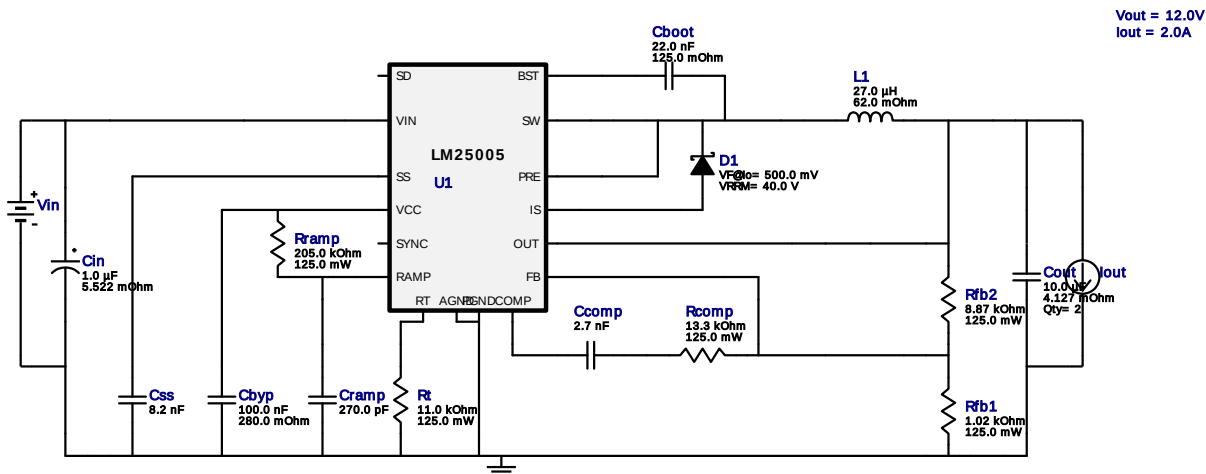


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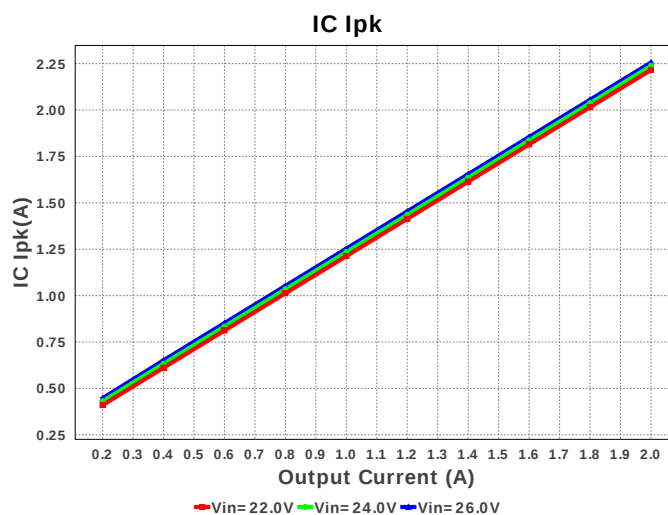
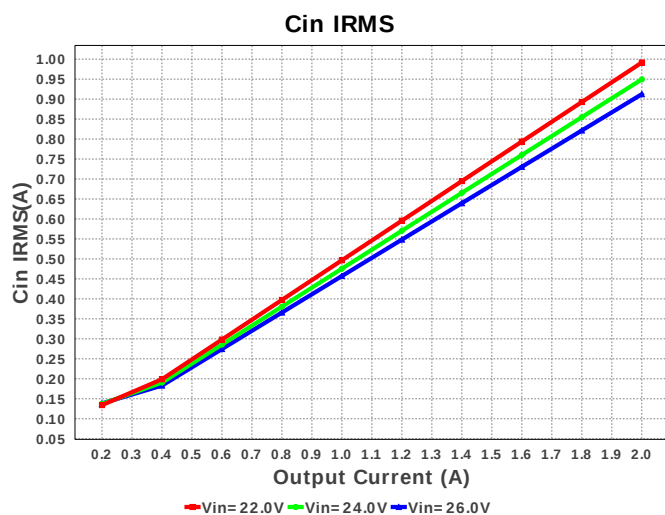
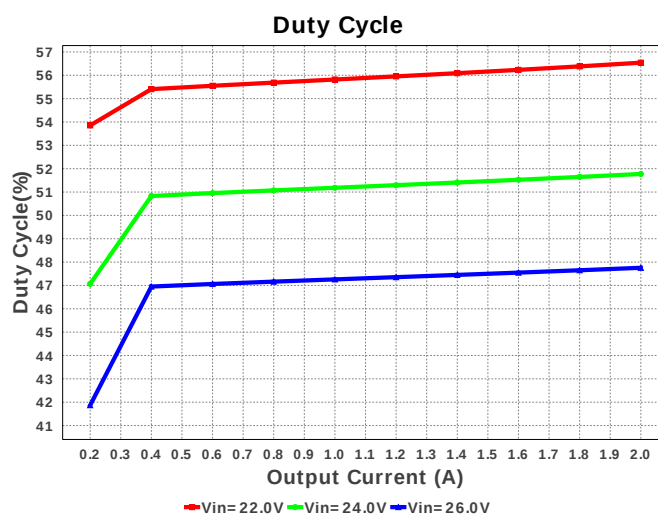
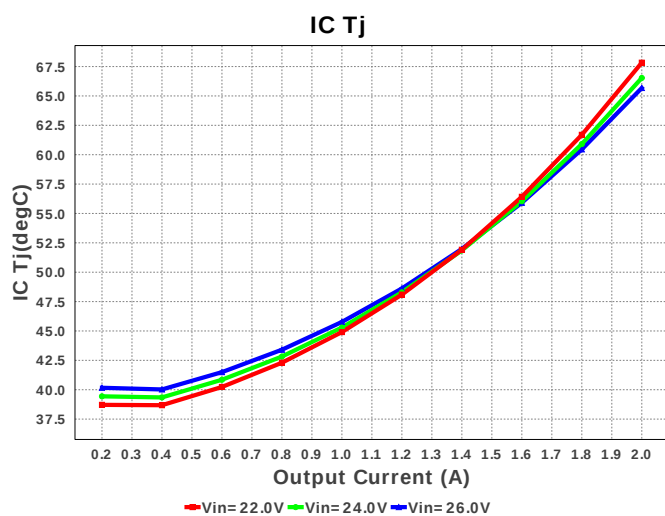
Design : 4743042/2 LM25005MHX/NOPB
LM25005MHX/NOPB 22.0V-26.0V to 12.00V @ 2.0A

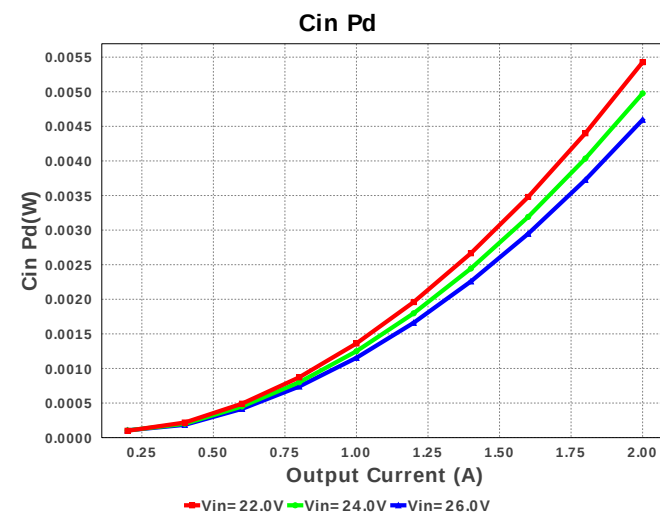
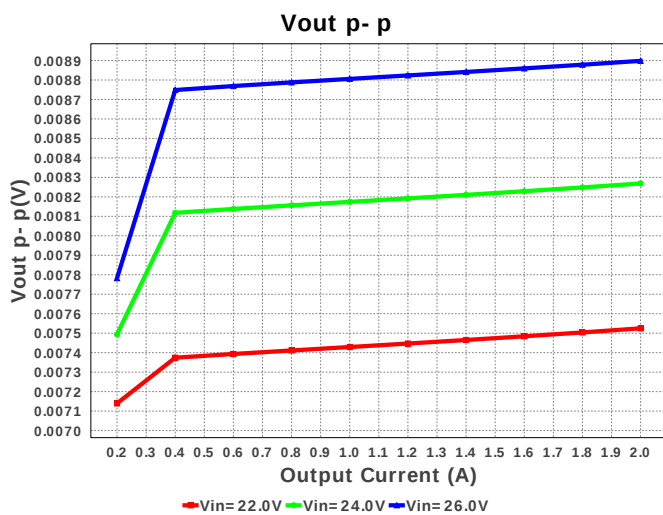
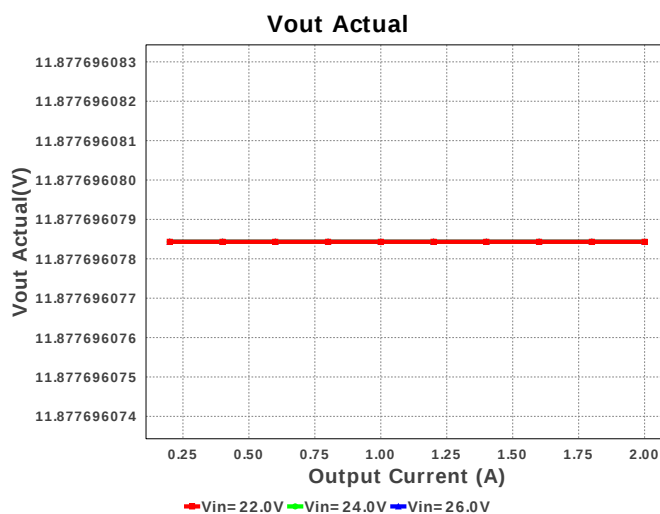
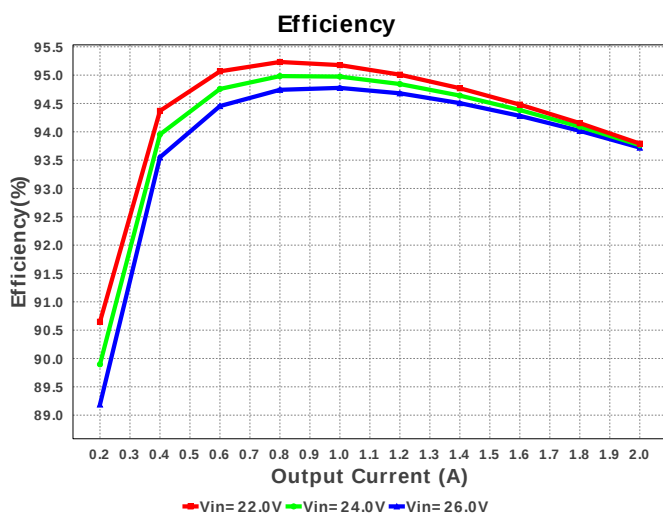
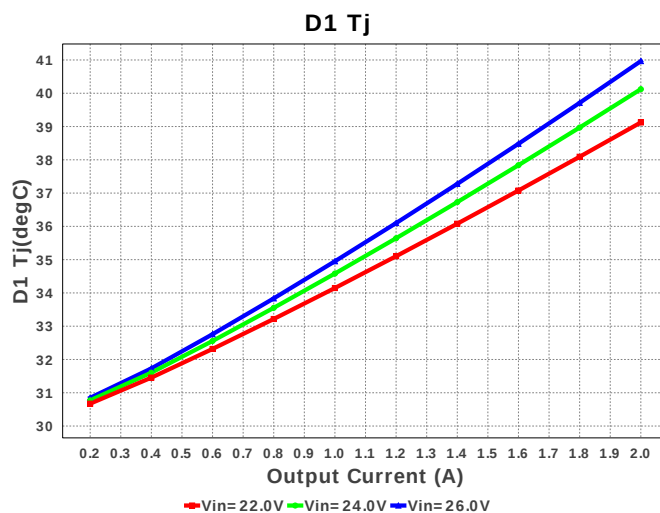
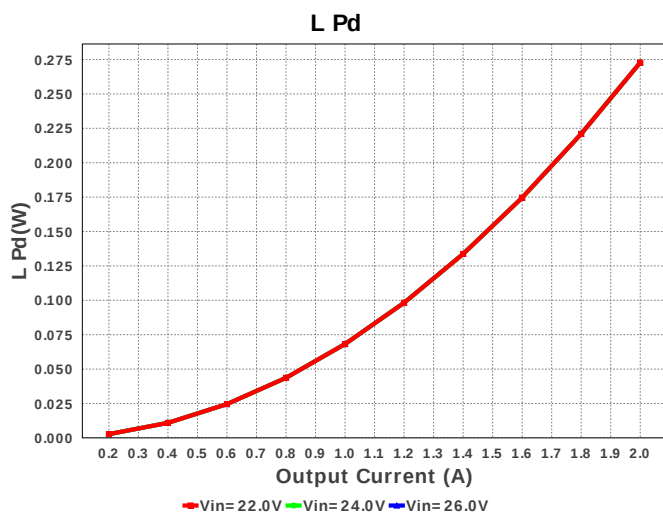


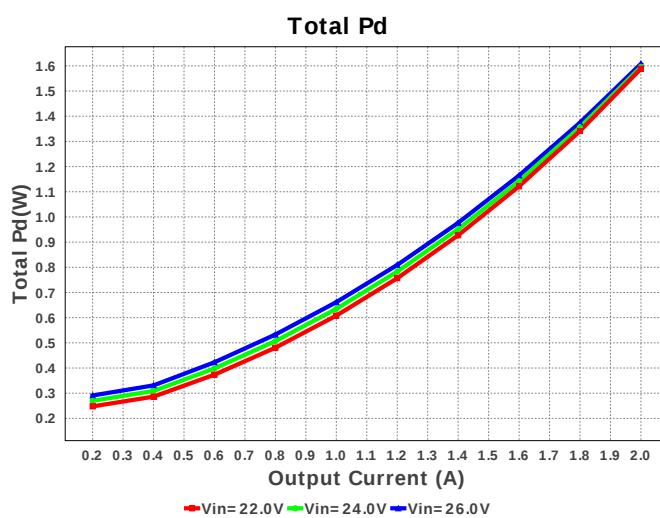
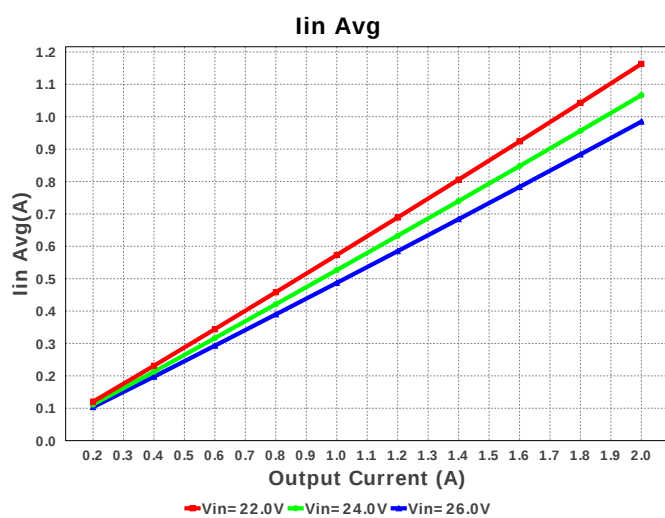
