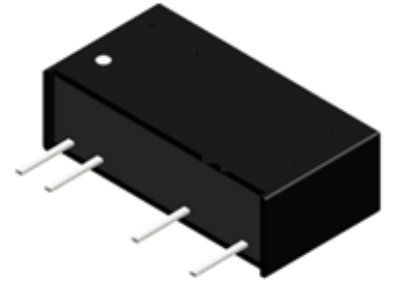


Features

- 2 Watts output power
- 1:1 input voltage range
- 1KVDC/2KVDC isolation
- -40°C to +100°C operating temperature
- SIP7 Package
- EN60950
- EMC-EN55022
- RoHS compliant

Application

- Input voltage range from 3.3-24V
- Industry control application
- Tele-communication application
- No minimum load required



Selection Guide

Part number	Input voltage	Output voltage (VDC)	Output current (mA)	Efficiency ⁽¹⁾ (typ.)	Capacitive load ⁽²⁾ (max.)
MSBH-3.33.3J	3.3VDC (±10%)	3.3	606	77%	1500uF
MSBH-3.305J		5	400	78%	1500uF
MSBH-3.309J		9	223	82%	680uF
MSBH-3.312J		12	167	84%	330uF
MSBH-3.315J		15	134	86%	330uF
MSBH-053.3J	5VDC (±10%)	3.3	606	78%	1500uF
MSBH-0505J		5	400	81%	1500uF
MSBH-0509J		9	223	82%	680uF
MSBH-0512J		12	167	85%	330uF
MSBH-0515J		15	134	84%	330uF
MSBH-123.3J	12VDC (±10%)	3.3	606	79%	1500uF
MSBH-1205J		5	400	81%	1500uF
MSBH-1209J		9	223	84%	680uF
MSBH-1212J		12	167	84%	330uF
MSBH-1215J		15	134	85%	330uF
MSBH-243.3J	24VDC (±10%)	3.3	606	81%	1500uF
MSBH-2405J		5	400	82%	1500uF
MSBH-2409J		9	223	80%	680uF
MSBH-2412J		12	167	85%	330uF
MSBH-2415J		15	134	87%	330uF

1. The efficiency is test by nominal input and max. full load at 25°C.
2. The capacitive load is test by minimum input and constant resistive load.
3. Add "H" after P/N for isolation 2KVDC.
4. Add "P" after P/N for short circuit protection.

Part Number

M S B H - 05 05 J

Input voltage Output voltage

Specifications

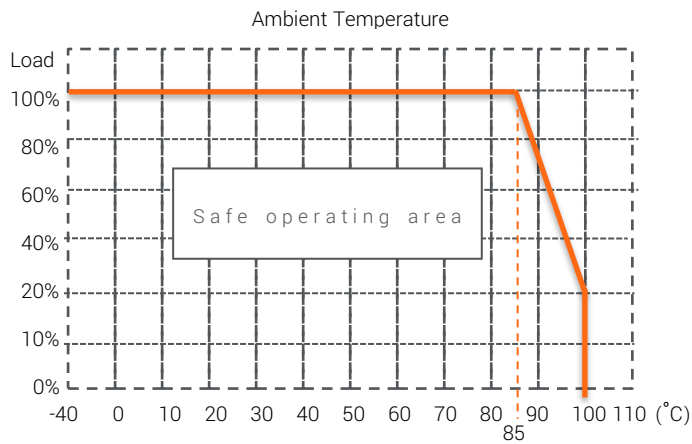
	Parameter	Conditions	Min.	Typ.	Max.	Unit	
Input	Input filter			Internal capacitors			
	Input voltage range		-10		+10	%	
Output	Voltage accuracy		-5		+5	%	
	Minimum load		0			%	
	Line regulation	LL to HL at 100% load		1.2% typ.@1% of Vin			
	Load regulation (10% to 100% Load)	Vo=3.3VDC				15	%
		Vo=5VDC				15	%
		Vo=9~15VDC				10	%
	Ripple & noise	@20MHZ BW (@Nominal Vin)				150	mVp-p
Operating frequency	100% Load at Nominal Vin		20			KHz	
Environment	Operating temperature		-40		100	°C	
	Storage temperature		-55		125	°C	
	Max. case temperature				110	°C	
	Relative humidity		5		95	%RH	
Function	Isolation voltage	1 sec., Input to output	1000			VDC	
		Add suffix "H"	2000			VDC	
	Isolation resistance		10			GΩ	
	Isolation capacitance				120	pF	
	Short Circuit Protection	Add suffix "P"			Continuous		
	MTBF	25°C			18.3*10 ⁶	Hours	
	Vibration				MIL-STD-202G		
	Safety approvals				EN60950 / EN60601		
Physical	Case material			UL94V-0 black plastic			
	Potting material			Epoxy (UL94V-0)			
	Dimension			19.65x7.05x10.20 mm			
	Weight			2.7		g	
EMC	EMI	EN 55022		Class A/B			
	ESD	EN61000-4-2,		Criteria A			
		Air±8kV, Contact±6kV		Criteria A			
	Fast transient	EN61000-4-4, ±1kV		Criteria A			
Surge	EN61000-4-5, ±0.5kV		Criteria A				

