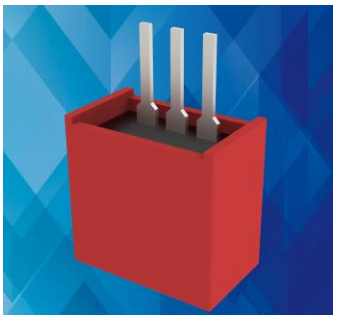
DC/DC CONVERTER – 2.5W NON-ISOLATED

SINGLE OUTPUT

Power Supplies

502xx SERIES



MAIN FEATURES:

- **2.5W Small Compact Size - PCB Mount**
- **Pin-out Compatible with LM78xx/LM79xx Linear Regulators**
- **Very Low Standby Power Consumption <0.1W**
- **Wide Input Range Up To 36VDC**
- **Output Range : 3.3VDC - 24VDC**
- **Support Negative Output**
- **Operating Altitude Up To 5000m**
- **Low cost /High Reliability**
- **High Energetic Efficiency Up To 95%,No Heatsink Required**
- **Operating Temperature range:-40°C To +85°C**
- **Low Ripple and Noises**
- **Materials : Uses UL 94-V0 Plastic And Resin**
- **Safety:Meets All Requirements of IEC/EN62368-1,UL62368-1, CSA C22.2 No.62368-1-14, CE, UKCA,**
- **EMC : Conducted And Radiated Emissions Conform To EN55032,FCC part15 CLASS A/B, EN/IEC61000-3-2 CLASS A, EN61000-3-3,**
- **Immunity Conforms To EN61000-4-2, EN/IEC61000-4-3, EN61000-4-4, EN61000-4-5,EN61000-4-6,EN61000-4-8,EN610004-11**

DATA SHEET

UK CA CE RoHS

Part No	Power Rating Watts	Output Voltage (VDC)	Output Current (mA)	Capacitor Load Max.(uF)	Ambient Temp. (℃)	Efficiency Typical@ typ.Vin	Input Voltage Range(Vdc)
50200	1.65	3.3	500	680	-40°C to +85°C	87%	6.0 ~30 (12V typ.)
50201	2.5	5.0	500	680	-40°C to +85°C	89%	8.0 ~36 (12V typ.)
50202	2.5	9.0	277	680	-40°C to +85°C	89%	13 ~36 (24V typ.)
50203	2.5	12	210	680	-40°C to +85°C	89%	16 ~36 (24V typ.)
50204	2.5	15	166	680	-40°C to +85°C	90%	20 ~36 (24V typ.)
50205	2.5	24	104	680	-40°C to +85°C	90%	28 ~36 (32V typ.)
50206	2.5	-5.0	500	680	-40°C to +85°C	82%	8.0 ~36 (12V typ.)
50207	2.5	-12	210	680	-40°C to +85°C	81%	16 ~36 (24V typ.)

Note: Other output voltages are available upon request.

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Model: 2.5 Watt		Specifications
DC Input Characteristics	DC Input Voltage Range	36VDC max.(refer to table)
	Surge Voltage	40Vdc Max.(100ms max.)
	Input Current	3.3Vdc type: 615mA Max. @ output with full load 5.0Vdc type: 672mA Max. @ output with full load 9.0Vdc type: 254mA Max. @ output with full load 12Vdc type: 254mA Max. @ output with full load 15Vdc type: 254mA Max. @ output with full load 24Vdc type: 254mA Max. @ output with full load
	Protection(Fuse recommended)	1000mA slow-blow type for all models
	Input Filter	Capacitor type
DC Output Characteristics	Rated Output Power	3.3V type 1.65W, other: 2.5W
	Output Voltage Line Regulation	3.3Vdc type: ±0.3% Max.@1% input variation 5.0Vdc type: ±0.3% Max.@1% input variation 9.0Vdc type: ±0.2% Max.@1% input variation 12Vdc type: ±0.2% Max.@1% input variation 15Vdc type: ±0.2% Max.@1% input variation 24Vdc type: ±0.2% Max.@1% input variation
	Output Voltage Load Regulation	3.3Vdc type: ±0.6% Max. @10% to 100% load 5.0Vdc type: ±0.3% Max. @10% to 100% load 9.0Vdc type: ±0.3% Max. @10% to 100% load 12Vdc type: ±0.3% Max. @10% to 100% load 15Vdc type: ±0.3% Max. @10% to 100% load 24Vdc type: ±0.3% Max. @10% to 100% load
	Output Voltage Accuracy	± 3 % max.
	Switching Frequency	1MHz
	Ripple & Noise	Max 100mVp-p@ Rated DC input, at nominal line (The measuring will be terminated with a 22uF AL E-Cap and a 0.1uF Ceramic-Cap. An oscilloscope set at 20MHz bandwidth)

