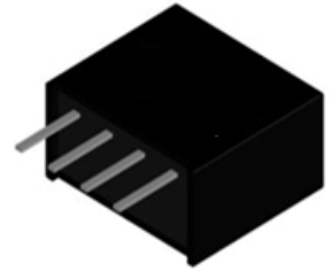


Features

- 2 Watts output power
- 1:1 input voltage range
- 1KVDC~3KVDC isolation
- -40°C to +100°C operating temperature
- SIP4 Package
- UL62368-1, UL60950
- EMC-EN55032
- RoHS compliant

Application

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



Selection Guide

Part number	Input voltage	Output voltage	Output current @ full load	Efficiency ⁽¹⁾ (typ.)	Capacitive load ⁽²⁾ (max.)
MSL-3.33.3J	3.3VDC (±10%)	3.3 VDC	606 mA	77%	1500µF
MSL-3.305J		5 VDC	400 mA	78%	1500µF
MSL-3.309J		9 VDC	223 mA	82%	680µF
MSL-3.312J		12 VDC	167 mA	84%	330µF
MSL-3.315J		15 VDC	134 mA	86%	330µF
MSL-3.324J		24 VDC	84 mA	84%	220µF
MSL-053.3J	5VDC (±10%)	3.3 VDC	606 mA	78%	1500µF
MSL-0505J		5 VDC	400 mA	81%	1500µF
MSL-0509J		9 VDC	223 mA	85%	680µF
MSL-0512J		12 VDC	167 mA	86%	330µF
MSL-0515J		15 VDC	134 mA	86%	330µF
MSL-0524J		24 VDC	84 mA	85%	220µF
MSL-123.3J	12VDC (±10%)	3.3 VDC	606 mA	79%	1500µF
MSL-1205J		5 VDC	400 mA	84%	1500µF
MSL-1209J		9 VDC	223 mA	85%	680µF
MSL-1212J		12 VDC	167 mA	86%	330µF
MSL-1215J		15 VDC	134 mA	87%	330µF
MSL-1224J		24 VDC	84 mA	86%	220µF
MSL-153.3J	15VDC (±10%)	3.3 VDC	606 mA	80%	1500µF
MSL-1505J		5 VDC	400 mA	81%	1500µF
MSL-1509J		9 VDC	223 mA	84%	680µF
MSL-1512J		12 VDC	167 mA	88%	330µF
MSL-1515J		15 VDC	134 mA	85%	330µF
MSL-1524J		24 VDC	84 mA	87%	220µF
MSL-243.3J	24VDC (±10%)	3.3 VDC	606 mA	81%	1500µF
MSL-2405J		5 VDC	400 mA	83%	1500µF
MSL-2409J		9 VDC	223 mA	88%	680µF
MSL-2412J		12 VDC	167 mA	87%	330µF
MSL-2415J		15 VDC	134 mA	83%	330µF
MSL-2424J		24 VDC	84 mA	87%	220µF

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, add "H3" after P/N for isolation 3KVDC.
4. Add "P" after P/N for short circuit protection.

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

Part Number

M S L - 05 05 J

Input voltage Output voltage

Specifications

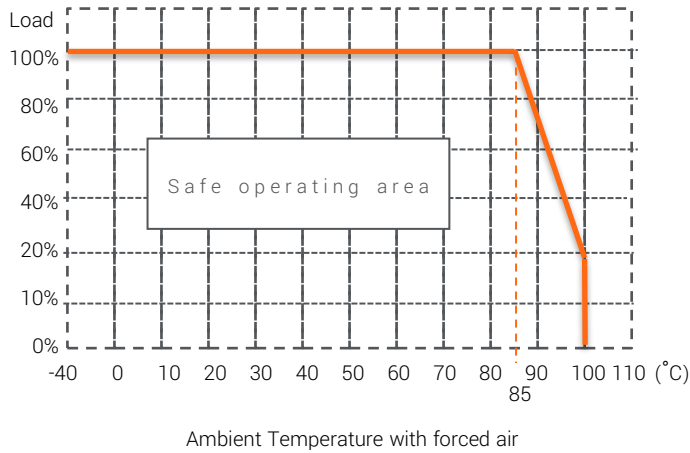
	Parameter	Conditions	Min.	Typ.	Max.	Unit
Input	Input filter			Internal capacitors		
	Input voltage range		-10		+10	%
Output	Voltage accuracy		-5		+5	%
	Minimum load		0			%
	Line regulation	LL to HL at 100% load		1.2% typ.@1% of Vin		
	Load regulation (10% to 100% Load)	Vo=3.3/ 5VDC Vo=9~24 VDC			15 10	% %
	Ripple & noise	@20MHZ BW (@Nominal Vin)			200	mVp-p
	Operating frequency	100% Load at Nominal Vin		20		KHz
Environment	Operating temperature		-40		100	°C
	Storage temperature		-55		125	°C
	Relative humidity		5		95	%RH
Function	Isolation voltage	1 sec., Input to output Add suffix "H"	1000 2000			VDC VDC
	Isolation resistance		10			GΩ
	Isolation capacitance				120	pF
	Short Circuit Protection	Add suffix "P"		Continuous		
	MTBF	25°C			17.9*10 ⁶	Hours
	Vibration			MIL-STD-202G		
	Safety approvals			UL62368-1, UL60950		
Physical	Case material			UL94V-0 black plastic		
	Potting material			Epoxy (UL94V-0)		
	Dimension			11.50x7.60x10.20 mm		
	Weight			2.0		g
EMC	EMI Conduction	EN55032		Class B		
	EMI Radiation	EN55032		Class B		

