MORNSUN®

Micro Chiplet SiP

Fixed Input DC/DC Converter

R4 Family



Excellent performance

Chiplet SiP technology

Less cost

Less processes from design to assembly

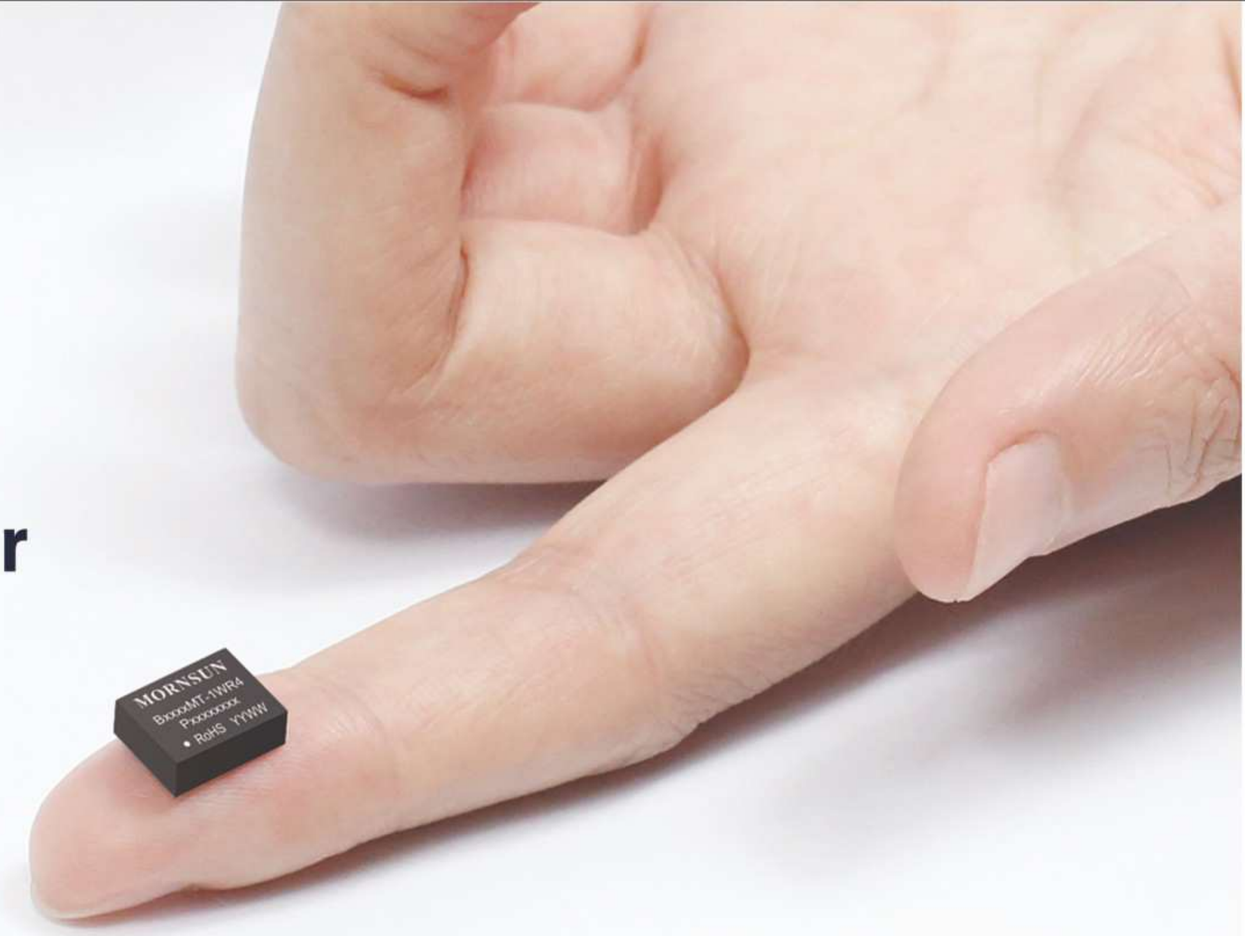
Fast delivery

1-2 weeks lead time

Micro Chiplet SiP

Fixed Input DC/DC Converter

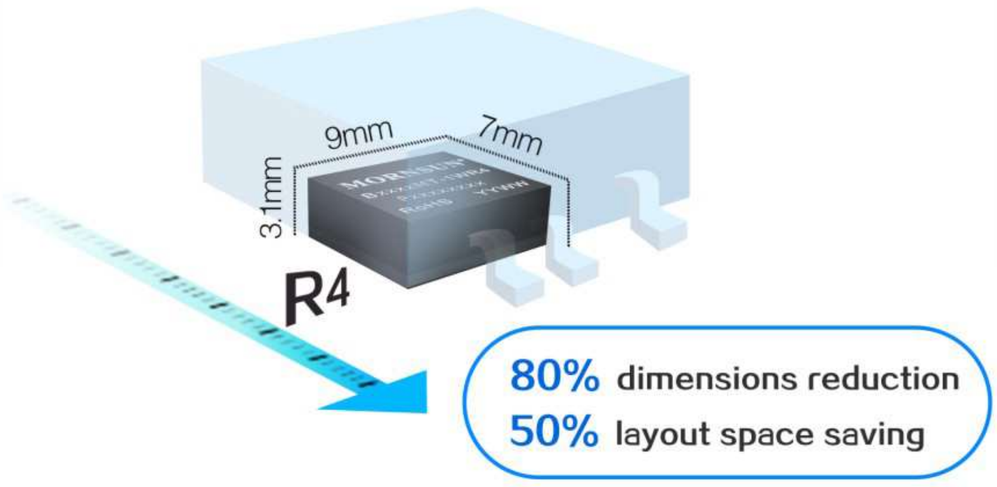