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	Efficiency	See table
Protection Characteristics	Over Current Protection	The DC converter shall automatically protect against over current. The DC converter shall auto-recover normal operation after the fault condition is removed. No excessive heat, odour, or plastic deformation shall occur with no safety hazard during the fault
	Output Short Circuit Protection	The DC converter shall withstand output short without damage@ Typ. input voltage; The DC converter shall resume normal operation after the short is removed, no excessive heat, odour, or plastic deformation shall occur with no safety hazard
Environmental	Operation Temperature	-40°C ~+85°C (Refer to "DERATING GRAPH")
	Operation Humidity	10~ 90% RH(No Condensing) @ DC with full load
	Storage Temperature	-10°C to +35°C
	Storage Humidity	< 75%RH
	Cooling Method	Ordinary or thermostat
Safety & EMC Requirement	Dielectric Strength	Non-isolation
	Radiation	Meets EN55032, FCC part 15, (Class A/B with external components, refer to EMC typical recommended circuit).
	Conduction	Meets EN55032, FCC part 15, (Class A/B with external components, refer to EMC typical recommended circuit).
	Harmonic Current Disturbance	Meets EN/IEC61000-3-2:2019, Class A
	Voltage Fluctuation And Flicker	Meets EN61000-3-3:2013
	Electrostatic Discharge	Meets EN61000-4-2:2009 Contact Discharge ±6KV,Air Discharge ±8KV
	RF Field Strength Susceptibility	Meets EN/IEC61000-4-3:2019
	Electrical Fast Transient	Meets EN61000-4-4:2012, ±1KV

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Safety & EMC Requirement	Lightning Surge	Meets EN61000-4-5:2014,+1KV (line to line)
	Conducted Susceptibility	MeetsEN61000-4-6:2014
	Power Frequency Magnetic Field Susceptibility Test	Meets EN61000-4-8:2010
	Voltage Dips And Interruptions	MeetsEN61000-4-11:2004
	Safety Standards	Meets all requirements of : UL62368-1,CSA C22.2 NO.62368-1-14, IEC/EC62368-1, CE,UKCA Mark
Reliability Requirement	MTBF	>200K Hours @ at 71deg.C >700K Hours @ at 25deg.C *Calculated in accordance with MIL-HDBK-217-F2*
	Burn-In Test	The unit shall be burned in for 2~ 5hours under 5Vdc input and DC with full load at an ambient temperature of 30~45 degrees C
Net Weight	Approximately 1.5 grams per product unit	
Physical size:	The units do not including PINs of input and output, and dimension is (L)11.8*(H) 11.5*(W) 7.1 ±0.5mm (see appearance drawing) .	
Guarantee	This product is in accordance with the European RoHS & REACH directives	

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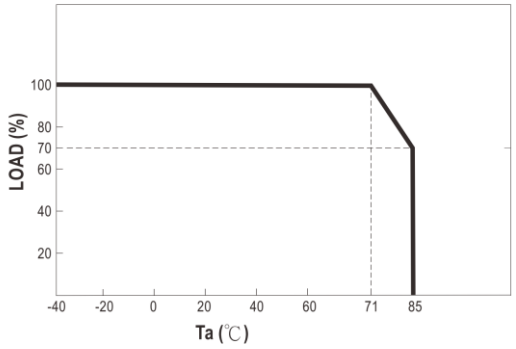
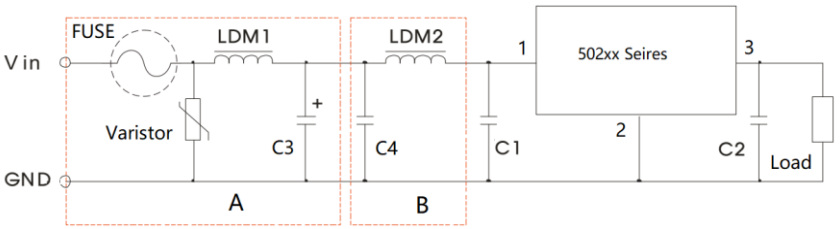
DERATING GRAPH



