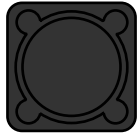
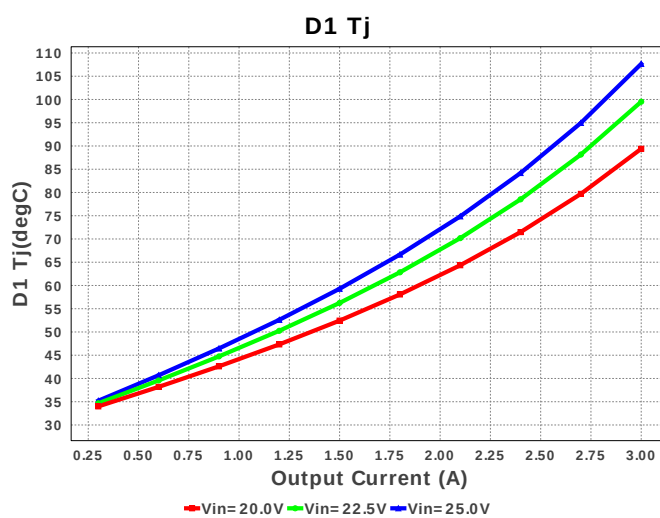
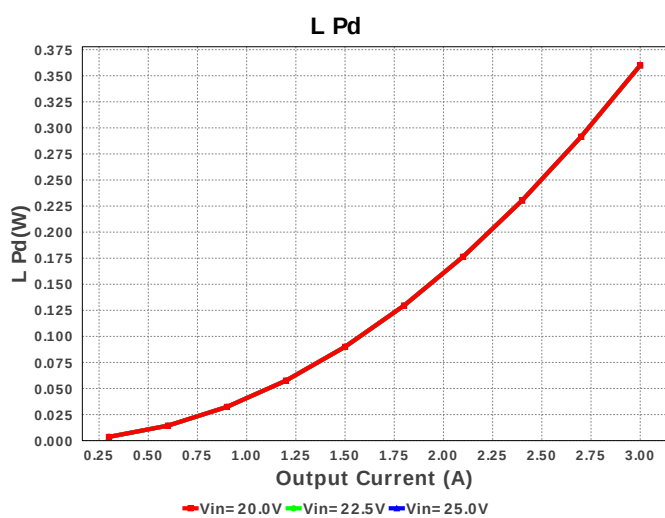
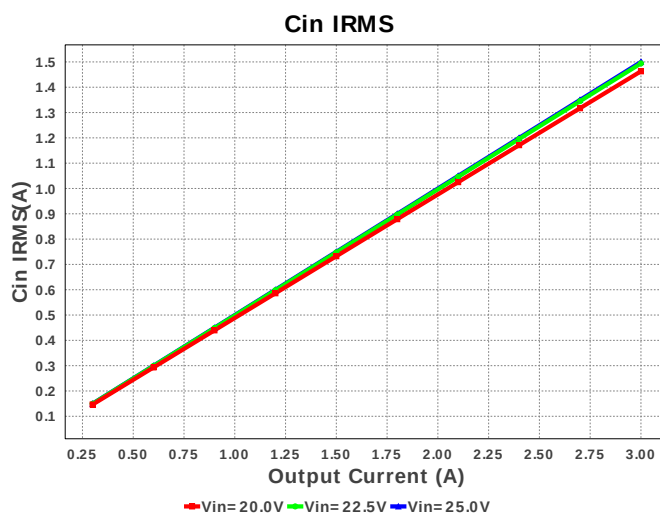
