

Designed with TPS7A52

3.6V input,

3.3V, 2A output.

1. Input supply

Input is supplied from TPSM84824MOLR.

Parametor	min		tyo	max	
Vin	-1.833%	3.534V	3.600V	3.666V	1.833%

The output of the TPSM84824MOLR is also supplied to other power sources.

2. Output required for TPSM82813 SILR

The output of the TPSM82813 SILR is supplied to the FPGA.

Parametor	min		typ	max	
Vout	-3.000%	3.201V	3.300V	3.399V	3.000%
Iout	-	-	-	1.550A	-

3. Designed files

The following materials are available.

- Schematic
- Bills of materials
- Cin/Cout Part data

4. What I care about

4-1. Output accuracy

DC output accuracy	±1.521%	: Use a 1.0% resistor.
Load Regulation	±0.001%	: $0.012\text{mV/A} \times 2\text{A} + a = 0.024 + a$ $a = 0.012$
Line Regulation	±0.004%	: $0.03\text{mV/V} \times 3.3\text{V} + a = 0.099\% + a$ $a = 0.03\%$
Total output accuracy	±1.526%	

Satisfy the required output accuracy ± 3%

Is my output accuracy calculation correct?

4-2. VDO

Input Voltage: 3.666V(max)

Output Voltage : 3/257V(min)

VDO= 0.409 V

4-3.Tj

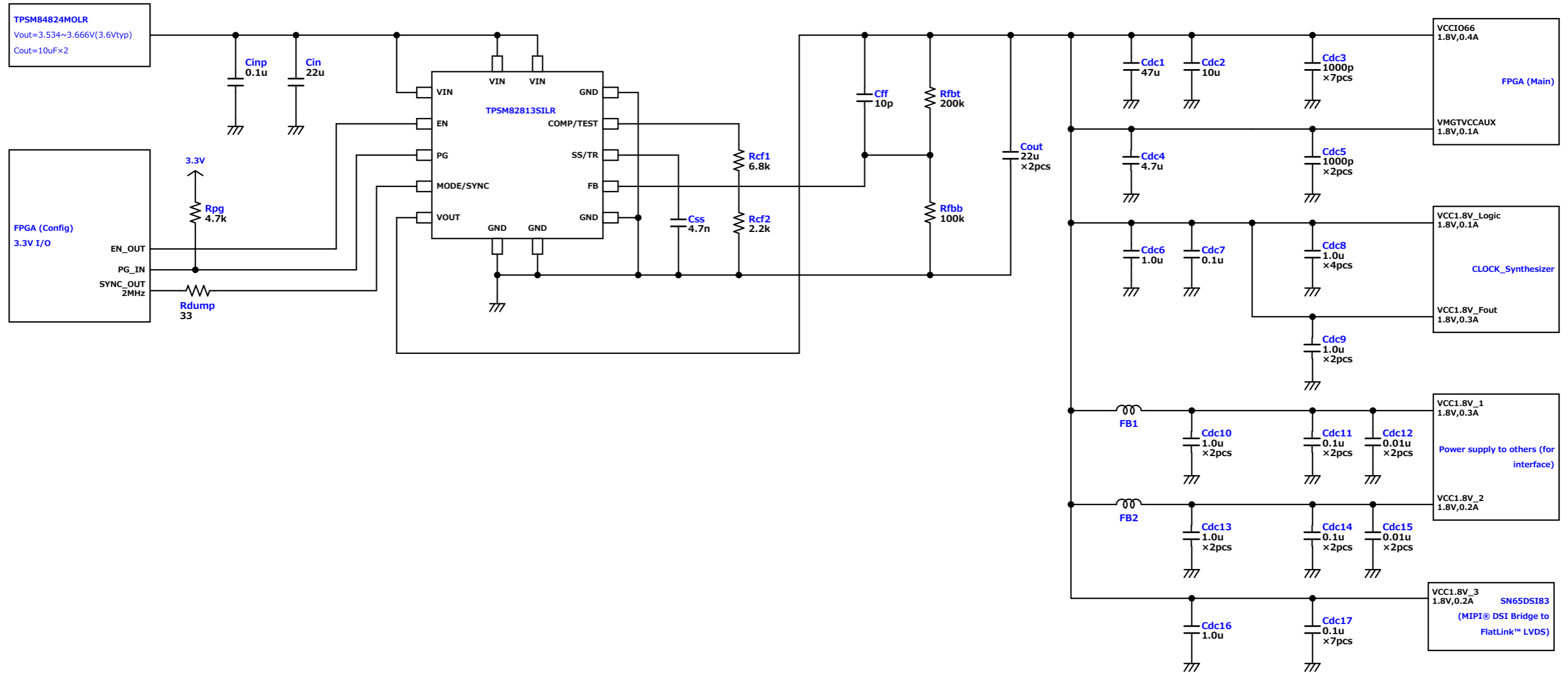
Output Current : 1.55A(max)

