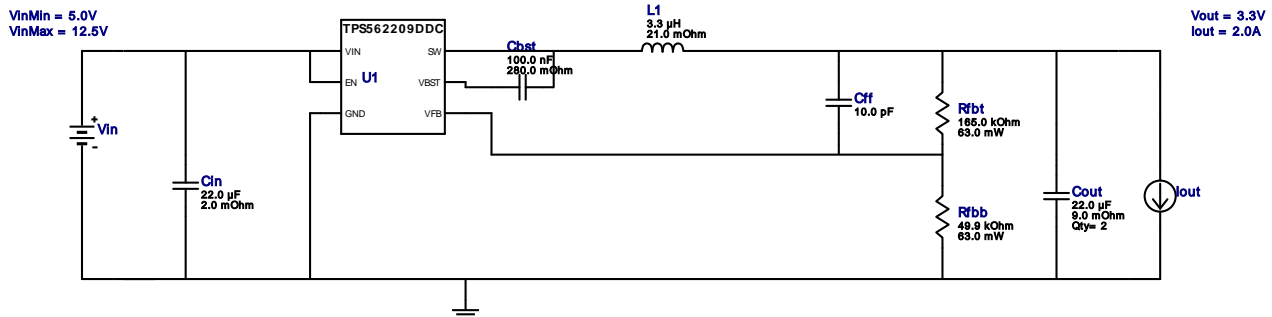






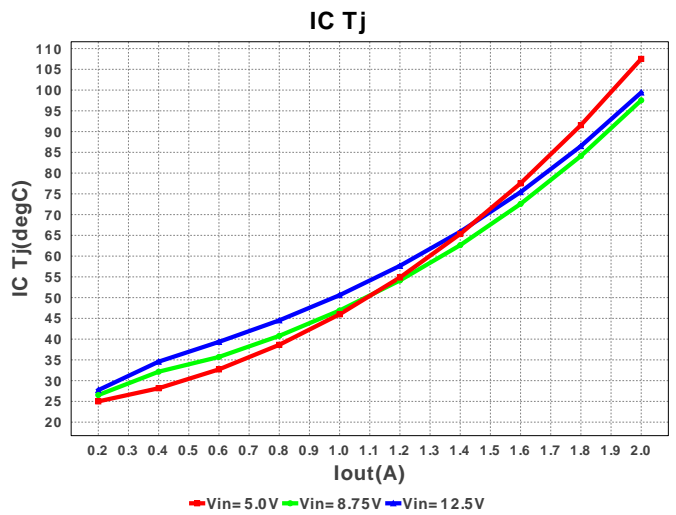
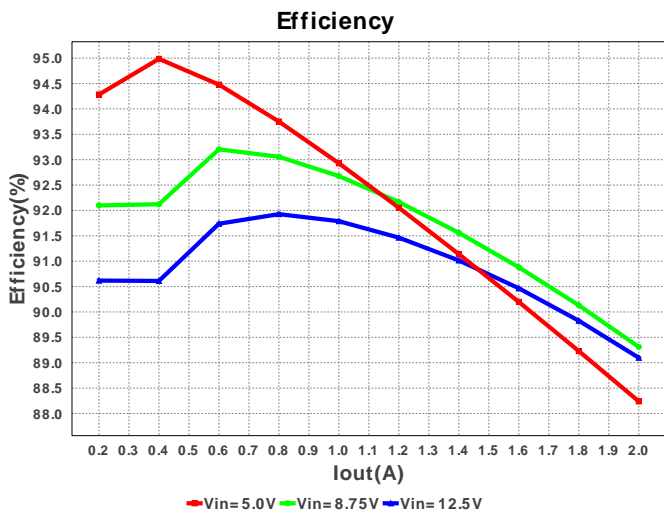
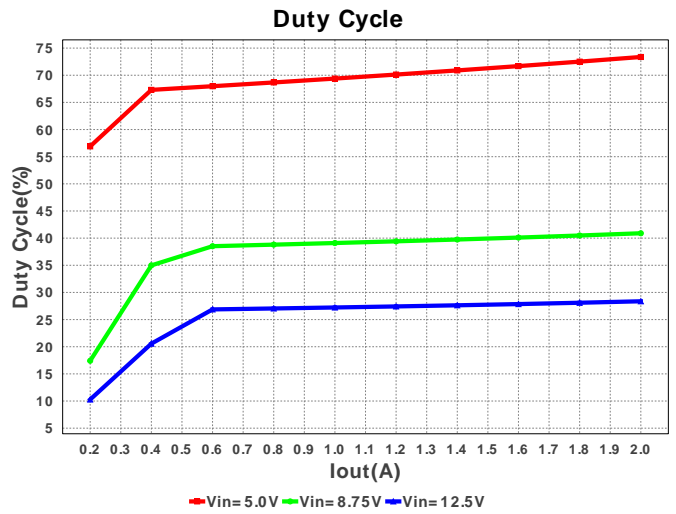
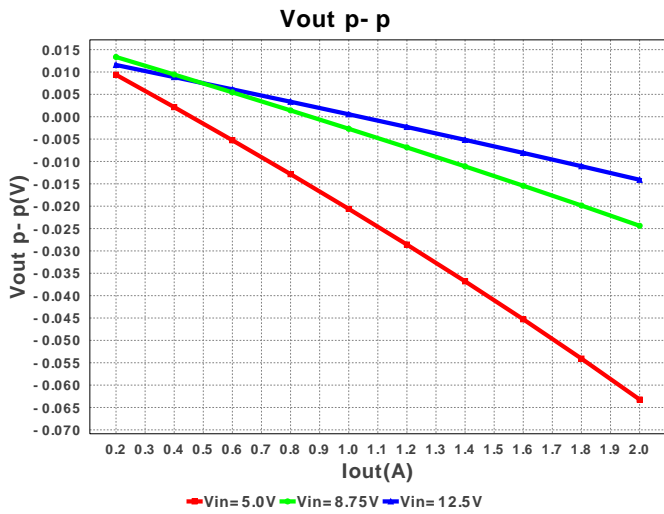
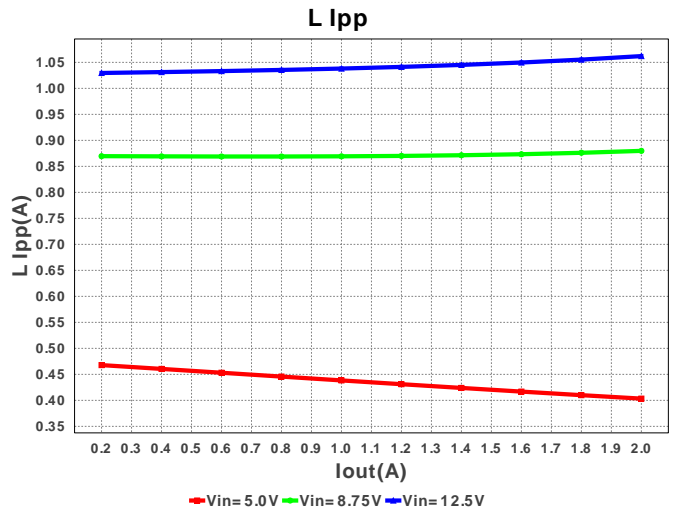
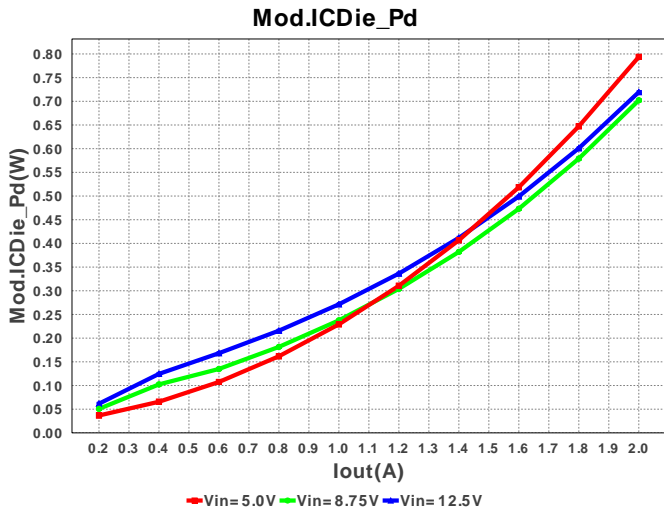
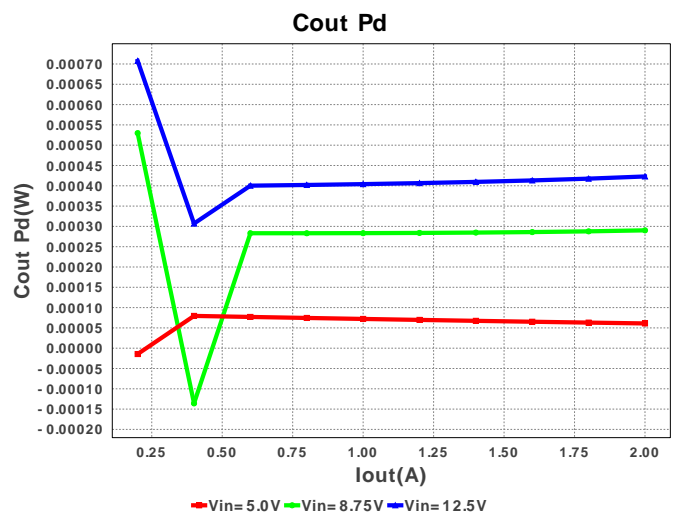
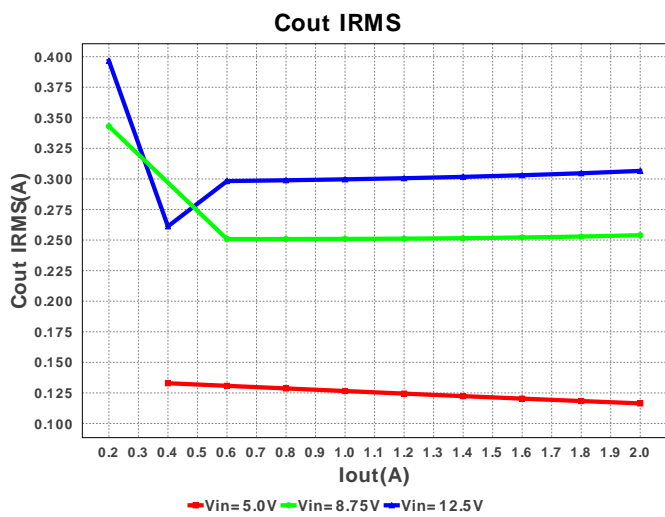
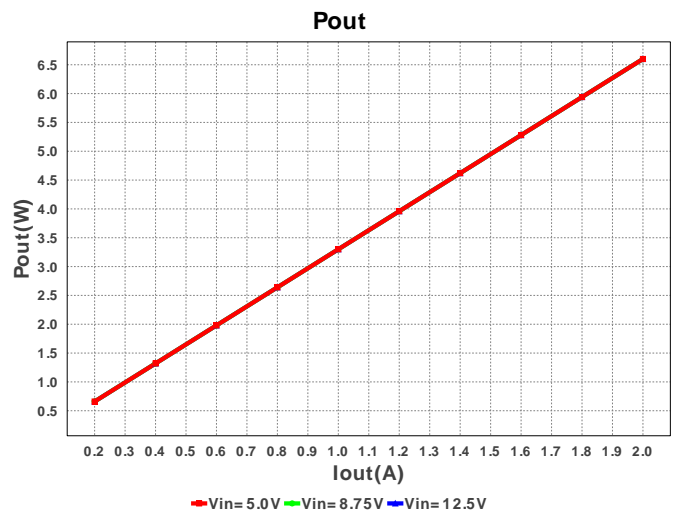
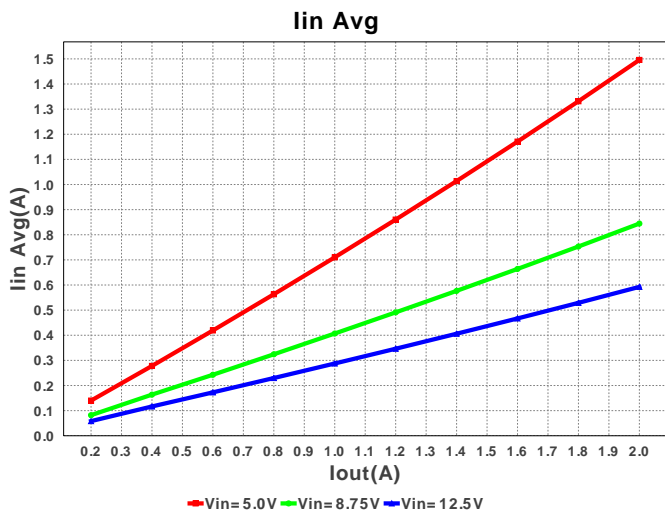
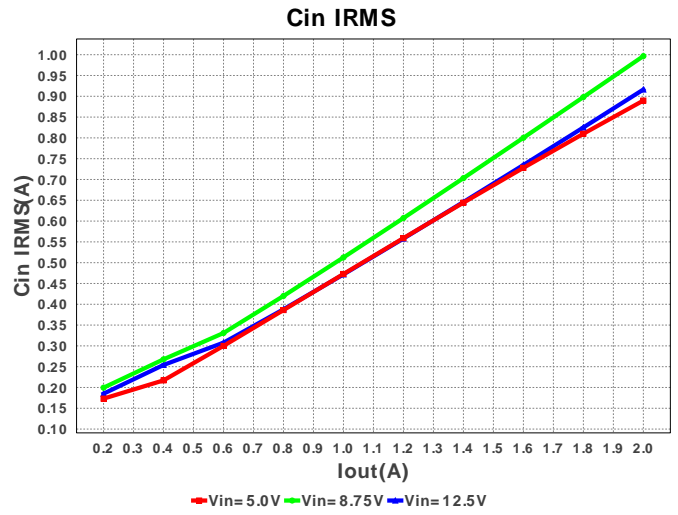
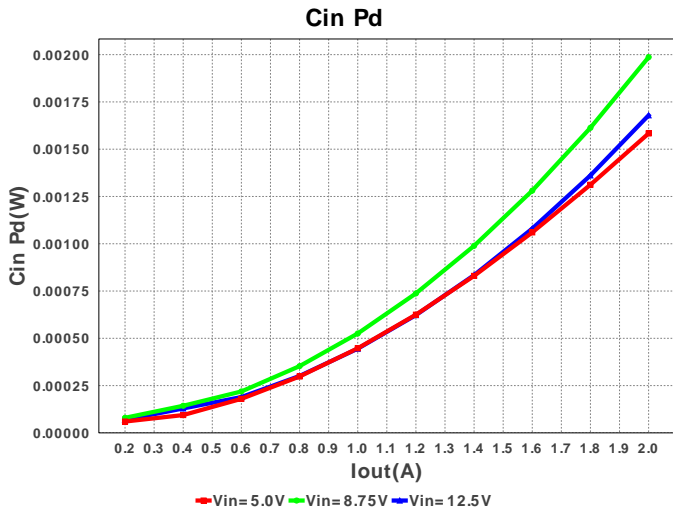


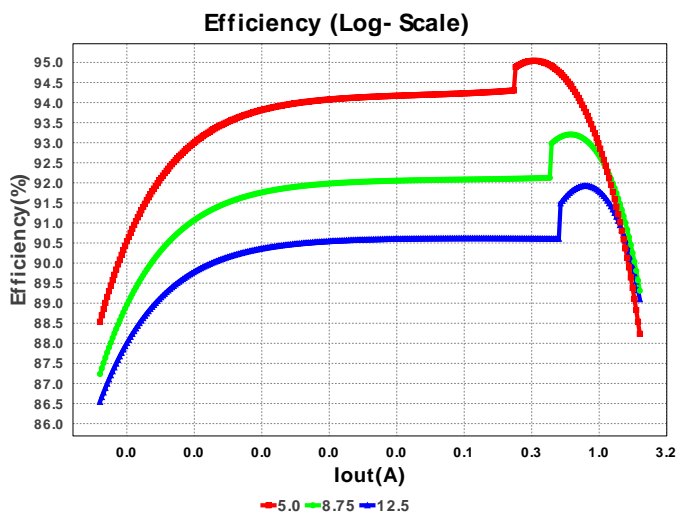