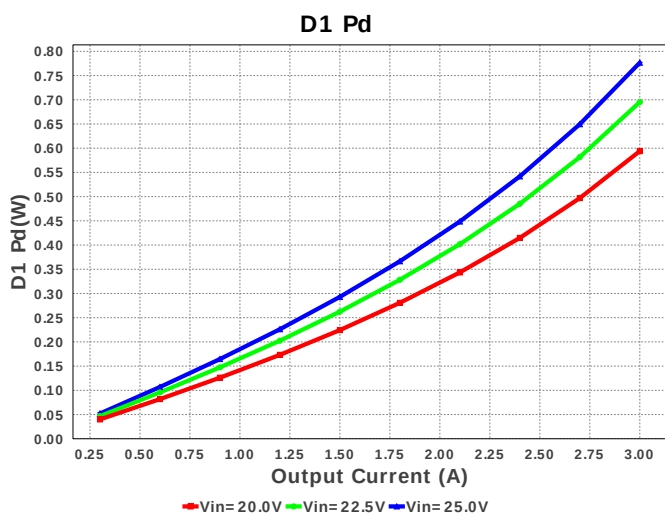
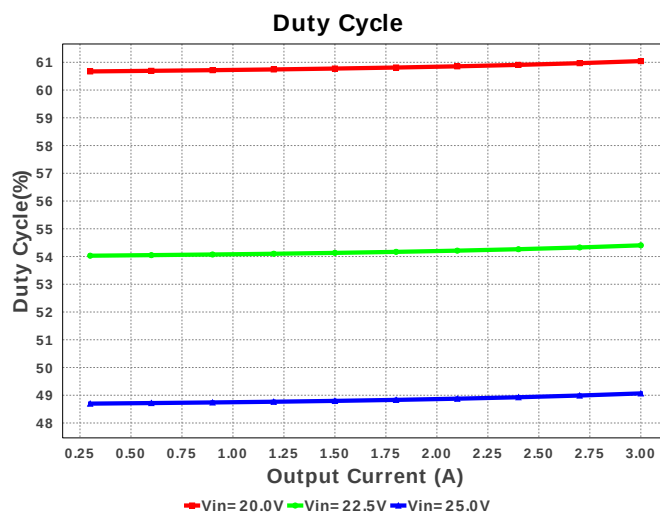
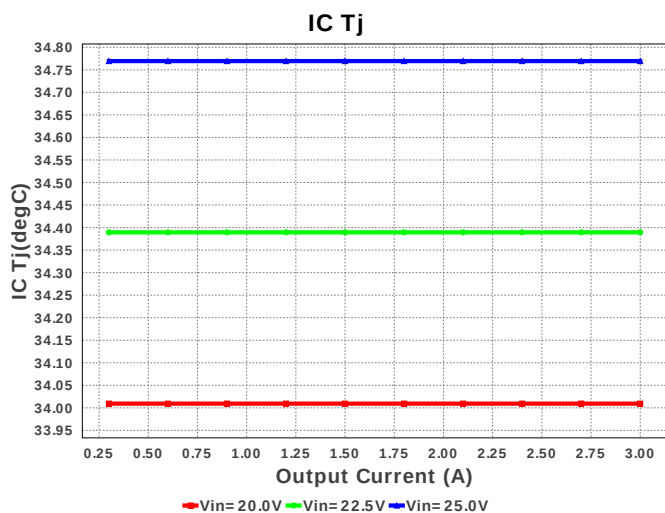
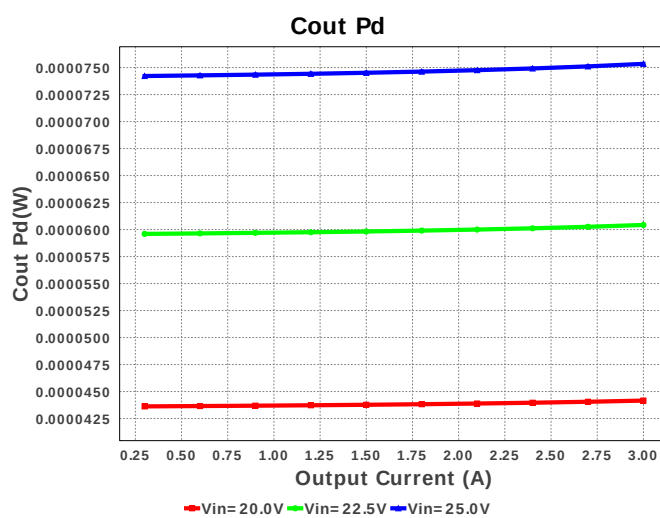
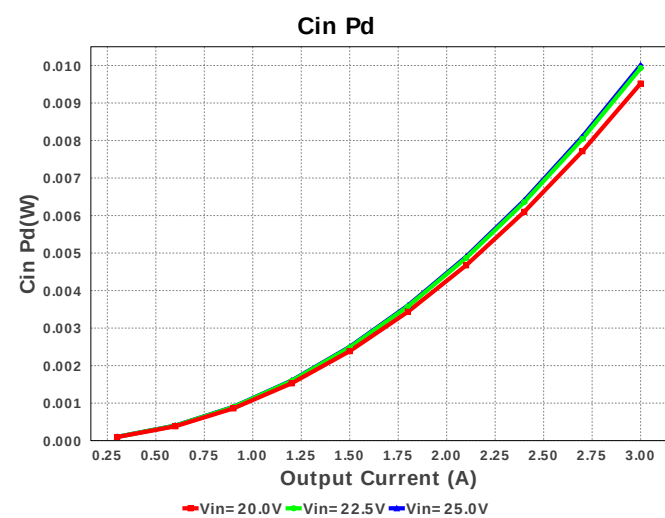