VDO: 0.409(max)

Pd $0.409 \times 1.55 =$ 0.63395 W

Ta:40°C

Tj= $40 + 68.7 \times 0.64W =$ 83.968 °C



Part	Manufacturer	Part Number	Quantity	Description
Css	MuRata	GRM1555C1H472JE01D	1	Cap: 4.7 nF Total Derated Cap: 4.7 nF VDC: 50 V ESR: 4 mΩ Package: 0402
Rfbb	KOA	RN73R1ETTP1503B25	1	Resistance: 150 kΩ Tolerance: 0.1% Power: 63 mW Package: 0402
Rfbt	KOA	RN73R1ETTP1003B25	1	Resistance: 100 kΩ Tolerance: 0.1% Power: 63 mW Package: 0402
Rpg	KOA	RK73H1ETTP4701F	1	Resistance: 4.7 kΩ Tolerance: 1.0% Power: 0.1 W Package: 0402
U1	Texas Instruments	TPSM82813SILR	1	
Cin	MuRata	GRM21BR61E226ME44L	1	Cap: 22 μF Total Derated Cap: 13.5 μF VDC: 25 V ESR: 2 mΩ Package: 0805
Cout	MuRata	GRM21BR61E226ME44L	2	Cap: 22 μF Total Derated Cap: 58.8 μF VDC: 25 V ESR: 2 mΩ Package: 0805
Rcf1	KOA	RK73H1ETTP6801F	1	Resistance: 6.8 kΩ Tolerance: 1.0% Power: 0.1 W Package: 0402
Rcf2	KOA	RK73H1ETTP2201F	1	Resistance: 2.2 kΩ Tolerance: 1.0% Power: 0.1 W Package: 0402
Cff	MuRata	GRM0335C1H100JA01D	1	Cap: 10 pF Total Derated Cap: 10 pF VDC: 50 V ESR: 200 mΩ Package: 0201
Cinp	MuRata	GRM033R61E104KE14D	1	Cap: 0.1 μF Total Derated Cap: 0.07 μF VDC: 25 V ESR: 30 mΩ Package: 0201
Rdump	KOA	RK73H1ETTP33R0F	1	Resistance: 33 Ω Tolerance: 1.0% Power: 0.1 W Package: 0402
Cdc1	MuRata	GRM31CR61C476ME44L	1	Cap: 47 μF Total Derated Cap: 43.1 μF VDC: 16 V ESR: 2 mΩ Package: 1206
Cdc2	MuRata	GRM188R61E106KA73D	1	Cap: 10 μF Total Derated Cap:8.43 μF VDC: 25 V ESR: 3 mΩ Package: 0603
Cdc6	MuRata	GRM155R61E105KA12D	1	Cap: 1 μF Total Derated Cap:0.8 μF VDC: 25 V ESR: 10 mΩ Package: 0402
Cdc8	MuRata	GRM155R61E105KA12D	4	Cap: 1 μF Total Derated Cap:0.8 μF VDC: 25 V ESR: 10 mΩ Package: 0402
Cdc9	MuRata	GRM155R61E105KA12D	2	Cap: 1 μF Total Derated Cap:0.8 μF VDC: 25 V ESR: 10 mΩ Package: 0402
Cdc10	MuRata	GRM155R61E105KA12D	2	Cap: 1 μF Total Derated Cap:0.8 μF VDC: 25 V ESR: 10 mΩ Package: 0402
Cdc13	MuRata	GRM155R61E105KA12D	2	Cap: 1 μF Total Derated Cap:0.8 μF VDC: 25 V ESR: 10 mΩ Package: 0402
Cdc16	MuRata	GRM155R61E105KA12D	1	Cap: 1 μF Total Derated Cap:0.8 μF VDC: 25 V ESR: 10 mΩ Package: 0402
Cdc7	MuRata	GRM033R61E104KE14D	1	Cap: 0.1 μF Total Derated Cap: 0.09 μF VDC: 25 V ESR: 30 mΩ Package: 0201
Cdc11	MuRata	GRM033R61E104KE14D	2	Cap: 0.1 μF Total Derated Cap: 0.09 μF VDC: 25 V ESR: 30 mΩ Package: 0201
Cdc14	MuRata	GRM033R61E104KE14D	2	Cap: 0.1 μF Total Derated Cap: 0.09 μF VDC: 25 V ESR: 30 mΩ Package: 0201
Cdc17	MuRata	GRM033R61E104KE14D	7	Cap: 0.1 μF Total Derated Cap: 0.09 μF VDC: 25 V ESR: 30 mΩ Package: 0201
Cdc12	MuRata	GRM033R61E103KA12D	2	Cap: 10 nF Total Derated Cap: 9.9 nF VDC: 25 V ESR: 60 mΩ Package: 0201
Cdc15	MuRata	GRM033R61E103KA12D	1	Cap: 10 nF Total Derated Cap: 9.9 nF VDC: 25 V ESR: 60 mΩ Package: 0201
Cdc4	MuRata	GRM188R61E475KE11D	1	Cap: 4.7 μF Total Derated Cap:4.2 μF VDC: 25 V ESR: 4 mΩ Package: 0603
Cdc3	MuRata	GRM0335C1E102JA01D	7	Cap: 1000 pF Total Derated Cap: 1000 pF VDC: 25 V ESR: 9 mΩ Package: 0201
Cdc5	MuRata	GRM0335C1E102JA01D	2	Cap: 1000 pF Total Derated Cap: 1000 pF VDC: 25 V ESR: 9 mΩ Package: 0201
FB1	MuRata	BLM18PG330SN1D	1	Ferrite Beads, Rated Current (at 85°C): 3A DC Resistance(max.): 0.025Ω
FB2	MuRata	BLM18PG330SN1D	1	Ferrite Beads, Rated Current (at 85°C): 3A DC Resistance(max.): 0.025Ω