BxxxxMT-1WR4



Advantages

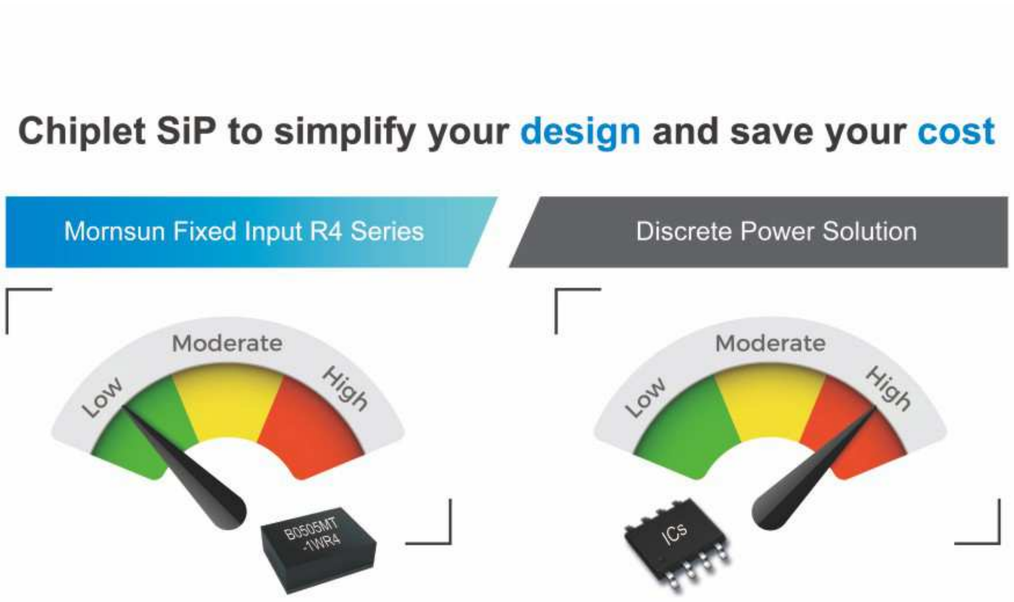
1 Breaking through Restraint of Dimensions

- 80% dimensions reduction
- 50% layout space saving
- 3.1mm thickness



2 Chiplet SiP to Save Cost

- Chipslet SiP integrating
- Simplify process from design to assembly
- Mirco-DFN package (SMD package) for SMT process