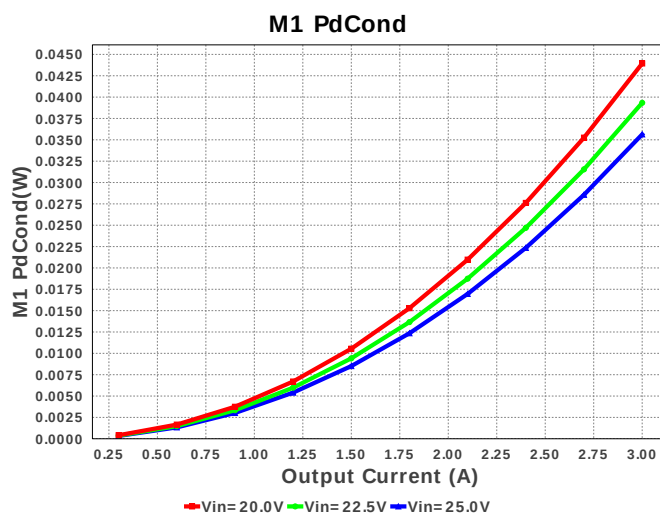
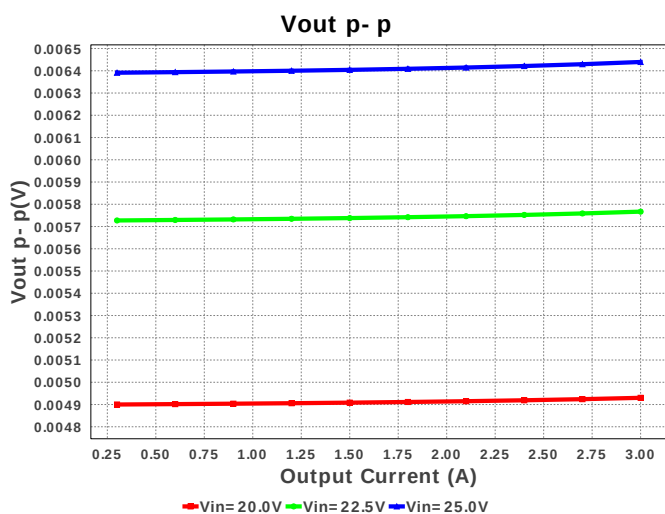
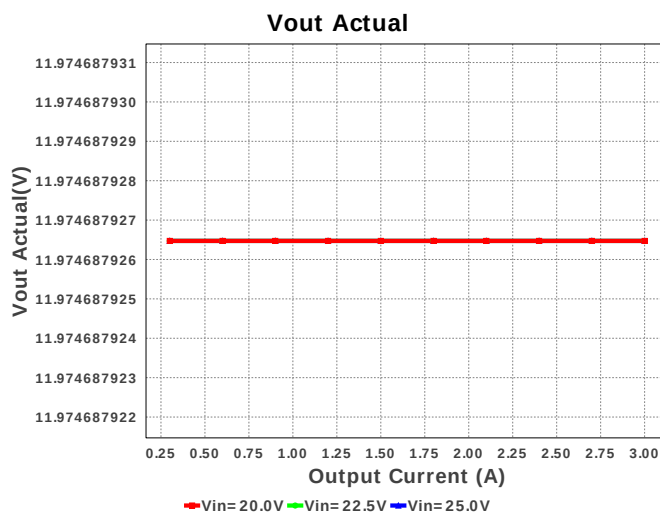
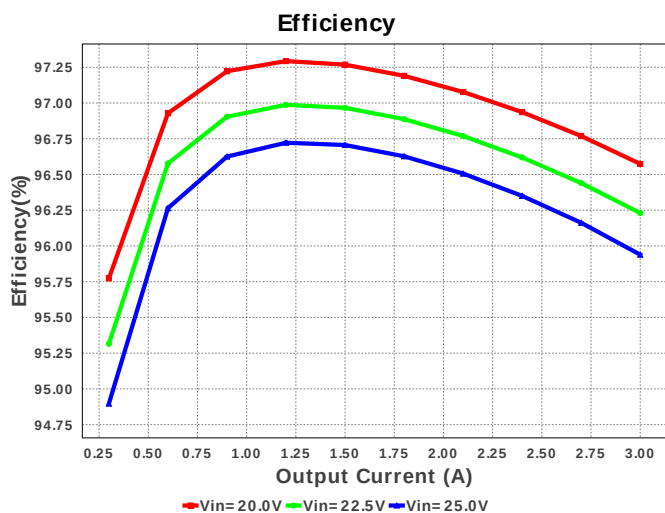


