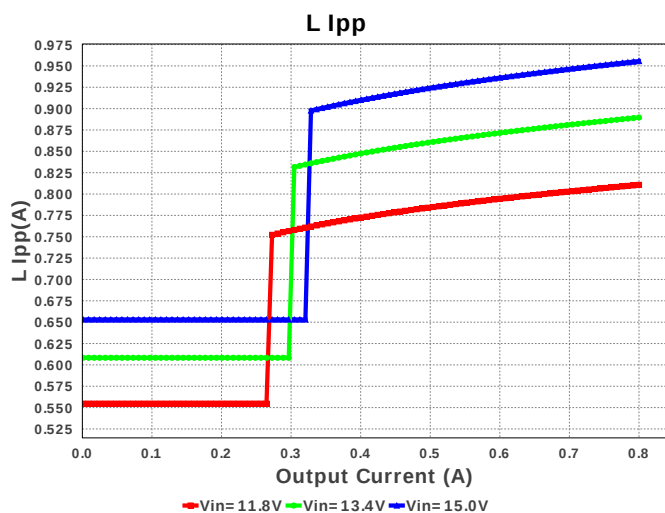
WEBENCH® Design Report

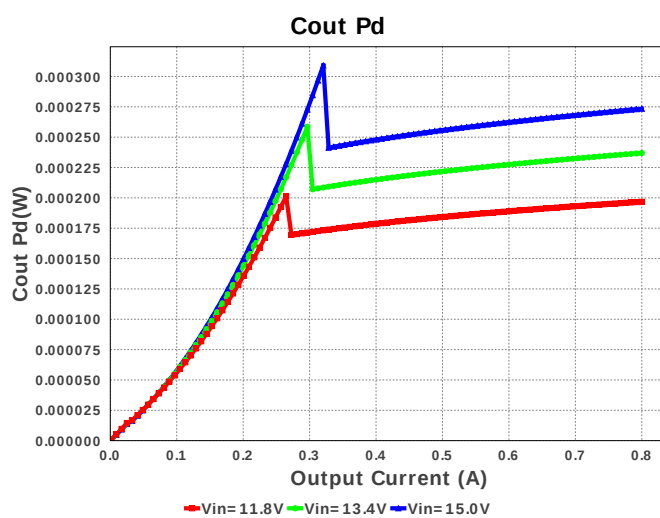
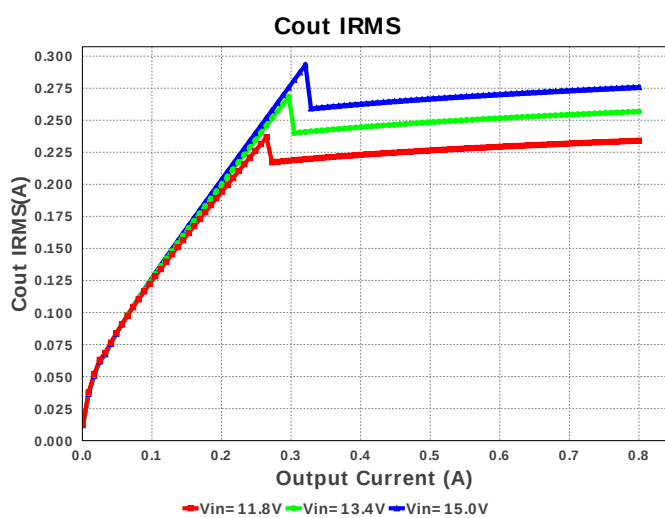
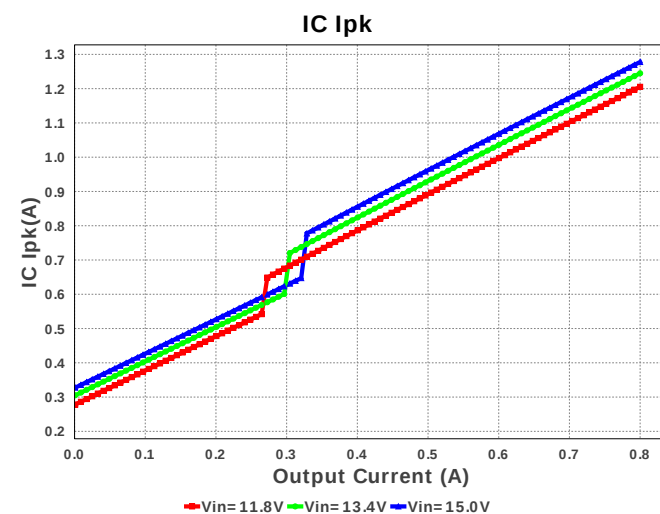