1. "EMC filtering suggestion" is as following.
2. In this datasheet, all test methods are based on our corporate standards.
3. The product information and specifications are subject to change without prior notice.
4. All specifications valid at nominal input voltage, full load and 25°C unless otherwise stated.
5. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more detail.

CTC is the professional and one among world's leading manufacturers of DC-DC/ AC-DC converters.

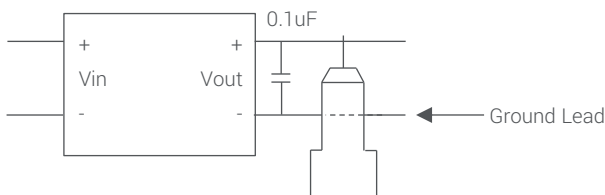
The products were used in Computers, Industrial controls, Medical equipment, Transportation, EV, ECO-power, Aero-space application and communication.

Derating Curve

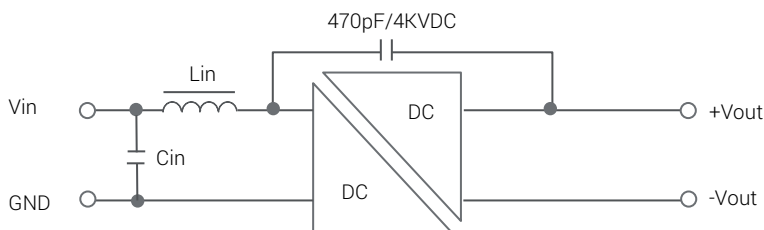


*The derating curve was measured at nominal V_{in} in chamber with forced air convection.