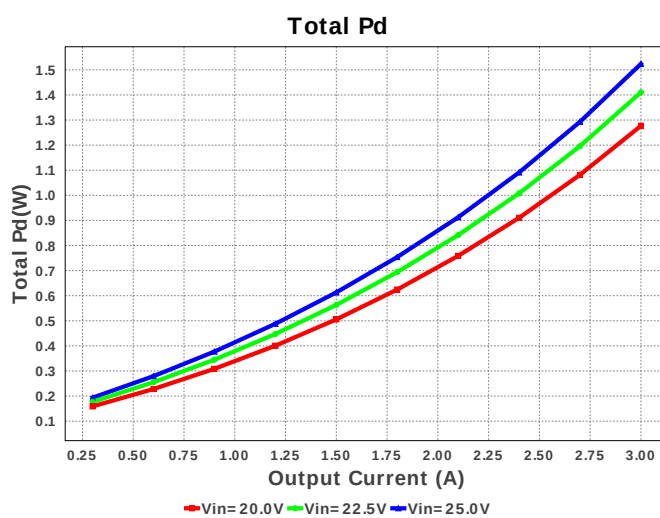
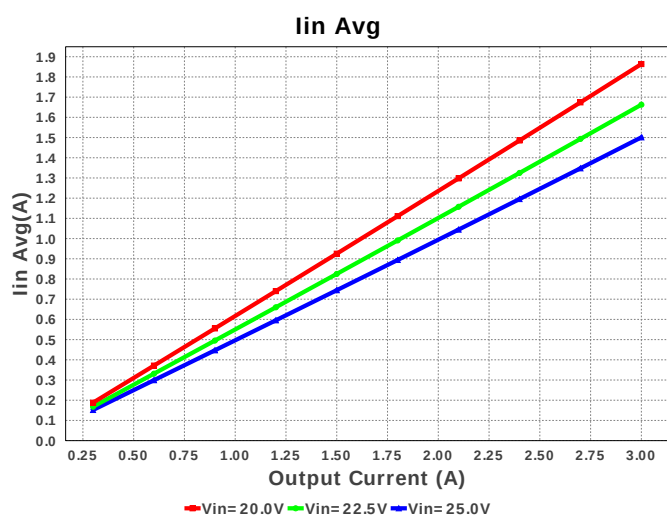
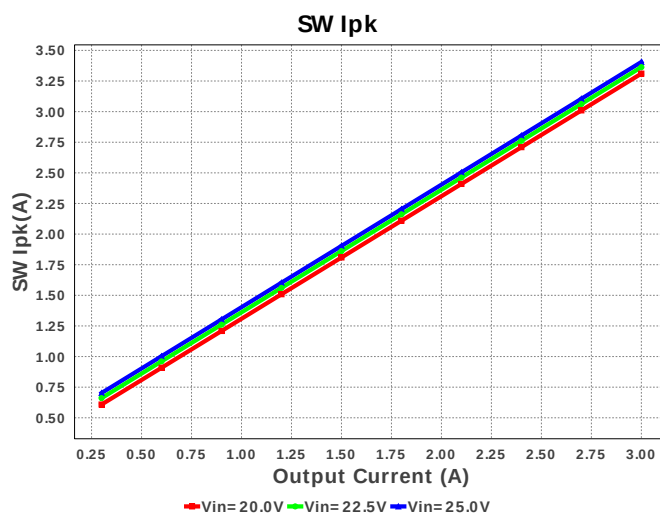