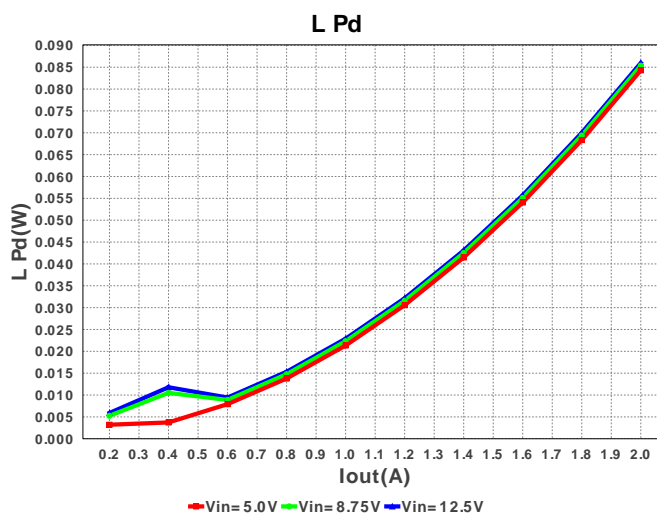
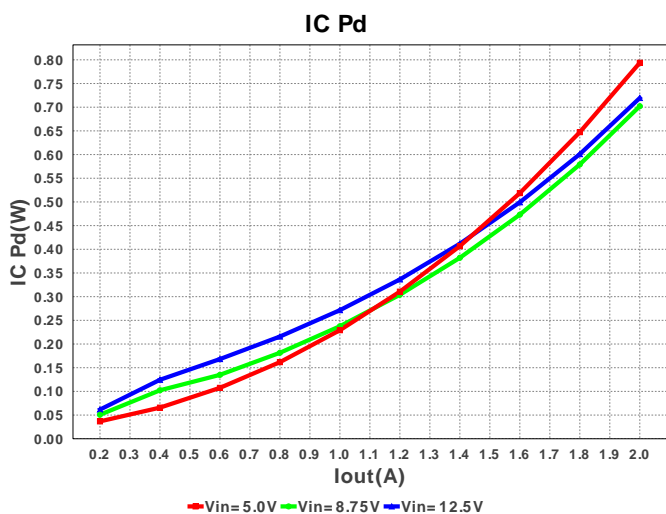
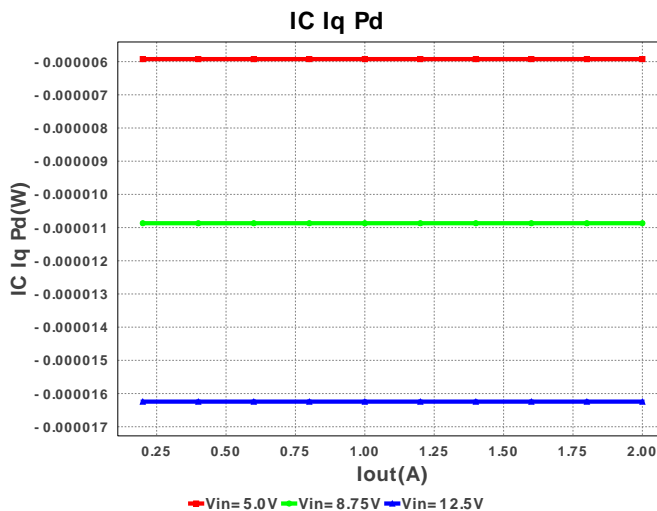
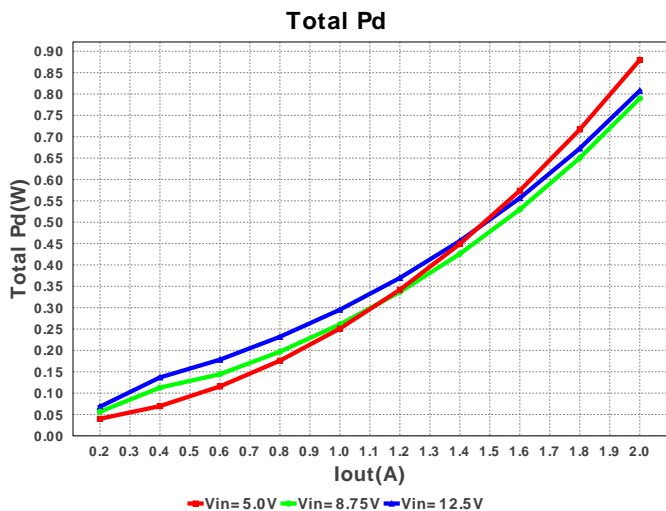
**WEBENCH<sup>®</sup> Design Report**

 Design : 3816719/384 TPS562209DDCR  
 TPS562209DDCR 5.0V-12.5V to 3.3V @ 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 7mm2
2.	Cff	AVX	06033A100FAT2A Series= C0G/NP0	Cap= 10.0 pF VDC= 25.0 V IRMS= 0.0 A	1	\$0.10	 0603 5mm2
3.	Cin	MuRata	GRM32ER61E226KE15L Series= X5R	Cap= 22.0 µF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 3.67 A	1	\$0.28	 1210 15mm2