Ripple & Noise Measure Method



EMC filtering-suggestion for Class B



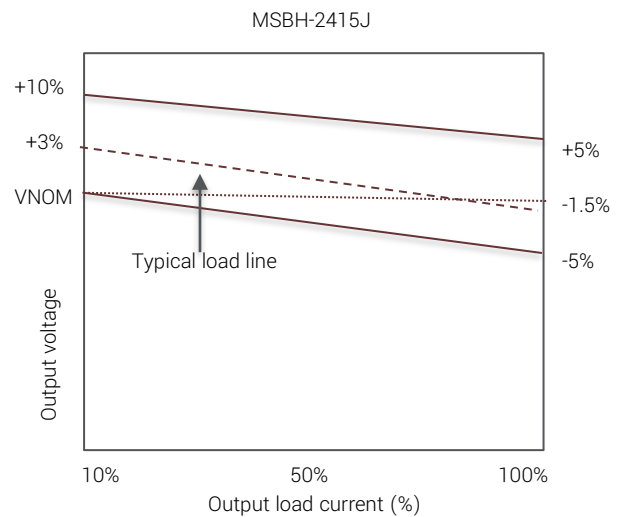
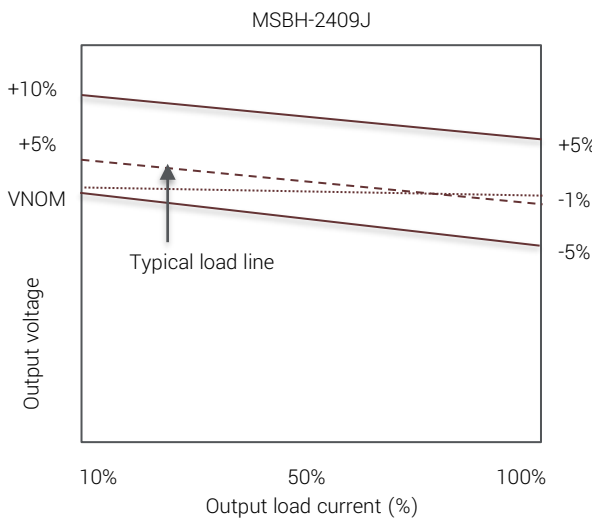
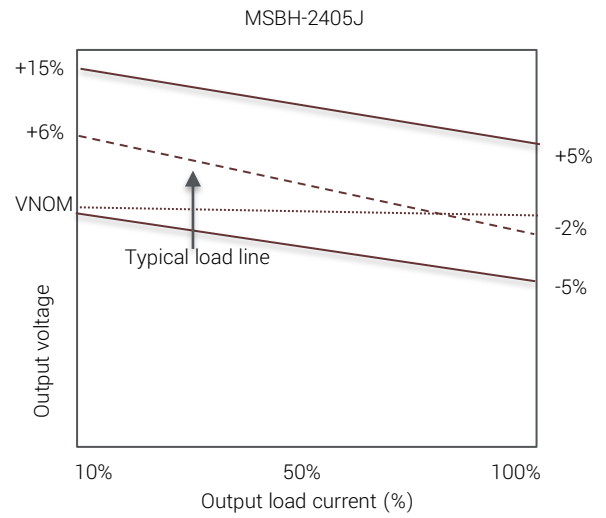
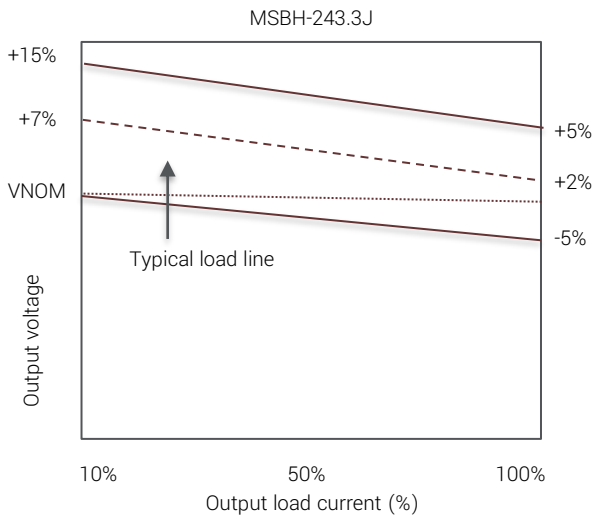
The external filter for EN55022 class B.

Part No.	Input voltage	Inductance/Capacitance (Lin/Cin)
MSBH-J	3.3 V	3.3 μ H/22 μ F
	5 V	4.7 μ H/10 μ F
	12 V	22 μ H/4.7 μ F
	15 V	22 μ H/4.7 μ F
	24 V	47 μ H/4.7 μ F

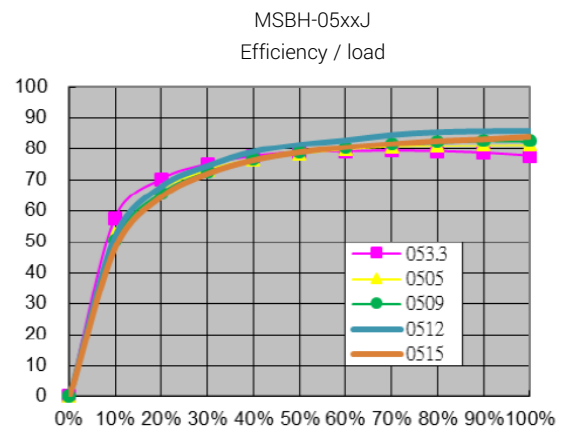
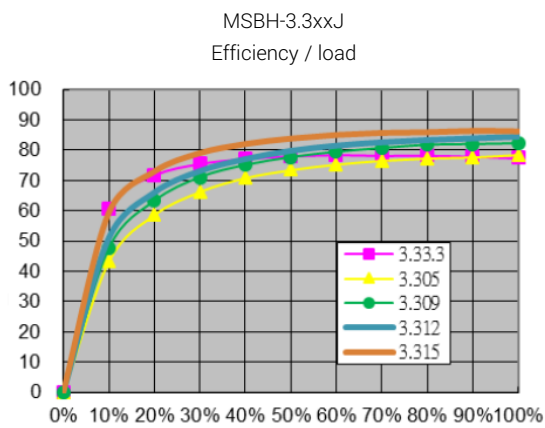
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Tolerance Envelope