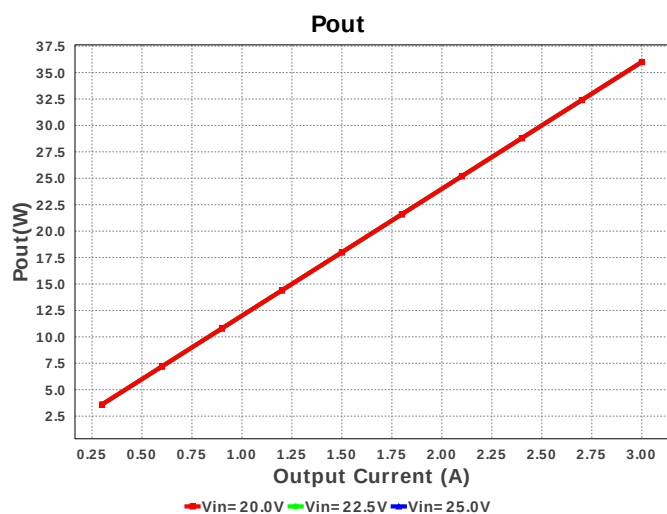
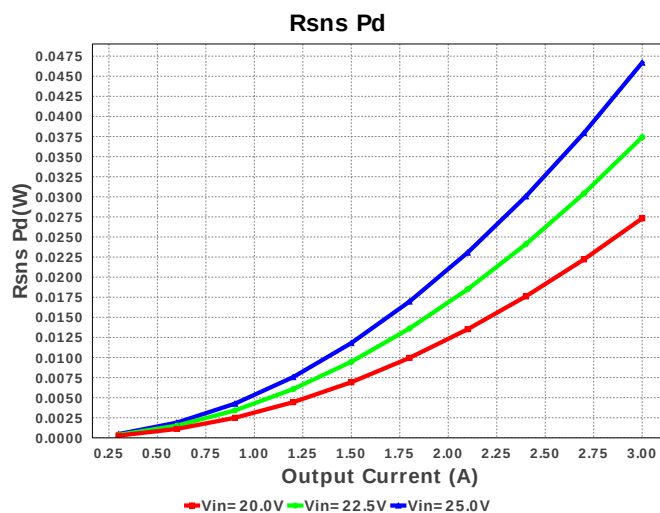
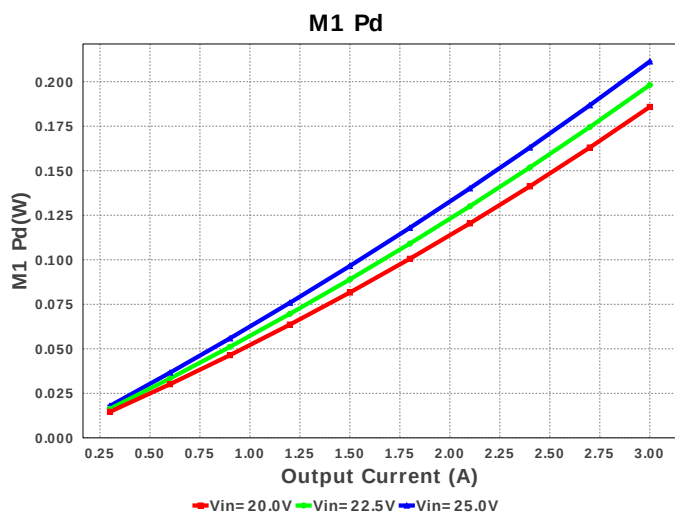