[Home](#) [Products](#) [Product Details](#)

[Capacitors](#) > [Ceramic Capacitors](#) > [Ceramic Capacitors\(SMD\)](#)

Chip Multilayer Ceramic Capacitors for General Purpose

Please be sure to read these general terms of use, before using this product.

[Cautions about imitations](#)

GRM31CR61C476ME44#

"#" indicates a package specification code.

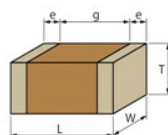
In Production ?



< List of part numbers with package codes >

GRM31CR61C476ME44L GRM31CR61C476ME44K

Appearance & Shape



Specifications

[Search for products with similar specifications](#) ?

Length	3.2±0.3mm
Width	1.6±0.3mm
Thickness	1.6±0.3mm
Capacitance	47µF ±20%
Distance between external terminals g	1.5mm min.
External terminal size e	0.3 to 0.8mm
Operating Temperature Range	-55°C to 85°C
Rated Voltage	16Vdc
Size code in inch(mm)	1206 (3216M)
Capacitance change rate	±15.0%
Temperature characteristics (complied standard)	X5R(EIA)
Temperature range of temperature characteristics	-55°C to 85°C

Product Search Assistant

[Introducing similar parts with same or smaller size.](#)

- Smaller
- Higher capacitance (Nominal)
- Higher Voltage
- Higher Temperature
- Better DC bias
- Search silicon capacitors with similar capacitance

Notices

Measure capacitance after heat treatment

References

Packaging	Specifications	Minimum Order Quantity
L	180Embossed Tape	2000
K	330Embossed Tape	6000

Mass (typ.)