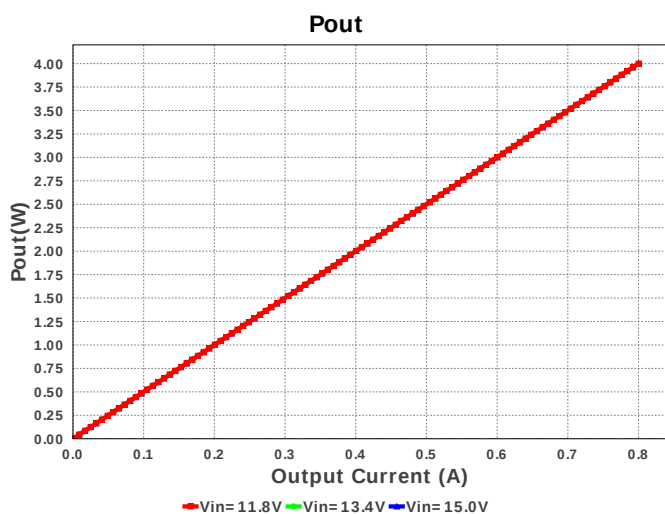
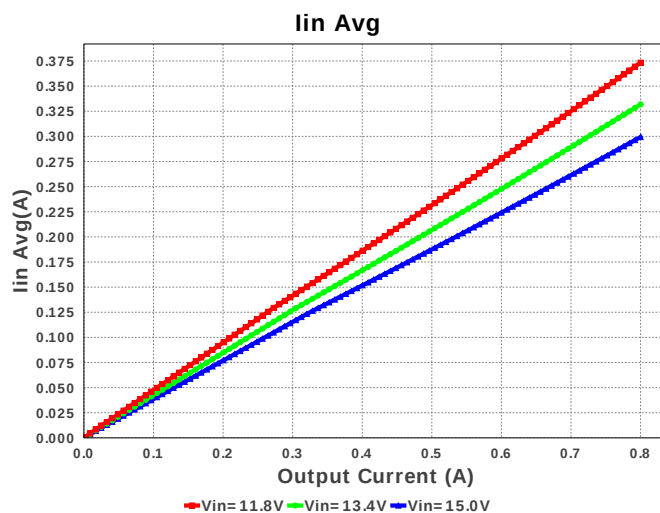
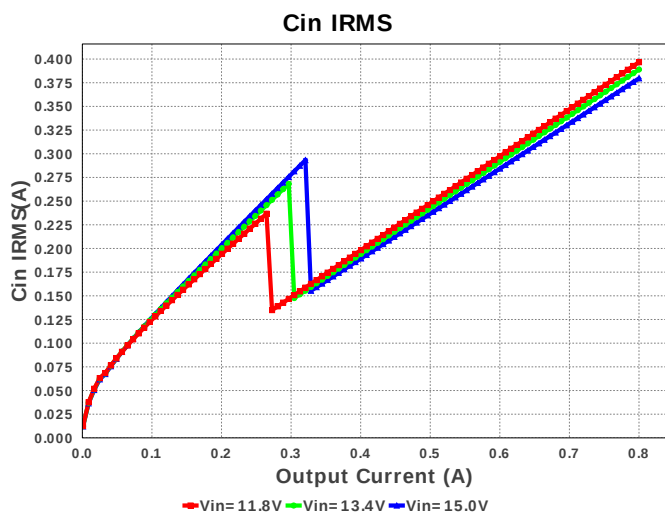
Design : 3496425/101 TPS62163DSGR
 TPS62163DSGR 11.8V-15.0V to 5.00V @ 0.8A

