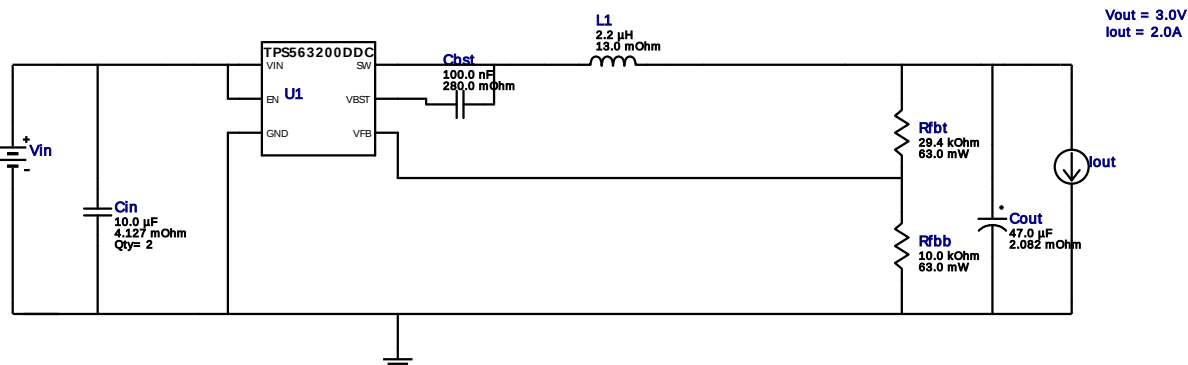


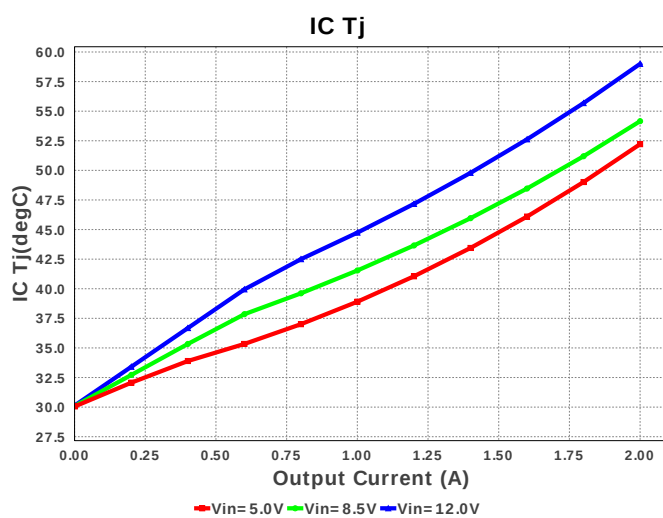
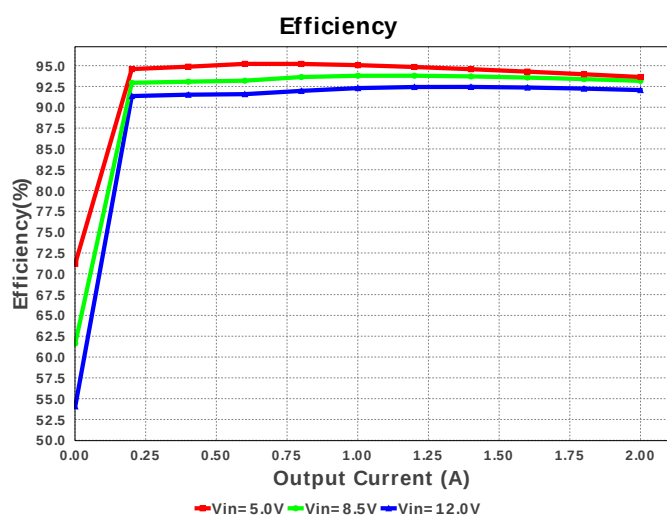
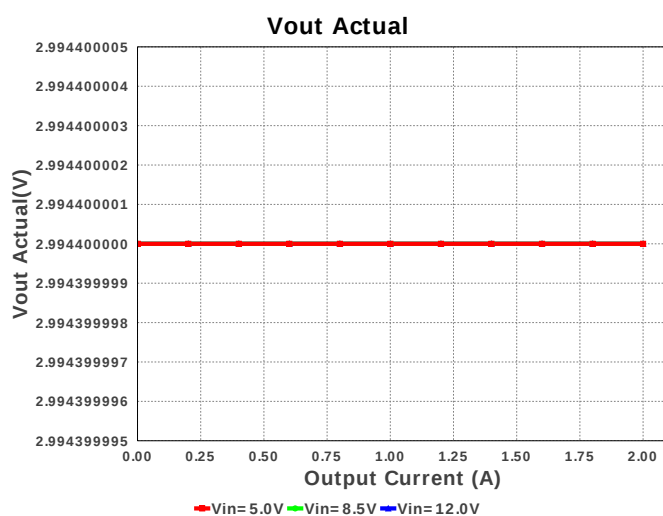
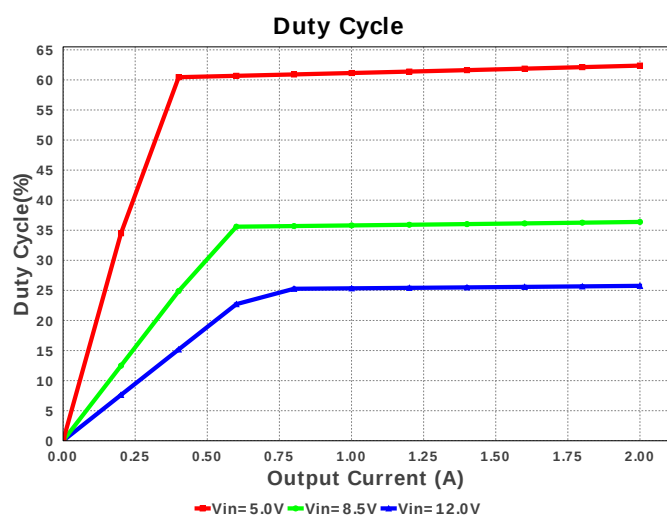
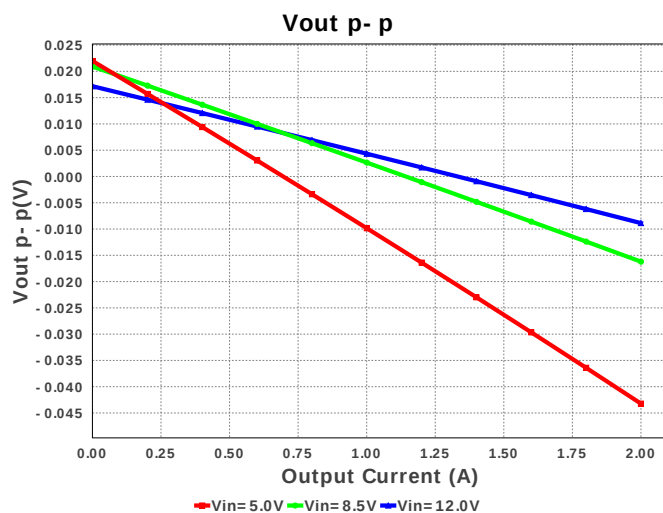
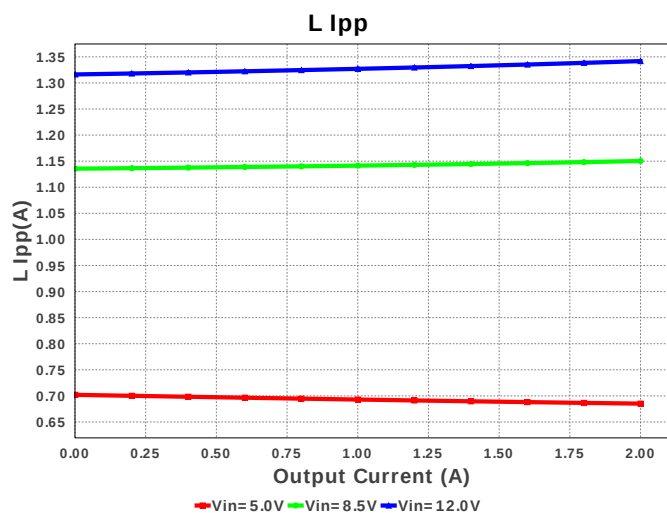
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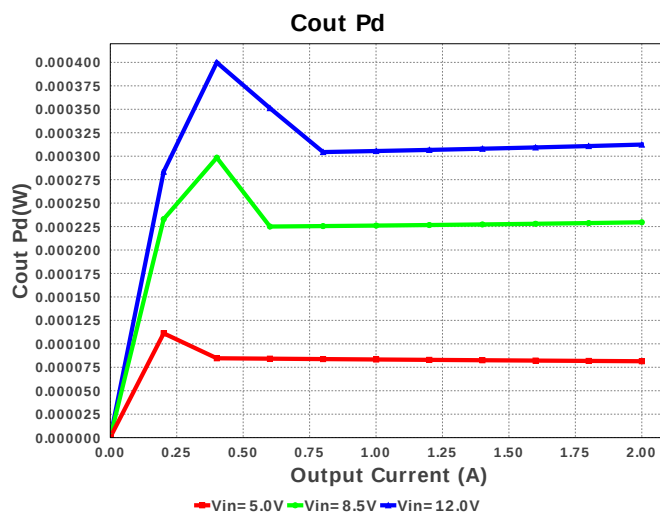
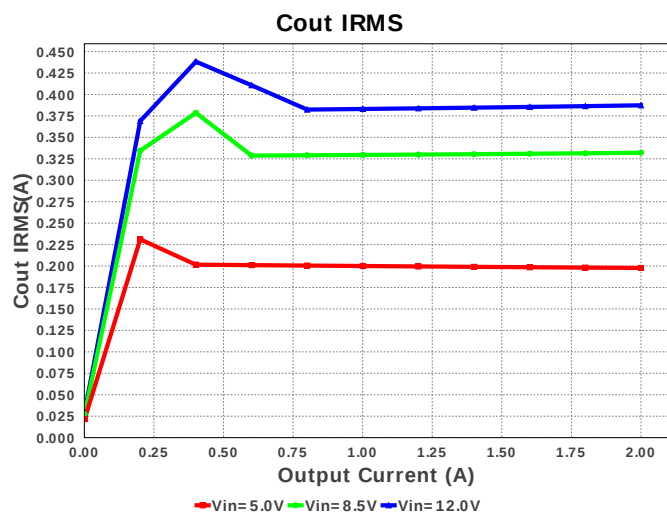
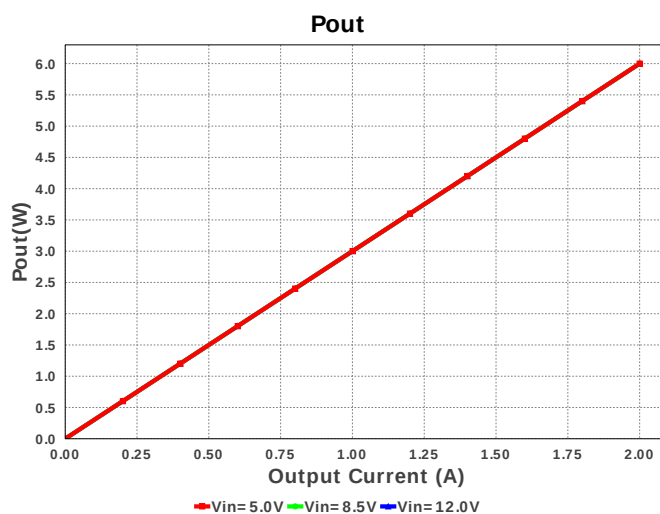
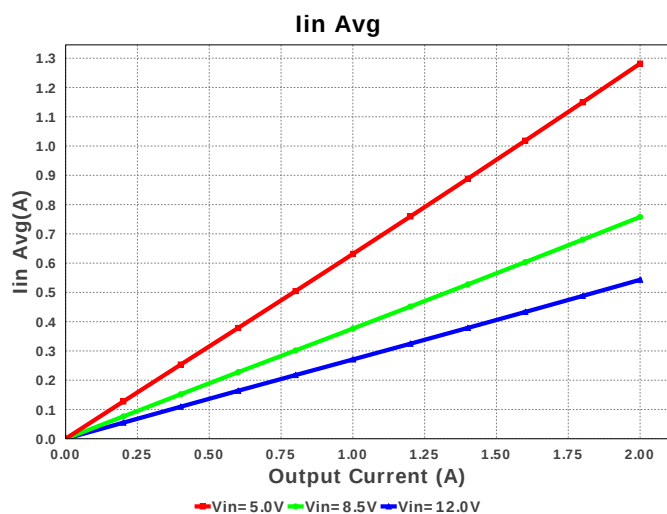
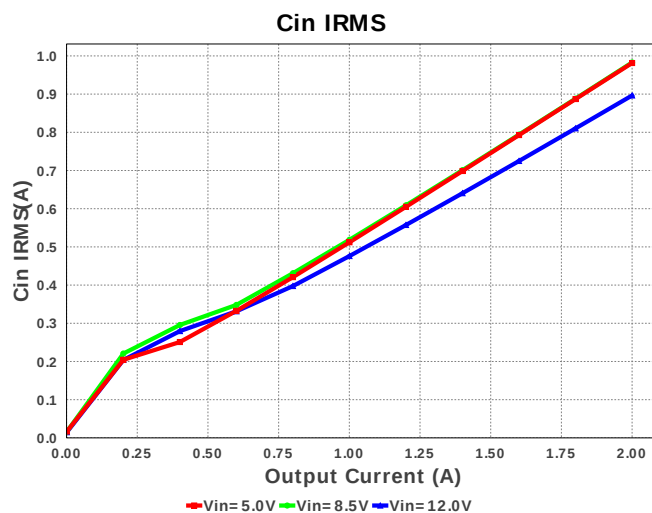