3 Prior Features for Product Quality

- AEC-Q100 approved
- Operating temperature range: -40℃~125℃
- ESD meets 8KV level (Contact)
- Static power consumption: 35mW
- Capacitive load: 2400uF
- Continuous short-circuit protection

Technical specifications (B05xxMT-1WR4)

1W isolated DC-DC converter
Fixed input voltage, unregulated single output



Patent Protection RoHS 3 years Warranty Continuous Short Circuit Protection

- Ultra-small, ultra-thin DFN package (9.00 x 7.00 x 3.10mm)
- Isolation capacitance as low as 8pF
- I/O isolation test voltage 3k VDC
- Operating ambient temperature range: -40℃ to +125℃
- High efficiency up to 85%
- Continuous short-circuit protection
- Meet IEC62368, UL62368, EN62368 standards
- AEC-Q100 approved (under testing)

Selection Guide (For more information, please visit www.mornsun-power.com)

Certification	Part No.	Input Voltage (VDC)	Output		Full Load Efficiency (%) Min./Typ.	Capacitive Load(μF) Max.
		Nominal (Range)	Voltage (VDC)	Current(mA) Max./Min.		
UL/CE/CB (Pending)	B0505MT-1WR4	5 (4.5-5.5)	5	200/20	81/85	2400

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current(full load/no-load)	5VDC input	--	235/7	247/15	mA
Reflected Ripple Current*		--	10	--	mA
Surge Voltage (1sec. max.)	5VDC input	-0.7	--	9	VDC
Input Filter		Capacitance filter			
Hot Plug		Unavailable			

Note: * Please refer to DC-DC Converter Application Note for detailed description of reflected ripple current testing method.

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Voltage Accuracy		See output regulation curve			
Linear Regulation	Input voltage change: ±1%	--	--	1.2	--
Load Regulation	10%-100% load	--	8	15	%
Ripple & Noise*	20MHz bandwidth	--	30	75	mVp-p
Temperature Coefficient	Full load	--	±0.02	--	%/℃
Short-circuit Protection		Continuous, self-recovery			

Note: * The "parallel cable" method is used for ripple and noise test, please refer to DC-DC Converter Application Notes for specific information.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input-output electric strength test for 1 minute with a leakage current of 1mA max	3000	--	--	VDC
		1500	--	--	VAC
Insulation Resistance	Input-output resistance at 500VDC	1000	--	--	MQ
Isolation Capacitance	Input-output capacitance at 100kHz/0.1V	--	8	--	pF
Operating Temperature	Derating when operating temperature≥105℃	-40	--	125	℃
Storage Temperature		-55	--	125	
Case Temperature Rise	Ta=25℃	--	10	--	
Storage Humidity	Non-condensing	--	--	95	%RH
Reflow Soldering Temperature*		Peak temp.≤245℃, maximum duration time≤60s,over 217℃			
Vibration		10-150Hz, 0.75mm, 5G, 90Min. along X, Y and Z			
Switching Frequency	Full load, nominal input voltage	--	300	--	KHz
MTBF	MIL-HDBK-217F@25℃	7500	--	--	K hours
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D.1	Level 3			

Note: * See also IPC/JEDEC J-STD-020D.1.

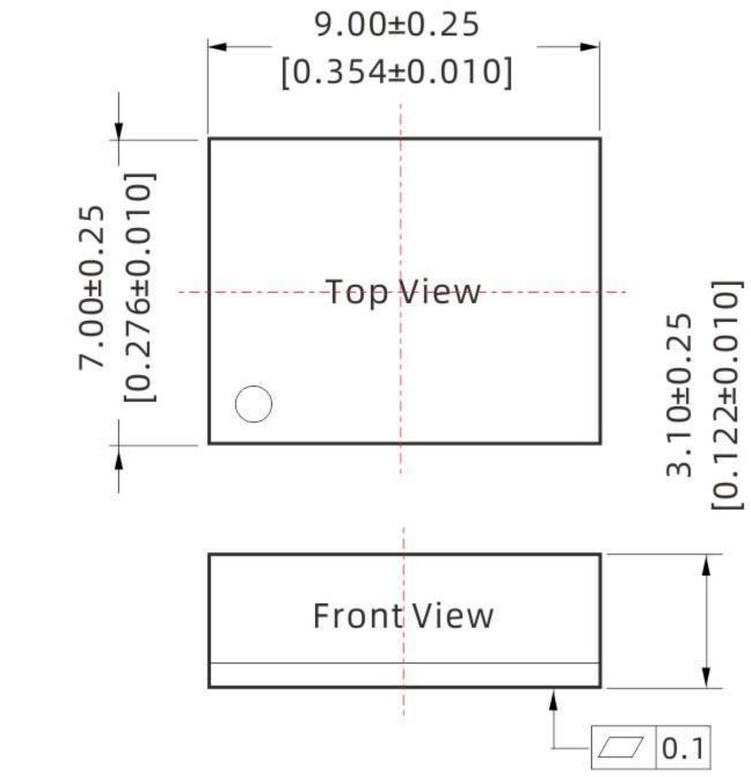
Electromagnetic Compatibility (EMC)