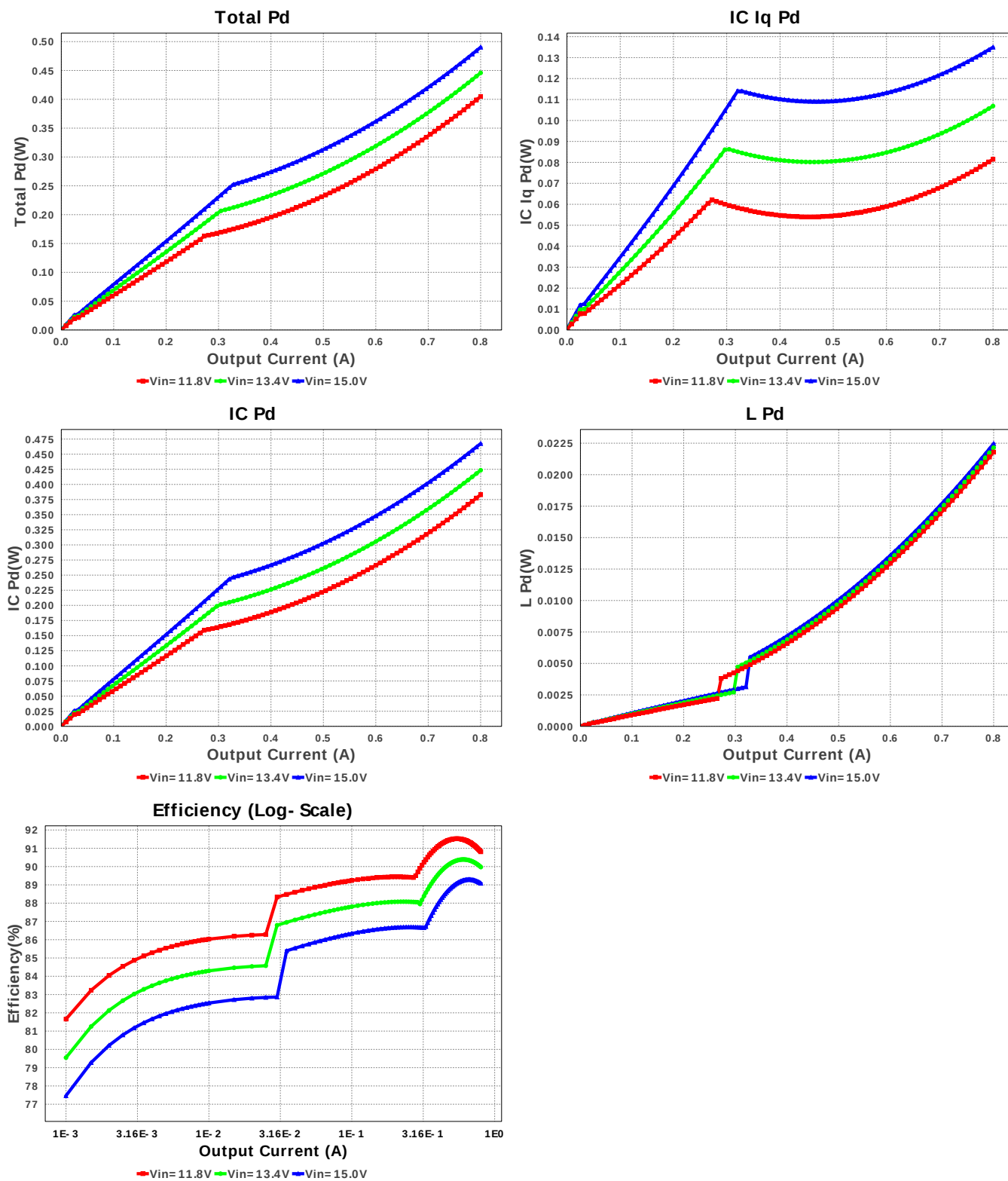


Electrical BOM

#	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	GRM31CR71A226KE15L Series= X7R	Cap= 22.0 uF ESR= 3.593 mOhm VDC= 10.0 V IRMS= 3.5332 A	1	\$0.12	 1206_190 11 mm ²
3.	L1	Bourns	SRN6045-2R2Y	L= 2.2 µH DCR= 25.1 mOhm	1	\$0.16	 SRN6045 64 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	\$0.73	 S-PWSON-N8 10 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	379.62 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	275.867 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.278 A	Current	Peak switch current in IC
4.	Iin Avg	299.35 mA	Current	Average input current
5.	L Ipp	955.63 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	5	General	Total Design BOM count
7.	FootPrint	98.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	2.383 MHz	General	Switching frequency
9.	Mode	CCM	General	Conduction Mode
10.	Pout	4.0 W	General	Total output power
11.	Total BOM	\$1.07	General	Total BOM Cost

#	Name	Value	Category	Description
12.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
13.	Duty Cycle	34.244 %	Op_point	Duty cycle
14.	Efficiency	89.082 %	Op_point	Steady state efficiency
15.	IC Tj	73.891 degC	Op_point	IC junction temperature
16.	ICThetaJA	61.8 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	800.0 mA	Op_point	Iout operating point
18.	VIN_OP	15.0 V	Op_point	Vin operating point
19.	Vout p-p	4.786 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
21.	Cout Pd	273.437 μ W	Power	Output capacitor power dissipation
22.	IC Iq Pd	134.965 mW	Power	IC Iq Pd
23.	IC Pd	467.499 mW	Power	IC power dissipation
24.	L Pd	22.468 mW	Power	Inductor power dissipation
25.	Total Pd	490.245 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	800.0 m	Maximum Output Current
2.	VinMax	15.0	Maximum input voltage
3.	VinMin	11.8	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	TPS62163	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	45.0	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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