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

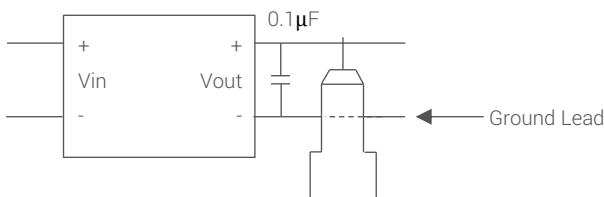
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Derating Curve

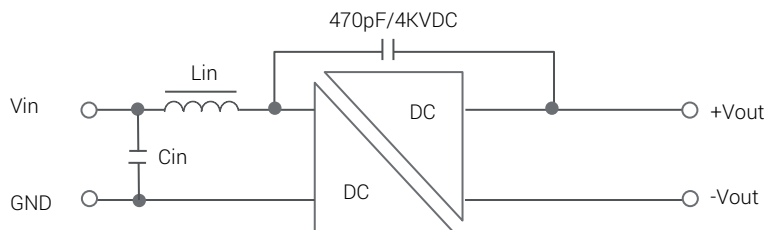


Ripple & Noise Measure Method



Measured with 20MHz bandwidth and $0.1\mu F$ ceramic capacitor.

EMI Filtering-Suggestion For Class B



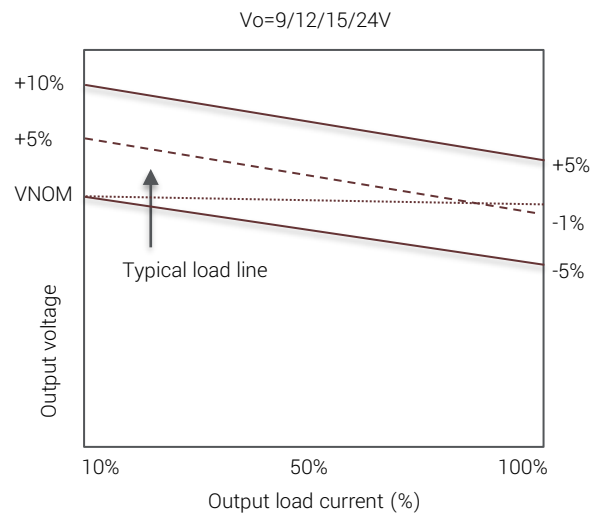
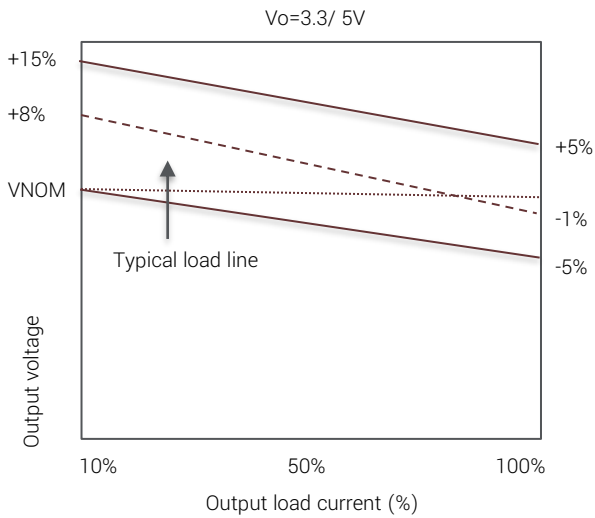
The external filter for EN55032 class B.