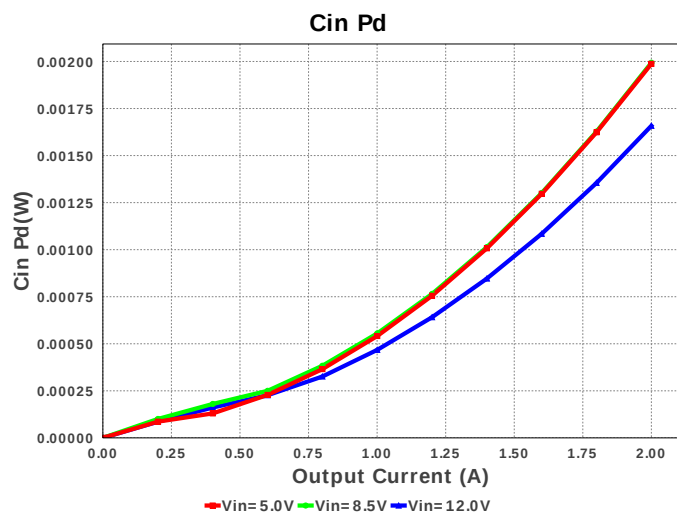
Design : 4652143/10 TPS563200DDCR
TPS563200DDCR 5.0V-12.0V to 3.00V @ 2.0A

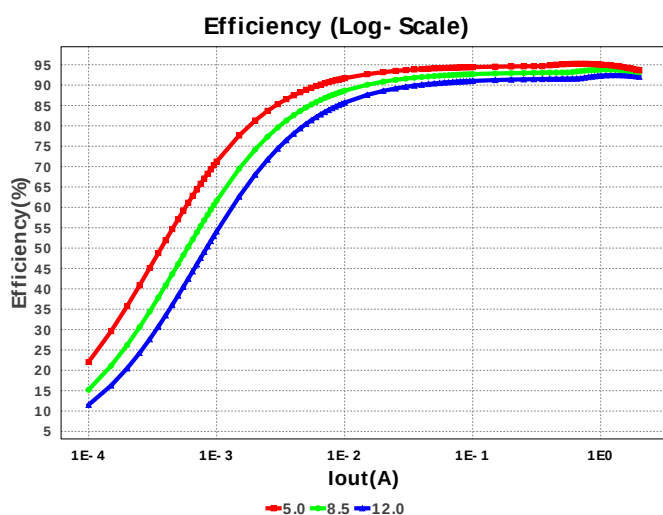
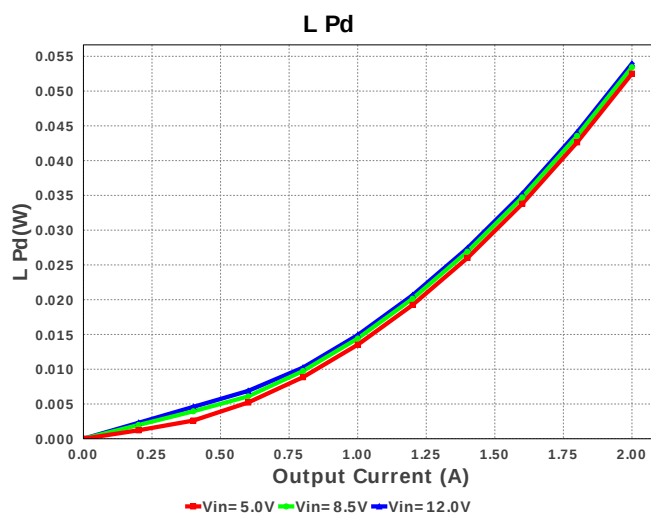
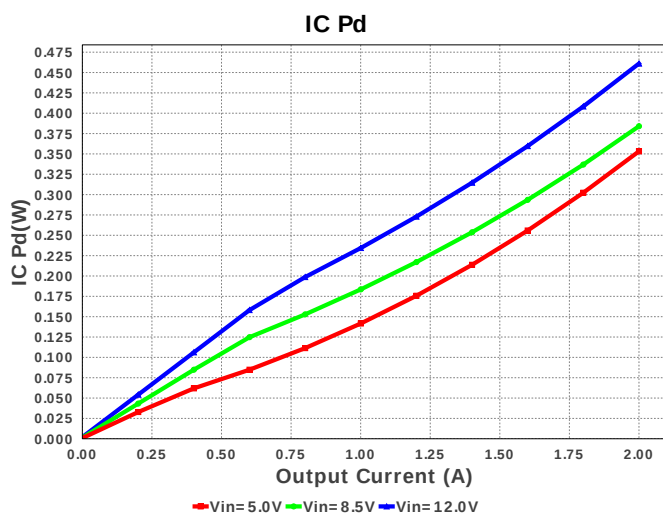
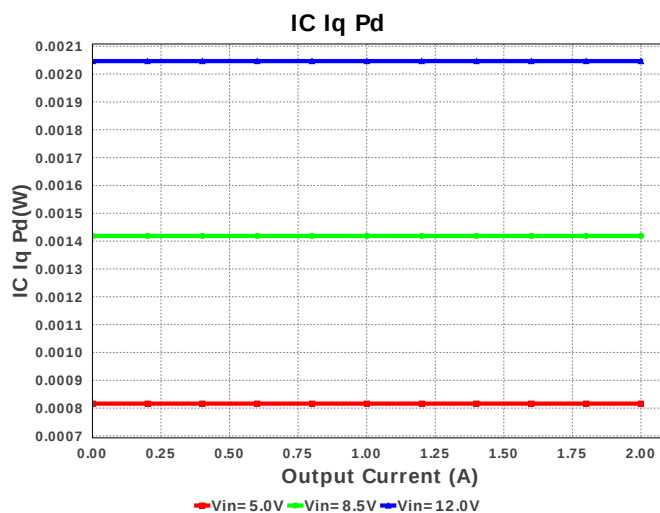
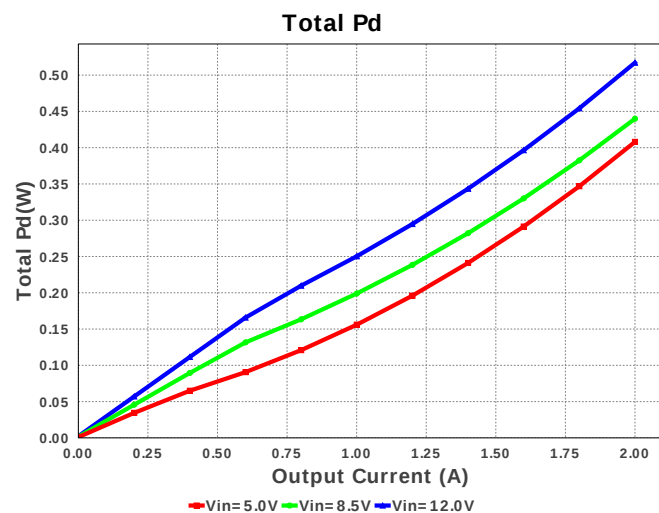


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
2.	Cin	MuRata	GRM21BR61C106KE15L Series= X5R	Cap= 10.0 uF ESR= 4.127 mOhm VDC= 16.0 V IRMS= 2.46634 A	2	\$0.03	 0805 7 mm ²
3.	Cout	TDK	C3216X5R1E476M160AC Series= X5R	Cap= 47.0 uF ESR= 2.082 mOhm VDC= 25.0 V IRMS= 5.0279 A	1	\$0.35	 1206 11 mm ²