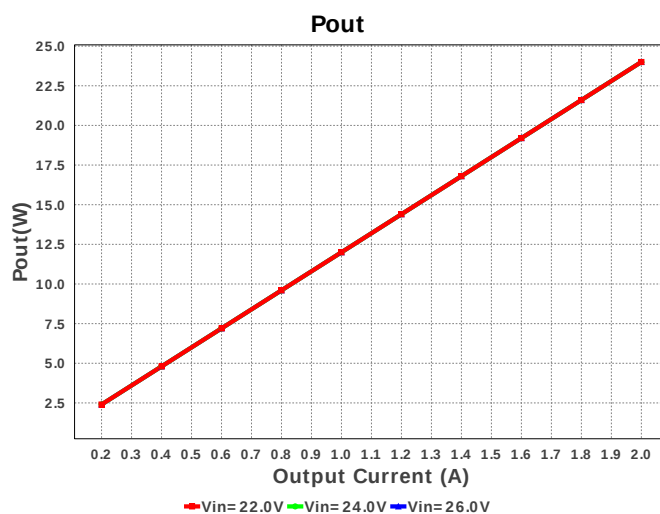
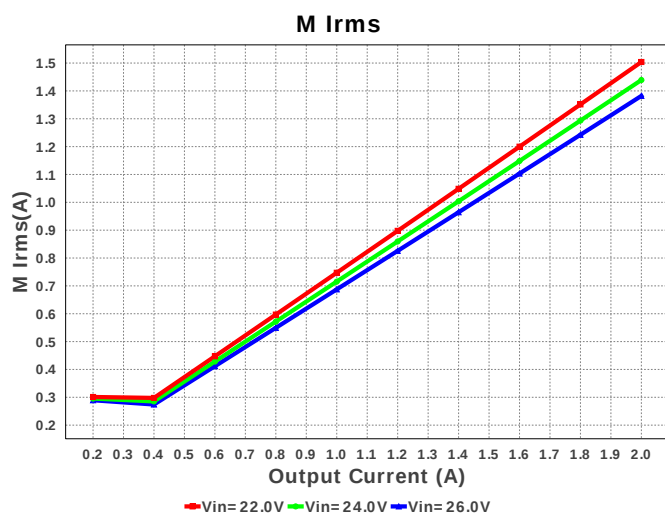
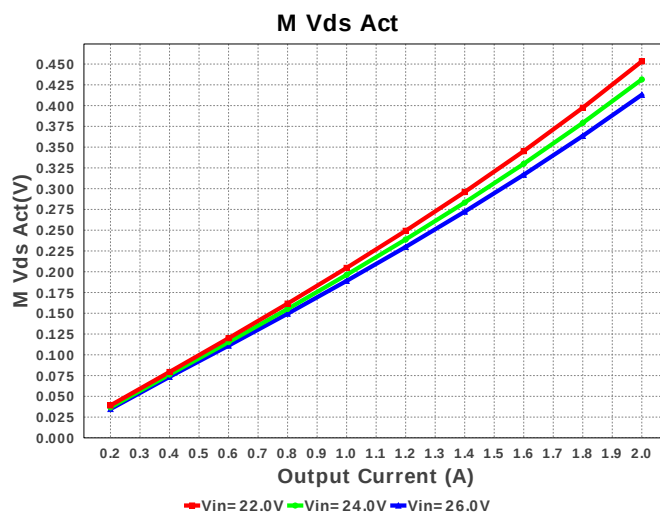
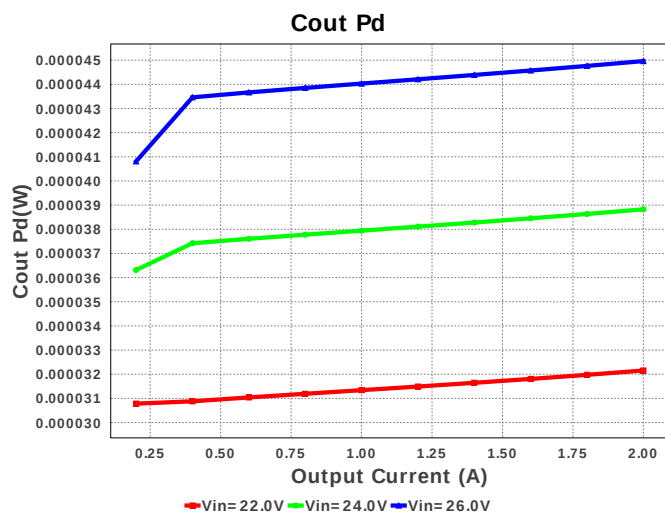
Electrical BOM

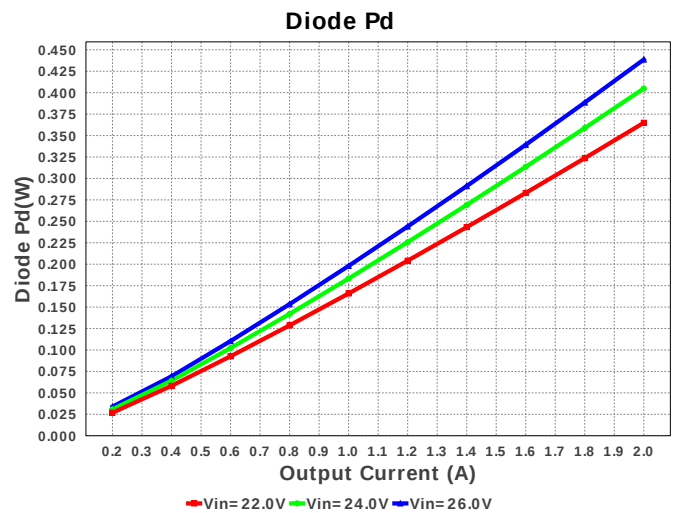
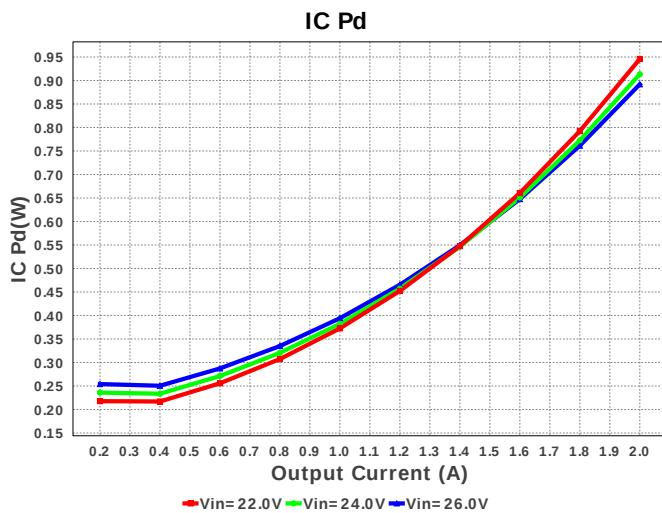
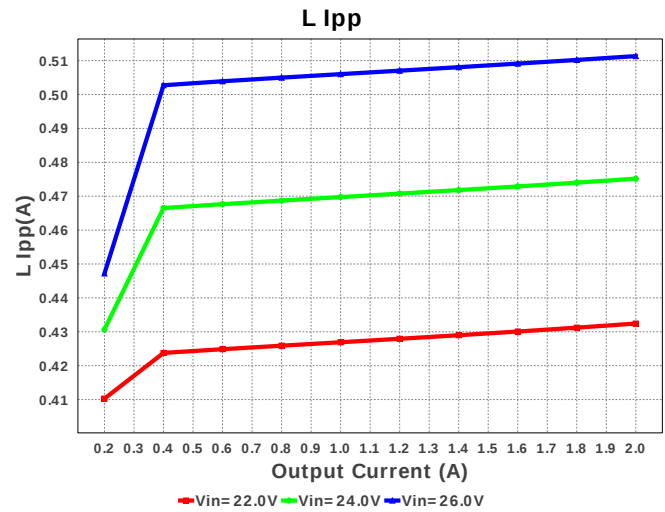
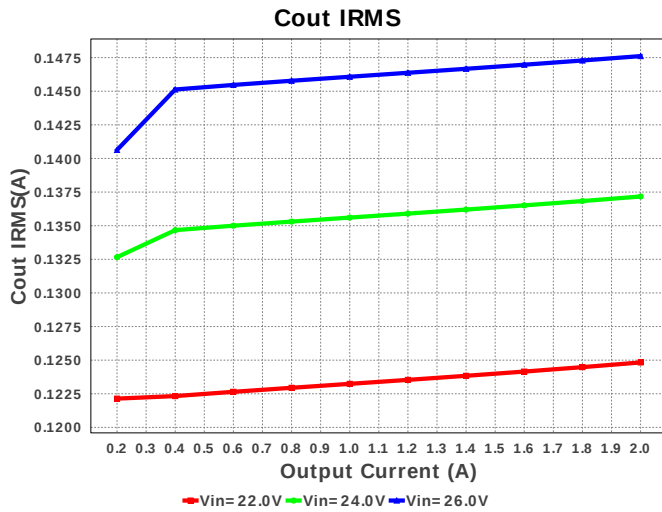
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C223K5RACTU Series= X7R	Cap= 22.0 nF ESR= 125.0 mOhm VDC= 50.0 V IRMS= 645.0 mA	1	\$0.01	0805 7 mm ²
2.	Cbyp	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	Ccomp	Yageo America	CC0805KRX7R9BB272 Series= X7R	Cap= 2.7 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
