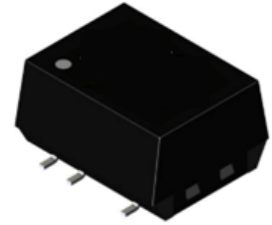


Features

- 1 Watts output power
- 1:1 input voltage range
- 1KVDC/ 3KVDC isolation
- -40°C to +100°C operating temperature
- SMD8/10pin package
- EN60950
- EMC-EN55022
- RoHS compliant

Application

- High I/O isolation
- Industry control application
- Power distribution with isolated voltage solution
- Fault condition protection required



Selection Guide

Part number	Input voltage	Output voltage	Output current @ full load	Load regulation (max.)	Efficiency ⁽¹⁾ (typ.)	Capacitive load ⁽²⁾ (max.)
M1S-3.33.3J	3.3 VDC	3.3 VDC	303 mA	15%	74%	1000µF
M1S-3.305J		5 VDC	200 mA	15%	79%	1000µF
M1S-3.309J		9 VDC	112 mA	10%	81%	470µF
M1S-3.312J		12 VDC	84 mA	10%	83%	220µF
M1S-3.315J		15 VDC	67 mA	10%	86%	220µF
M1D-3.33.3J		±3.3 VDC	±152 mA	15%	77%	±470µF
M1D-3.305J		±5 VDC	±100 mA	15%	79%	±470µF
M1D-3.309J		±9 VDC	±56 mA	10%	79%	±220µF
M1D-3.312J		±12 VDC	±42 mA	10%	79%	±100µF
M1D-3.315J		±15 VDC	±34 mA	10%	79%	±100µF
M1S-053.3J		05 VDC	3.3 VDC	303 mA	15%	77%
M1S-0505J	5 VDC		200 mA	15%	77%	1000µF
M1S-0509J	9 VDC		112 mA	10%	78%	470µF
M1S-0512J	12 VDC		84 mA	10%	76%	220µF
M1S-0515J	15 VDC		67 mA	10%	77%	220µF
M1D-053.3J	±3.3 VDC		±152 mA	15%	77%	±470µF
M1D-0505J	±5 VDC		±100 mA	15%	78%	±470µF
M1D-0509J	±9 VDC		±56 mA	10%	78%	±220µF
M1D-0512J	±12 VDC		±42 mA	10%	79%	±100µF
M1D-0515J	±15 VDC		±34 mA	10%	77%	±100µF
M1S-123.3J	12 VDC		3.3 VDC	303 mA	15%	78%
M1S-1205J		5 VDC	200 mA	15%	79%	1000µF
M1S-1209J		9 VDC	112 mA	10%	79%	470µF
M1S-1212J		12 VDC	84 mA	10%	79%	220µF
M1S-1215J		15 VDC	67 mA	10%	82%	220µF
M1D-123.3J		±3.3 VDC	±152 mA	15%	74%	±470µF
M1D-1205J		±5 VDC	±100 mA	15%	75%	±470µF
M1D-1209J		±9 VDC	±56 mA	10%	80%	±220µF
M1D-1212J		±12 VDC	±42 mA	10%	84%	±100µF
M1D-1215J		±15 VDC	±34 mA	10%	80%	±100µF

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M1S-243.3J	24 VDC	3.3 VDC	303 mA	15%	78%	1000μF
M1S-2405J		5 VDC	200 mA	15%	79%	1000μF
M1S-2409J		9 VDC	112 mA	10%	79%	470μF
M1S-2412J		12 VDC	84 mA	10%	80%	220μF
M1S-2415J		15 VDC	67 mA	10%	81%	220μF
M1D-243.3J		±3.3 VDC	±152 mA	15%	79%	±470μF
M1D-2405J		±5 VDC	±100 mA	15%	74%	±470μF
M1D-2409J		±9 VDC	±56 mA	10%	79%	±220μF
M1D-2412J		±12 VDC	±42 mA	10%	82%	±100μF
M1D-2415J		±15 VDC	±34 mA	10%	82%	±100μF

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.