Device = LM25088QMHX-2/NOPB
Topology = Buck
Created = 8/4/16 1:16:52 AM
BOM Cost = \$2.79
BOM Count = 24
Total Pd = 1.52W

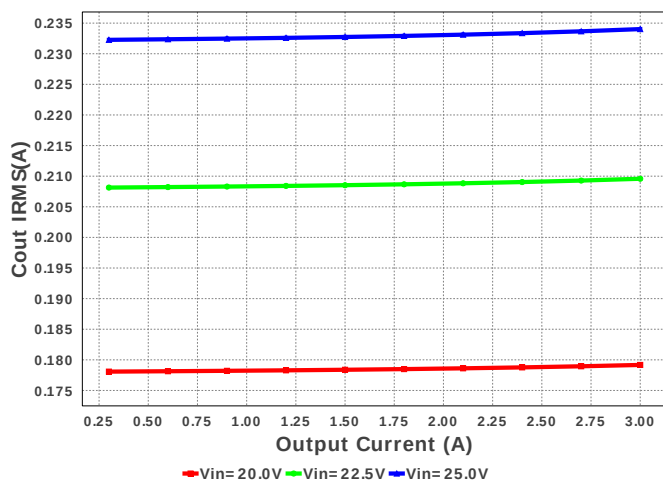
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	Cvcc	Kemet	C0603C224Z4VACTU Series= Y5V	Cap= 220.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0603 5 mm ²
11.	D1	Diodes Inc.	B340A-13-F	VF@Io= 500.0 mV VRRM= 40.0 V	1	\$0.11	 SMA 37 mm ²
12.	L1	Bourns	SRR1210-150M	L= 15.0 µH DCR= 32.0 mOhm	1	\$0.44	 SRR1210 196 mm ²
13.	M1	Texas Instruments	CSD18504Q5A	VdsMax= 40.0 V IdsMax= 50.0 Amps	1	\$0.37	 TRANS_NexFET_Q5A 55 mm ²
14.	Rcomp	Vishay-Dale	CRCW060328K0FKEA Series= CRCW..e3	Res= 28.0 kOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	 0603 5 mm ²
15.	Rfbb	Yageo America	RC0603FR-071K6L Series= ?	Res= 1.6 kOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	 0603 5 mm ²
16.	Rfbt	Vishay-Dale	CRCW040214K3FKED Series= CRCW..e3	Res= 14.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
17.	Rramp	Vishay-Dale	CRCW0603200KFKEA Series= CRCW..e3	Res= 200.0 kOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	 0603 5 mm ²
18.	Rsns	Stackpole Electronics Inc	CSR1206FK20L0 Series= ?	Res= 20.0 mOhm Power= 500.0 mW Tolerance= 1.0%	1	\$0.10	 1206 11 mm ²
19.	Rt	Vishay-Dale	CRCW060310K7FKEA Series= CRCW..e3	Res= 10.7 kOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	 0603 5 mm ²
20.	Ruv1	Panasonic	ERJ-6ENF4021V Series= ERJ-6E	Res= 4.02 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
21.	Ruv2	Panasonic	ERJ-6ENF4992V Series= ERJ-6E	Res= 49.9 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
22.	U1	Texas Instruments	LM25088QMHX-2/NOPB	Switcher	1	\$1.45	 MXA16A 59 mm ²