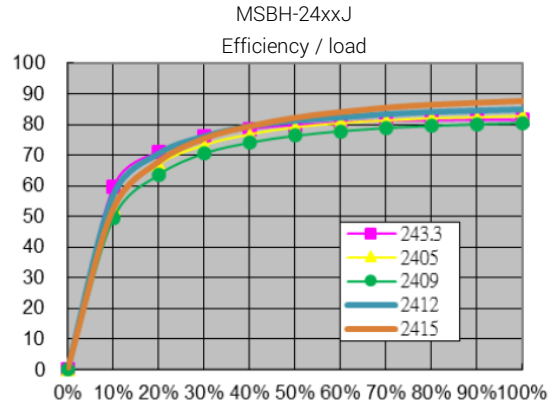
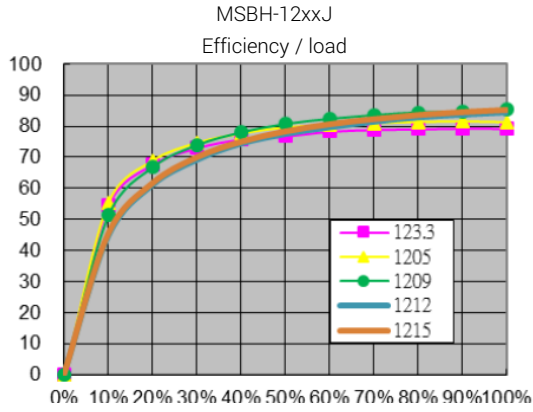


Efficiency Curve

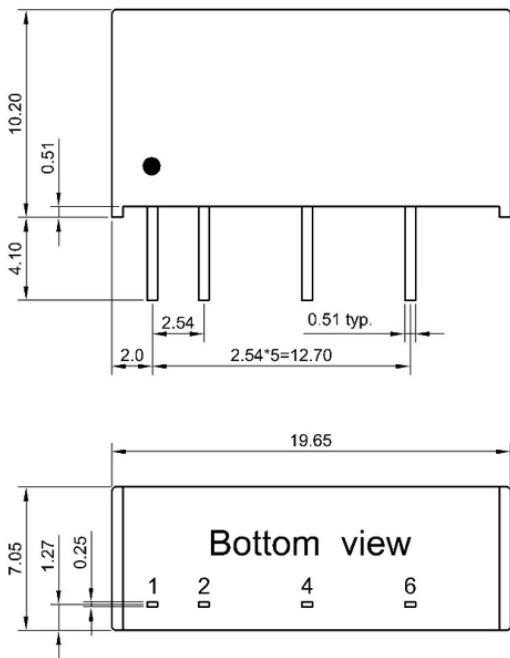


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Mechanical Dimension & Pinning

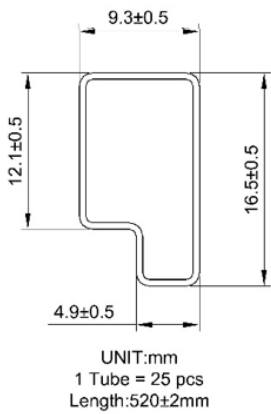


Pin	Single
1	+Vin
2	-Vin
4	-Vout
6	+Vout

Unit: mm

TOL: $\pm 0.25\text{mm}$

Package



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