4.	Cin	TDK	C1608X7R1V105K080AC Series= X7R	Cap= 1.0 uF ESR= 5.522 mOhm VDC= 35.0 V IRMS= 2.2162 A	1	\$0.05	0603 5 mm ²
5.	Cout	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
6.	Cramp	Yageo America	CC0805KRX7R9BB271 Series= X7R	Cap= 270.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
7.	Css	MuRata	GRM155R71E822KA01D Series= X7R	Cap= 8.2 nF VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
8.	D1	Diodes Inc.	B240A-13-F	VF@Io= 500.0 mV VRRM= 40.0 V	1	\$0.09	SMA 37 mm ²
9.	L1	Bourns	SRR1208-270ML	L= 27.0 uH DCR= 62.0 mOhm	1	\$0.37	SRR1208 216 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	Rcomp	Panasonic	ERJ-6ENF1332V Series= ERJ-6E	Res= 13.3 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
11.	Rfb1	Panasonic	ERJ-6ENF1021V Series= ERJ-6E	Res= 1.02 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
12.	Rfb2	Panasonic	ERJ-6ENF8871V Series= ERJ-6E	Res= 8.87 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
13.	Rramp	Panasonic	ERJ-6ENF2053V Series= ERJ-6E	Res= 205.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
14.	Rt	Panasonic	ERJ-6ENF1102V Series= ERJ-6E	Res= 11.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
15.	U1	Texas Instruments	LM25005MHX/NOPB	Switcher	1	\$1.40	 MXA20A 71 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	912.235 