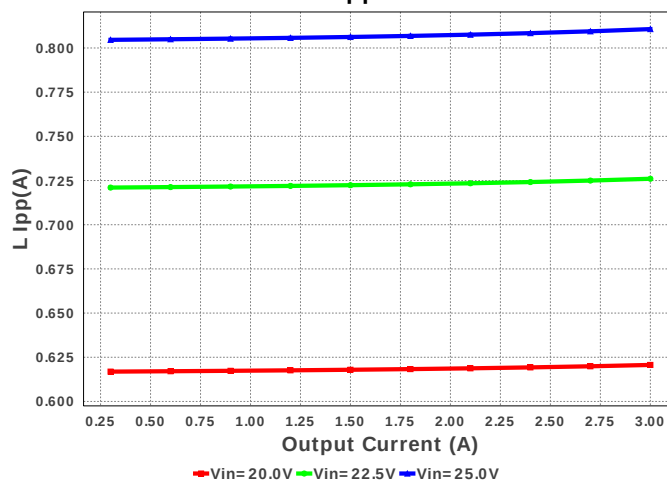




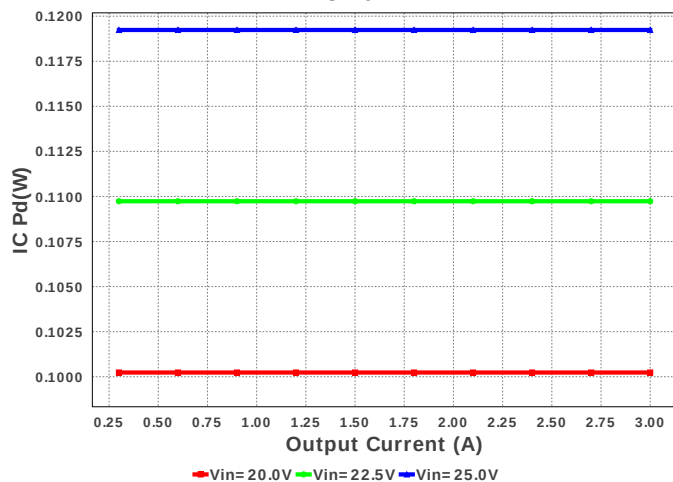
Cout IRMS



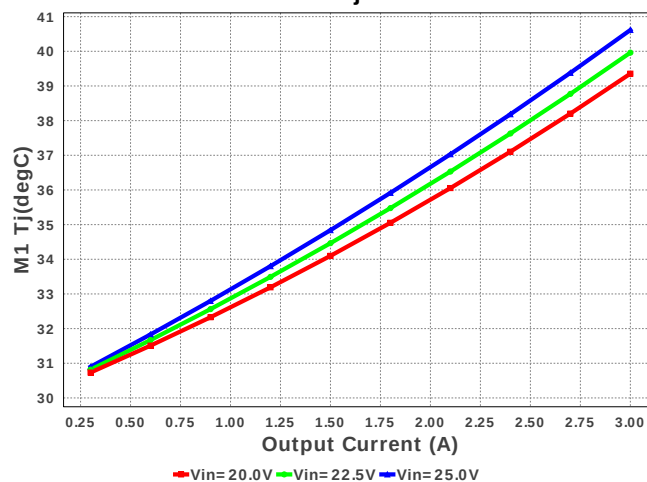
L Ipp



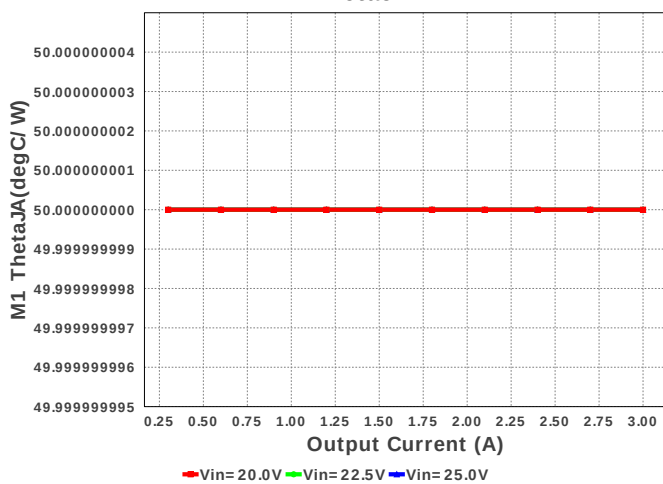
IC Pd



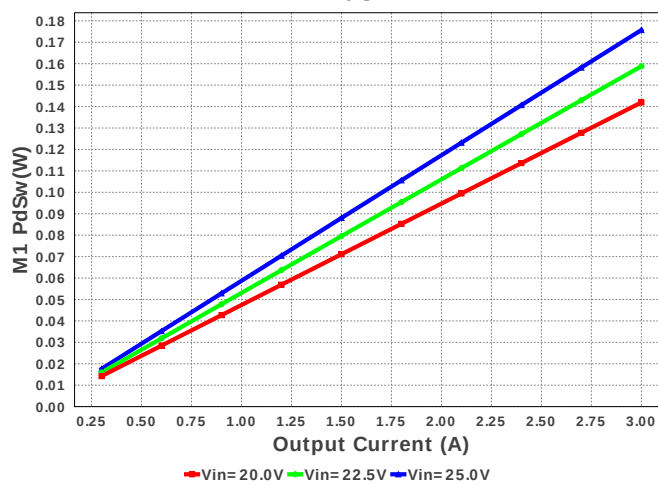
M1 Tj

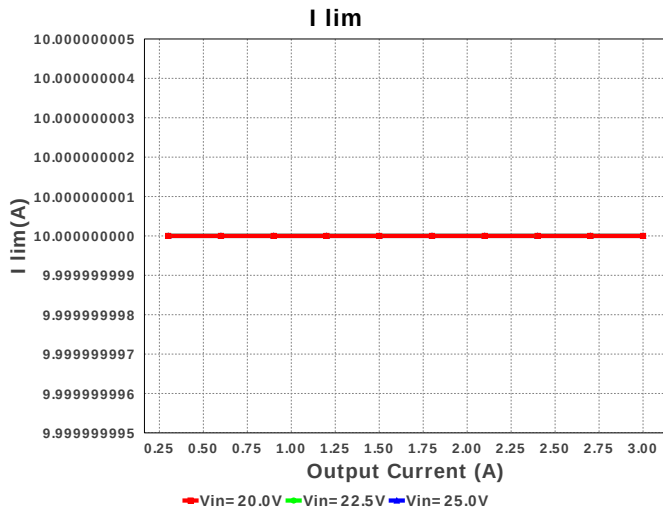


M1 ThetaJA



M1 PdSw





Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.5 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	233.822 mA	Current	Output capacitor RMS ripple current
3.	I lim	10.0 A	Current	Current limit threshold
4.	Iin Avg	1.501 A	Current	Average input current
5.	L Ipp	809.98 mA	Current	Peak-to-peak inductor ripple current
6.	SW Ipk	3.405 A	Current	Peak switch current
7.	BOM Count	24	General	Total Design BOM count
8.	FootPrint	462.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	524.549 kHz	General	Switching frequency
10.	IC Tolerance	18.0 mV	General	IC Feedback Tolerance
11.	M1 ThetaJA	50.0 degC/W	General	MOSFET junction-to-ambient thermal resistance
12.	Pout	36.0 W	General	Total output power
13.	Total BOM	\$2.79	General	Total BOM Cost
14.	D1 Tj	107.658 degC	Op_Point	D1 junction temperature
15.	Vout Actual	11.975 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
16.	Duty Cycle	49.066 %	Op_point	Duty cycle
17.	Efficiency	95.939 %	Op_point	Steady state efficiency
18.	IC Tj	34.769 degC	Op_point	IC junction temperature
19.	ICThetaJA	40.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
20.	IOUT_OP	3.0 A	Op_point	Iout operating point
21.	M1 Tj	40.615 degC	Op_point	M1 MOSFET junction temperature
22.	VIN_OP	25.0 V	Op_point	Vin operating point
23.	Vout p-p	6.434 mV	Op_point	Peak-to-peak output ripple voltage
24.	Cin Pd	10.005 mW	Power	Input capacitor power dissipation
25.	Cout Pd	75.212 μ W	Power	Output capacitor power dissipation
26.	D1 Pd	776.578 mW	Power	Diode1 power dissipation
27.	IC Pd	119.234 mW	Power	IC power dissipation
28.	L Pd	360.0 mW	Power	Inductor power dissipation