Part No.	Input voltage	Inductance/Capacitance (Lin/Cin)
MSL-J	3.3 V	3.3 μH /22 μF
	5 V	4.7 μH /10 μF
	12 V	22 μH /4.7 μF
	15 V	22 μH /4.7 μF
	24 V	47 μH /4.7 μF

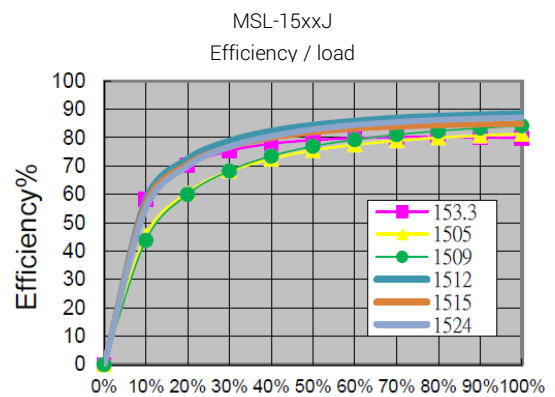
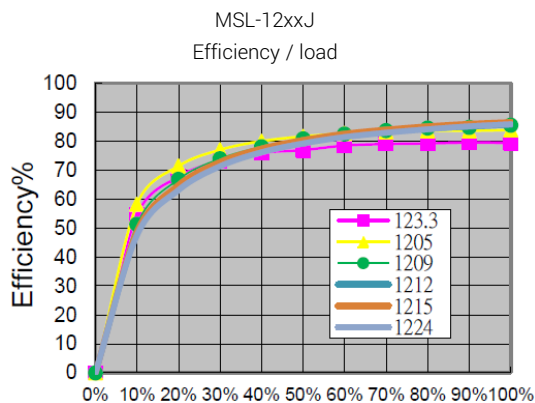
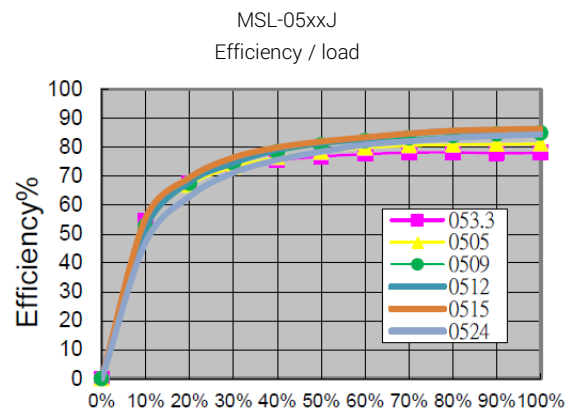
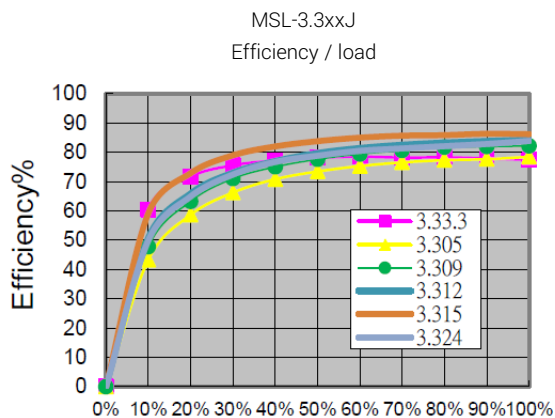
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Tolerance Envelope

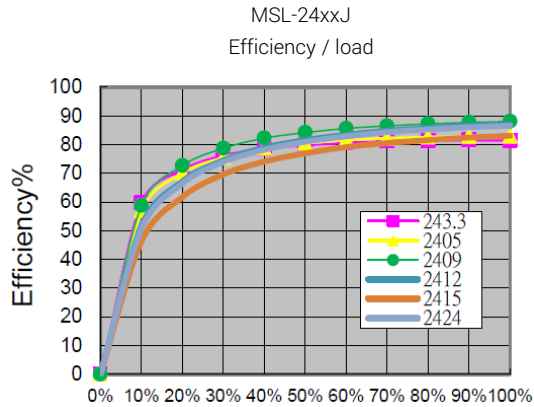


Efficiency Curve

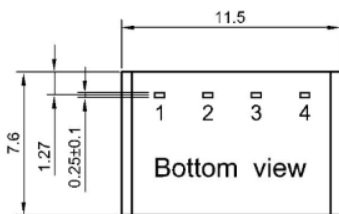
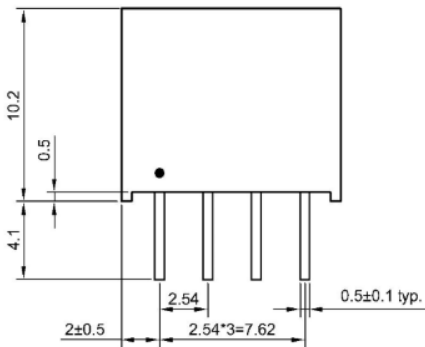


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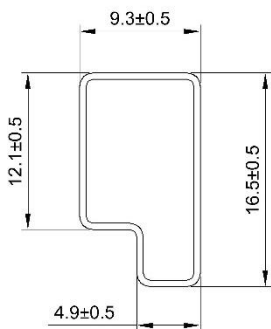
Mechanical Dimension & Pinning



Projection : Third angle projection
Unit : mm
Tolerance : ±0.25mm

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

Package



UNIT:mm
1 Tube = 42 pcs
Length:520±2mm

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