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	147.612 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.256 A	Current	Peak switch current in IC
4.	Iin Avg	984.92 mA	Current	Average input current
5.	L Ipp	511.34 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	1.382 A	Current	Q Iavg
7.	BOM Count	16	General	Total Design BOM count
8.	FootPrint	407.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	484.262 kHz	General	Switching frequency
10.	IC Tolerance	18.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	412.992 mV	General	Voltage drop across the MosFET
12.	Pout	24.0 W	General	Total output power
13.	Total BOM	\$2.07	General	Total BOM Cost
14.	D1 Tj	40.966 degC	Op_Point	D1 junction temperature
15.	Vout Actual	11.878 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
16.	Vout OP	12.0 V	Op_Point	Operational Output Voltage
17.	Duty Cycle	47.756 %	Op_point	Duty cycle
18.	Efficiency	93.721 %	Op_point	Steady state efficiency
19.	IC Tj	65.677 degC	Op_point	IC junction temperature
20.	ICThetaJA	40.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
21.	IOUT_OP	2.0 A	Op_point	Iout operating point
22.	VIN_OP	26.0 V	Op_point	Vin operating point
23.	Vout p-p	8.898 mV	Op_point	Peak-to-peak output ripple voltage
24.	Cin Pd	4.595 mW	Power	Input capacitor power dissipation
25.	Cout Pd	44.962 μW	Power	Output capacitor power dissipation
26.	Diode Pd	438.648 mW	Power	Diode power dissipation
27.	IC Pd	891.914 mW	Power	IC power dissipation
28.	L Pd	272.8 mW	Power	Inductor power dissipation
29.	Total Pd	1.608 W	Power	Total Power Dissipation
30.	Vout Tolerance	3.308 %		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	26.0	Maximum input voltage
3.	VinMin	22.0	Minimum input voltage
4.	Vout	12.0	Output Voltage
5.	base_pn	LM25005	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **LM25005** Product Folder : <http://www.ti.com/product/LM25005> : contains the data sheet and other resources.

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