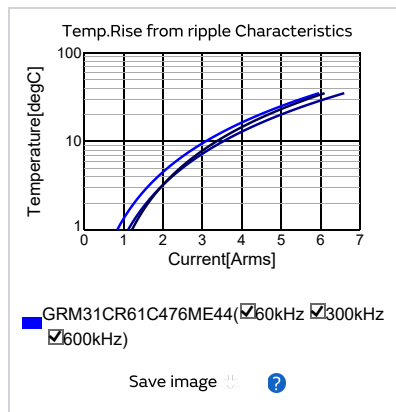
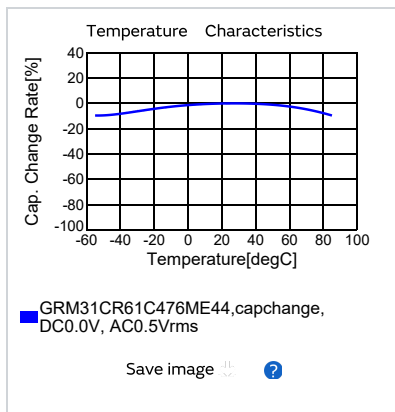
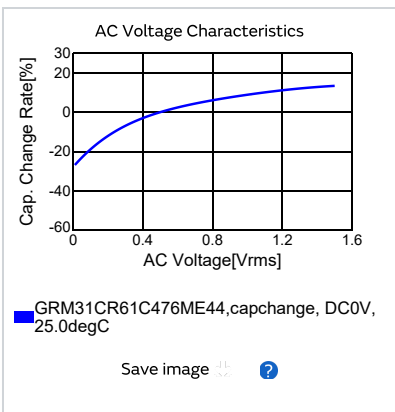
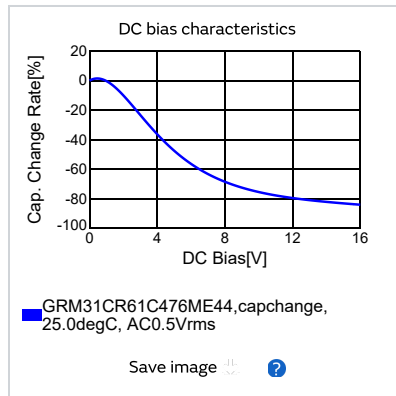
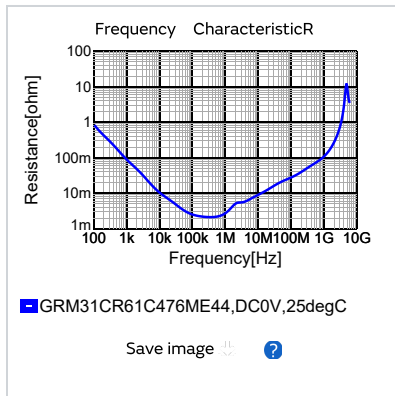
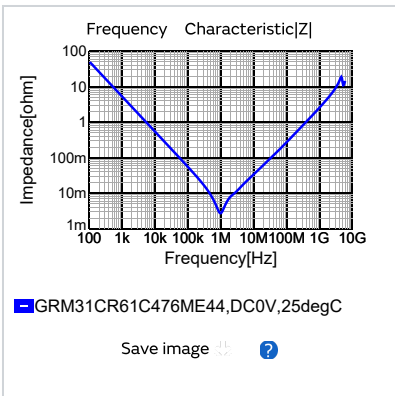
1 piece

64.0mg

φ180mm Reel

169g

Characteristic Data



(Simsurfing)Go to the detailed chart