29.	M1 Pd	211.338 mW	Power	M1 MOSFET total power dissipation
30.	M1 PdCond	35.635 mW	Power	M1 MOSFET conduction losses
31.	M1 PdSw	175.703 mW	Power	M1 MOSFET switching losses
32.	Rsns Pd	46.696 mW	Power	Current Limit Sense Resistor Power Dissipation
33.	Total Pd	1.524 W	Power	Total Power Dissipation
34.	Vout Tolerance	3.338 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	3.0	Maximum Output Current
2.	VinMax	25.0	Maximum input voltage
3.	VinMin	20.0	Minimum input voltage
4.	Vout	12.0	Output Voltage
5.	base_pn	LM25088-Q1	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **LM25088-Q1** Product Folder : <http://www.ti.com/product/LM25088%2DQ1> : contains the data sheet and other resources.

Texas Instruments' WEBENCH simulation tools attempt to recreate the performance of a substantially equivalent physical implementation of the design. Simulations are created using Texas Instruments' published specifications as well as the published specifications of other device manufacturers. While Texas Instruments does update this information periodically, this information may not be current at the time the simulation is built. Texas Instruments does not warrant the accuracy or completeness of the specifications or any information contained therein. Texas Instruments does not warrant that any designs or recommended parts will meet the specifications you entered, will be suitable for your application or fit for any particular purpose, or will operate as shown in the simulation in a physical implementation. Texas Instruments does not warrant that the designs are production worthy.

You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

Use of Texas Instruments' WEBENCH simulation tools is subject to [Texas Instruments' Site Terms and Conditions of Use](#). Prototype boards based on WEBENCH created designs are provided AS IS without warranty of any kind for evaluation and testing purposes and are subject to the terms of the [Evaluation License Agreement](#).