4.	Cout	MuRata	GRM21BR60J226ME39L Series= X5R	Cap= 22.0 µF ESR= 9.0 mOhm VDC= 6.3 V IRMS= 3.5 A	2	\$0.03	 0805 7mm2
5.	L1	Bourns	SRN8040-3R3Y	L= 3.3 µH DCR= 21.0 mOhm	1	\$0.21	 SRN8040 100mm2
6.	Rfbb	Vishay-Dale	CRCW040249K9FKED Series= CRCW..e3	Res= 49.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
7.	Rfbt	Vishay-Dale	CRCW0402165KFKED Series= CRCW..e3	Res= 165.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
8.	U1	Texas Instruments	TPS562209DDCR	Switcher	1	\$0.58	DCC0006A 10mm2







### Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	916.259 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	306.587 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	592.6 mA	Current	Average input current
4.	L Ipp	1.062 A	Current	Peak-to-peak inductor ripple current
5.	BOM Count	9	General	Total Design BOM count
6.	FootPrint	156.0 mm2	General	Total Foot Print Area of BOM components
7.	Frequency	709.367 kHz	General	Switching frequency
8.	Pout	6.6 W	General	Total output power
9.	Total BOM	\$1.25	General	Total BOM Cost
10.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
11.	Duty Cycle	28.37 %	Op_point	Duty cycle

#	Name	Value	Category	Description
12.	Efficiency	89.098 %	Op_point	Steady state efficiency