Part Number

M 1 S - 1 2 0 5 H 3 P J

Single output Input voltage Output voltage 3kVdc short circuit protection

Specifications

	Parameter	Conditions	Min.	Typ.	Max.	Unit	
Input	Input filter			Internal capacitors			
	Input voltage range		-10		+10	%	
Output	Voltage accuracy				±5	%	
	Minimum load		0			%	
	Line regulation	LL to HL at 100% load		1.2% typ.@1% of Vin			
	Load regulation ⁽¹⁾ (10% to 100% load)	Vo=3.3 / 5VDC Vo=9 ~ 15 VDC		7 5	15 10	%	
	Ripple& noise	@20MHZ BW (@Nominal Vin)			50	100	mVp-p
	Operating frequency	100% load at nominal Vin		20	50		KHz
Environment	Operating temperature		-40		100	°C	
	Storage temperature		-55		125	°C	
	Relative humidity		5		95	%RH	
Function	Isolation voltage	60 sec., input to output	1000			VDC	
		Add suffix "H3" per 1sec.	3000			VDC	
	Isolation resistance		10			GΩ	
	Isolation capacitance				80	pF	
	Short Circuit Protection	Option			Continuous		
	MTBF	25°C				21.4*10 ⁶	KHours
Physical	Vibration			MIL-STD-202G			
	Safety approvals			EN60950-1			
Physical	Case material			UL94V-0 black plastic			

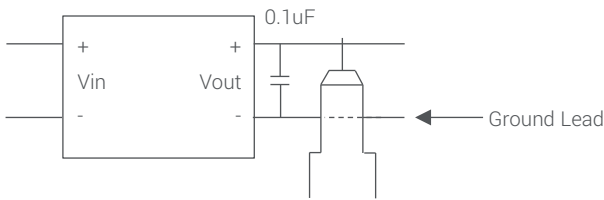
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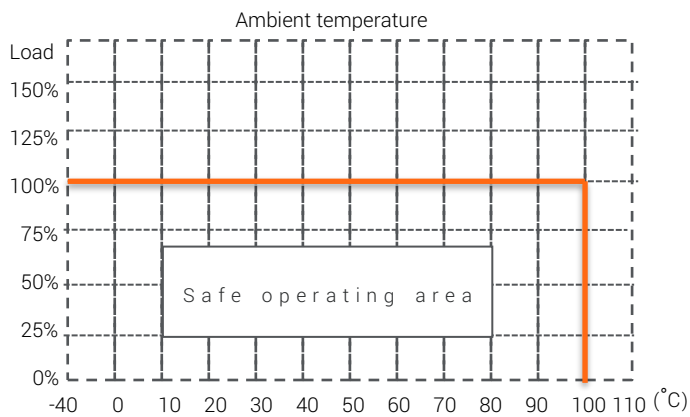
	Dimension	Single	12.75x10.70x7.00 mm
		Dual	15.24x10.70x7.00 mm
	Weight	Single	1.0 g
		Dual	1.2 g
EMC	EMI	EN55022	Class A/B
	ESD	EN61000-4-2	Criteria A
	Surge	EN61000-4-5, ±0.5kV	Criteria A

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

Ripple & Noise Measure Method



Derating-Curve

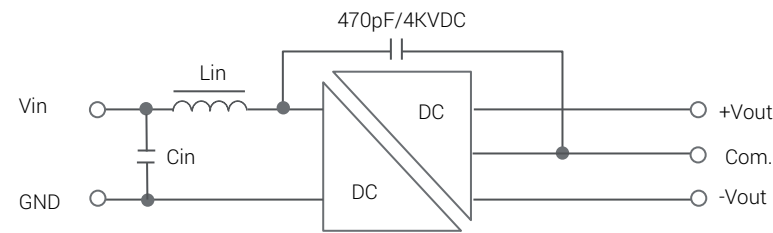
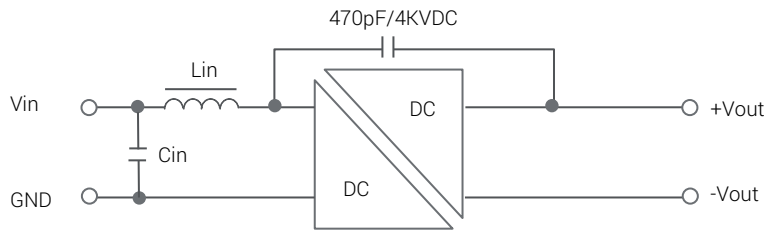


*The derating curve was measured at nominal Vin in chamber with forced air convection.