4.	L1	Bourns	SRN8040-2R2Y	L= 2.2 uH DCR= 13.0 mOhm	1	\$0.22	 SRN8040 100 mm ²
5.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	Rfbt	Vishay-Dale	CRCW040229K4FKED Series= CRCW..e3	Res= 29.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
7.	U1	Texas Instruments	TPS563200DDCR	Switcher	1	\$0.52	 DDC0006A 10 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	896.432 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	387.355 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	543.1 mA	Current	Average input current
4.	L Ipp	1.342 A	Current	Peak-to-peak inductor ripple current
5.	BOM Count	8	General	Total Design BOM count
6.	FootPrint	148.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	774.929 kHz	General	Switching frequency
8.	Mode	CCM	General	Conduction Mode
9.	Pout	6.0 W	General	Total output power
10.	Total BOM	\$1.18	General	Total BOM Cost
11.	Vout Actual	2.994 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors

#	Name	Value	Category	Description
12.	Vout OP	3.0 V	Op_Point	Operational Output Voltage
13.	Duty Cycle	25.759 %	Op_point	Duty cycle
14.	Efficiency	92.065 %	Op_point	Steady state efficiency
15.	IC Tj	58.996 degC	Op_point	IC junction temperature
16.	ICThetaJA	62.9 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	2.0 A	Op_point	Iout operating point
18.	VIN_OP	12.0 V	Op_point	Vin operating point
19.	Vout p-p	9.068 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	1.658 mW	Power	Input capacitor power dissipation
21.	Cout Pd	312.391 μ W	Power	Output capacitor power dissipation
22.	IC Iq Pd	2.047 mW	Power	IC Iq Pd
23.	IC Pd	460.993 mW	Power	IC power dissipation
24.	L Pd	53.951 mW	Power	Inductor power dissipation
25.	Total Pd	517.14 mW	Power	Total Power Dissipation
26.	Vout Tolerance	2.843 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	2.0	Maximum Output Current
2.	VinMax	12.0	Maximum input voltage
3.	VinMin	5.0	Minimum input voltage
4.	Vout	3.0	Output Voltage
5.	base_pn	TPS563200	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS563200** Product Folder : <http://www.ti.com/product/TPS563200> : contains the data sheet and other resources.

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