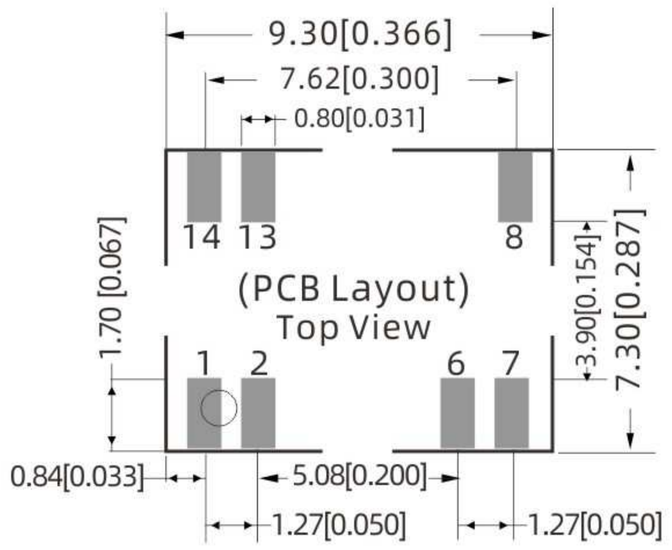
Emissions	CE	CISPR32/EN55032	CLASS B (recommended circuit)	
	RE	CISPR32/EN55032	CLASS B (recommended circuit)	
Immunity	ESD	IEC/EN61000-4-2	Contact ±8kV	perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	CS	IEC/EN61000-4-6	3Vr.m.s	perf. Criteria A

*For more information please click B05XXMT-1WR4

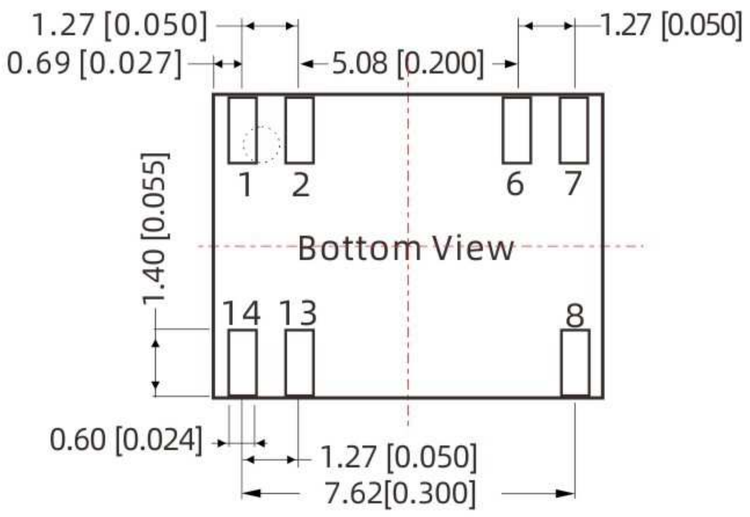
Dimensions and Recommended Layout

THIRD ANGLE PROJECTION





Note:Grid 2.54*2.54mm



Pin-Out	
Pin	Function
1,2	GND
6,7	0V
8	+Vo
13,14	Vin

Note:
Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]

mornsun website

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