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EMC Filtering-Suggestion For Class B

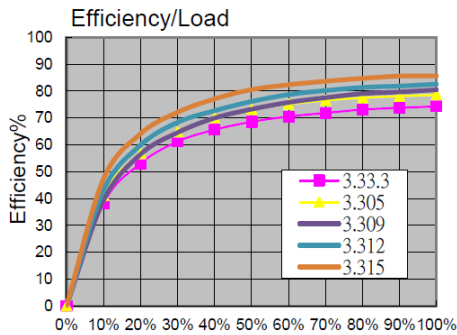


*The external filter for EN55022 class B.

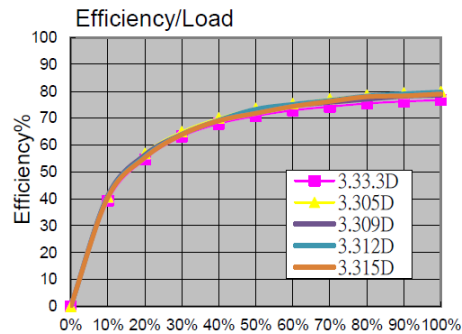
Part No.	Input voltage	Inductance/Capacitance (Lin/Cin)
M1S-J	3.3	3.3μH/4.7μF
	5	4.7μH/2.2μF
	12	10μH/2.2μF
	24	22μH/4.7μF
M1D-J	3.3	3.3μH/4.7μF
	5	4.7μH/2.2μF
	12	10μH/2.2μF
	24	22μH/4.7μF