13.	IC Tj	99.416 degC	Op_point	IC junction temperature
14.	ICThetaJA	109.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
15.	IOUT_OP	2.0 A	Op_point	Iout operating point
16.	VIN_OP	12.5 V	Op_point	Vin operating point
17.	Vout p-p	8.031 mV	Op_point	Peak-to-peak output ripple voltage
18.	Cin Pd	1.679 mW	Power	Input capacitor power dissipation
19.	Cout Pd	422.979 µW	Power	Output capacitor power dissipation
20.	IC Iq Pd	-16.244 µW	Power	IC Iq Pd
21.	IC Pd	719.412 mW	Power	IC power dissipation
22.	L Pd	85.974 mW	Power	Inductor power dissipation
23.	Total Pd	807.566 mW	Power	Total Power Dissipation

## Design Inputs

#	Name	Value	Description
1.	Iout	2.0 A	Maximum Output Current
2.	Iout1	2.0 Amps	Output Current #1
3.	VinMax	12.5 V	Maximum input voltage
4.	VinMin	5.0 V	Minimum input voltage
5.	Vout	3.3 V	Output Voltage
6.	Vout1	3.3 Volt	Output Voltage #1
7.	base_pn	TPS562209	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	21.0 degC	Ambient temperature

## Design Assistance

1. TPS562209 Product Folder : <http://www.ti.com/lit/ds/symlink/tps562200.pdf> : contains the data sheet and other resources.

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