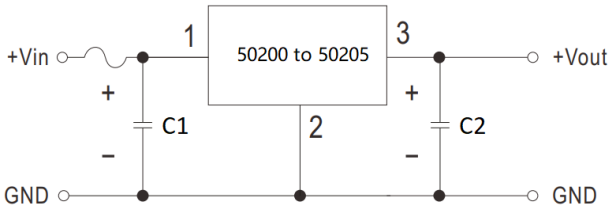
EMC SUGGESTION



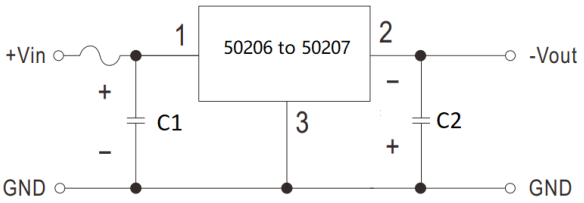
LDM1,LMD2: 10uH to 100uH; C1: 10uF/50V; C2: 22uF/10V to 50V; C3:680uF/50V; C4: 4.7uF/50V; Varistor: 10D470K to 20D470K; FUSE:1A slow-blow type;
Circuit A part: used for EMS tests, circuit B part: used for EMI tests.

TYPICAL APPLICATION

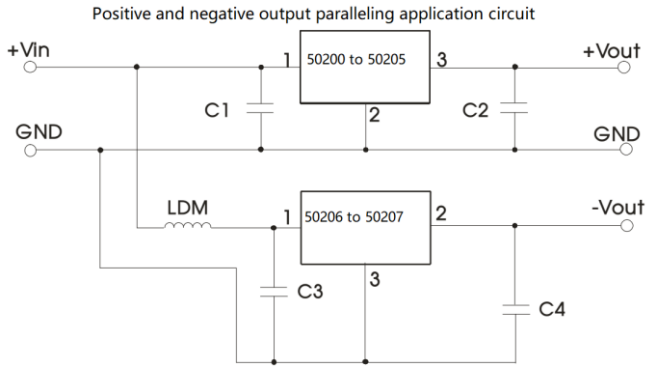
Positive output application circuit



Negative output application circuit



Positive and negative output paralleling application circuit



External capacitor:

C1,C3:
10uF/50V

C2,C4:
3.3Vdc, 5.0Vdc output types: 22uF/10V;
9.0Vdc,15Vdc output types: 22uF/25V;
24Vdc output types: 22uF/50V;

- In using parallel application circuit, input voltage range should be taken notice of and a 10uH LDM component is recommended to reduce the interference.

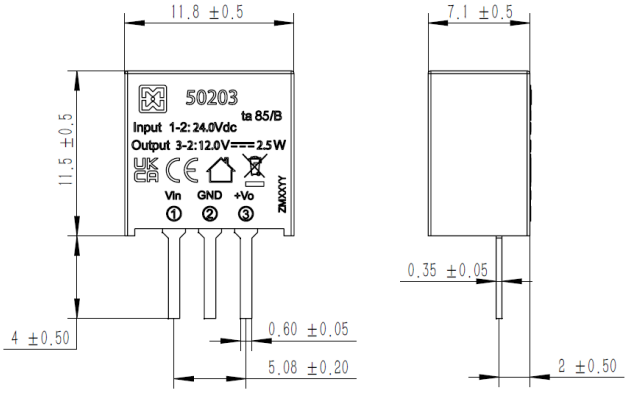
DIMENSIONS AND PINOUT 3 PINS

50200 to 50205:

Pin 1: DC Input +Vin
Pin 2: DC Input GND
Pin 3 : DC Output +Vout

50206 to 50207:

Pin 1: DC Input +Vin
Pin 2: DC Input -Vout
Pin 3 : DC Output GND



Pease refer to MYRRA's website and catalogue for MYRRA SMPS application notes.
The information contained in this document is subject to change without notice.

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