Efficiency Curve

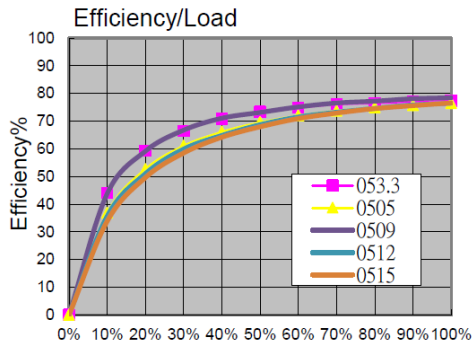
M1S-3.3xxJ



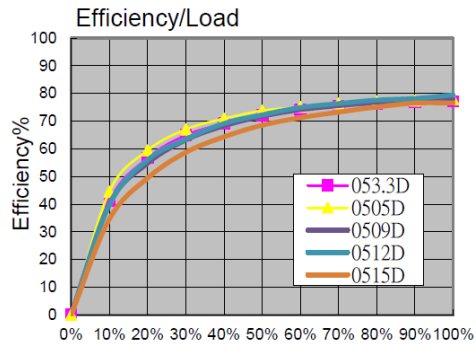
M1D-3.3xxJ



M1S-05xxJ

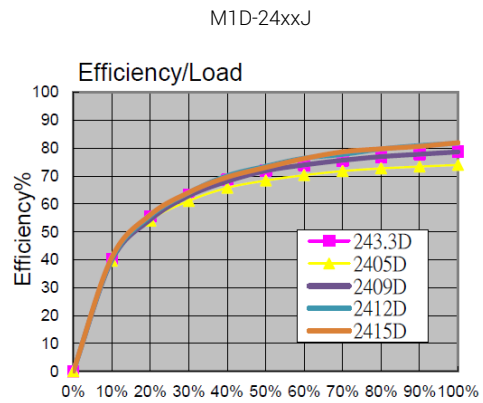
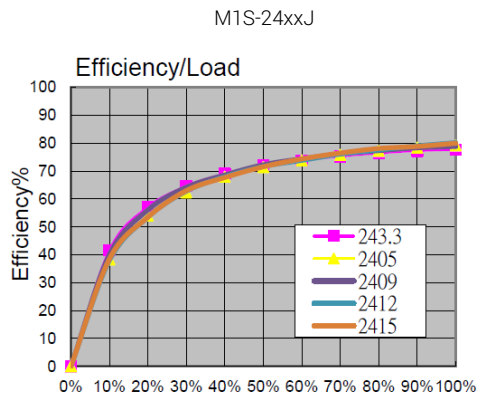
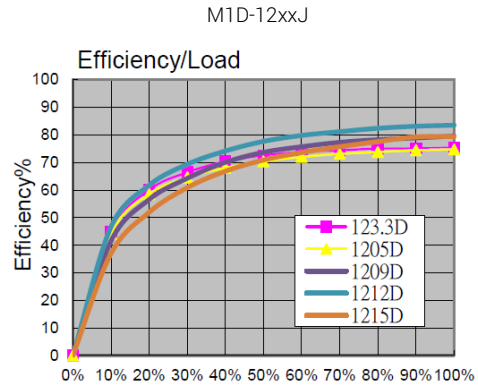
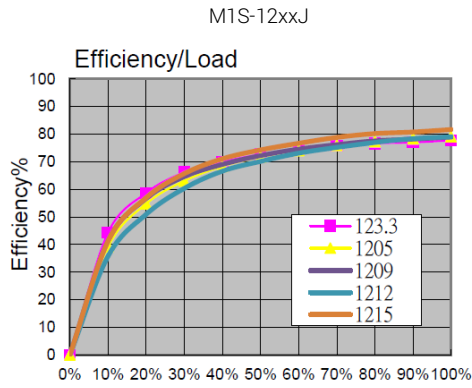


M1D-05xxJ

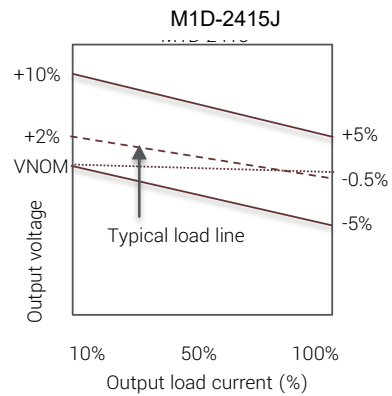
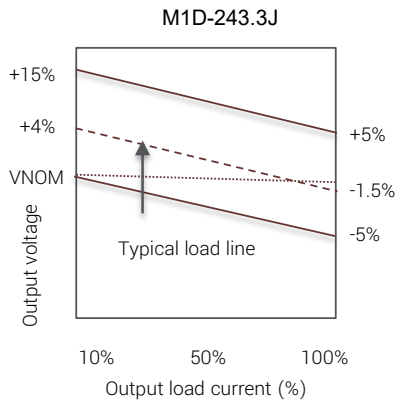
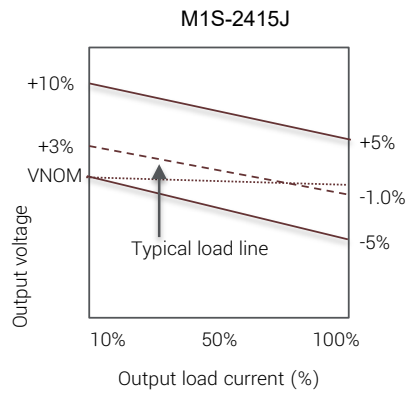
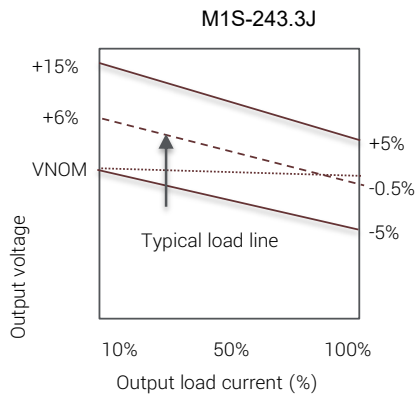


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Tolerance Envelope

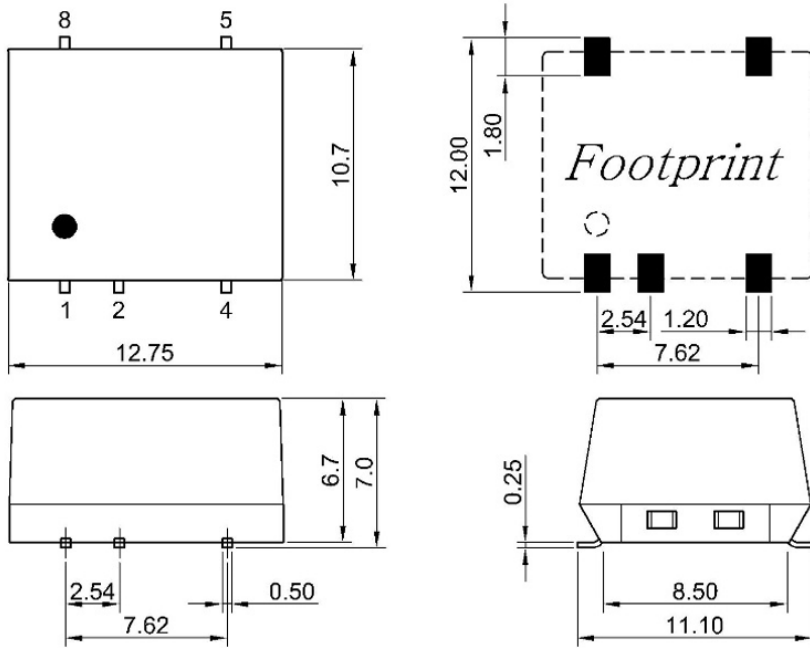


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Mechanical Dimension & Pinning

M1S-J



Pin	Function
1	-Vin
2	+Vin
4	-Vout
5	+Vout
8	NC

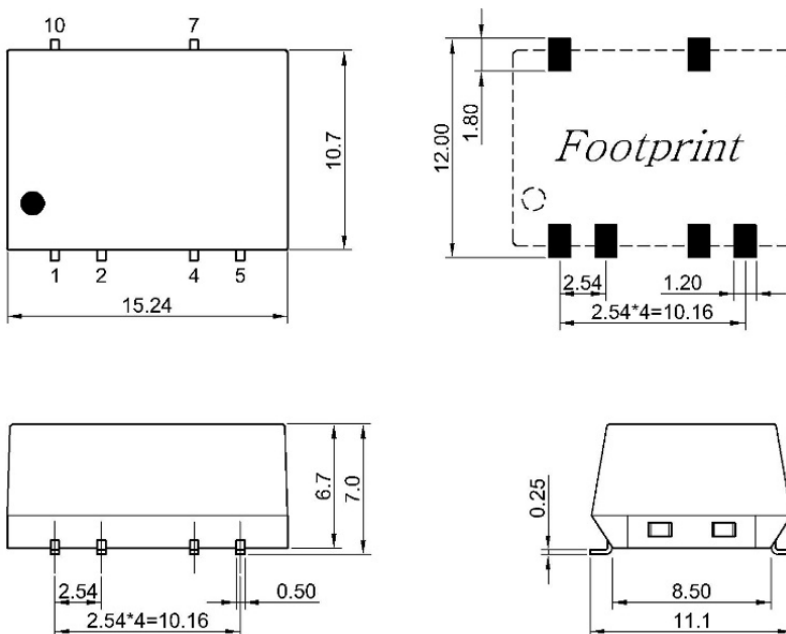
Unit: mm

TOL: XX.X ±0.5mm

XX.XX ±0.25mm

NC= No Connection

M1D-J



Pin	Function
1	-Vin
2	+Vin
4	Com.
5	-Vout
7	+Vout
10	NC

Unit: mm

TOL: XX.X ±0.5mm

XX.XX ±0.25mm

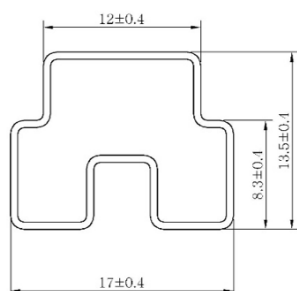
NC= No Connection

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Package

- Tube packing



Unit: mm
Length: 530 ± 2 mm
M1S: 1Tube=40pcs
M1D: 1Tube=33pcs

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