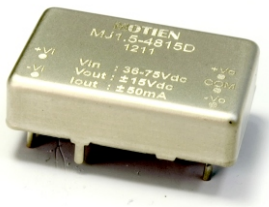
MJ1.5- Series

MOTIEN TECHNOLOGY

1.5W 2:1 Regulated Single &Dual output

Features

- Wide 2:1 Input Range
- 1.08"X0.7"X0.28" metal case size
- Thin Profile
- Full SMD Technology
- 500 VAC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 83%
- -40 ~ 85°C Operation Temperature Range
- Over Voltage Protection
- Without Tantalum Capacitors inside



ROHS

The MJ1.5-1.5W series are a family of high performance 1.5W single & dual output DC/DC converters .These converters are made with nickle-coated brass case in a 1.08"x0.7"X0.28" with high performance features such as 500 VAC input/output isolation voltage . The high performance features include : high efficiency and tight line/load regulation. Input voltages of 05,12,24 and 48 with output voltage of 5, 12, 15, ±12, ±15 . High performance features include high efficiency operation up to 83% and output voltage accuracy of ±1% maximum.

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS

Output Voltage Accuracy		±1%
Maximum Output Current		See table
Line Regulation		±0.5%, max.
Load Regulation(Io=0% to 100%)		±1%, max(balanced load)
Cross Regulation (Dual Output) (1)		±5%
Ripple&Noise (2)		50mVp-p, max.
Over Voltage Protection (Zener diode clamp)	5V output	6.2V
	12V output	15V
	15V output	18V
	±12V output	±15V
	±15V output	±18V
Short Circuit Protection		Indefinite (Automatic Recovery)
Temperature Coefficient		±0.02%/°C
Capacitive Load (3)		See table
Transient Response Deviation(4)		±3%, max.

INPUT SPECIFICATIONS

Voltage Range	See table
Max. Input Current	See table
No-Load Input Current	See table
Start up Time (Minimum Vin and constant resistive load)	20mS, max.
Input Filter	LC Type
Input Reflected Ripple Current(5)	20mA pk-pk

GENERAL SPECIFICATIONS

Efficiency	See table, typ.
I/O Isolation Voltage(60 sec)	
Input/Output	500Vac
Metal Case/Input & Output	500Vac
I/O Isolation Capacitance	500 pF ,max.
I/O Isolation Resistance	500VDC 50M Ohms
Switching Frequency	Typical 100kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.6 Mhrs
Safety Standard : (designed to meet)	IEC/EN 60950-1

PHYSICAL SPECIFICATIONS

Case Material	Nickel-coated Copper
Pin Material	Φ1.0mm Brass Solder-coated
Weight	10.0g
Dimensions	1.08"x0.7"x0.28"

ENVIRONMENT SPECIFICATIONS

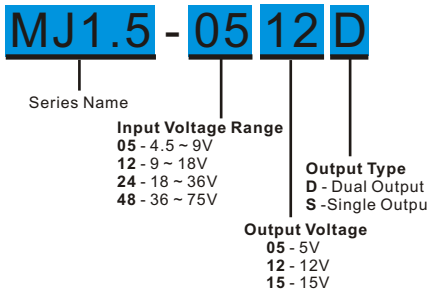
Operating Temperature	-40°C~85°C(See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

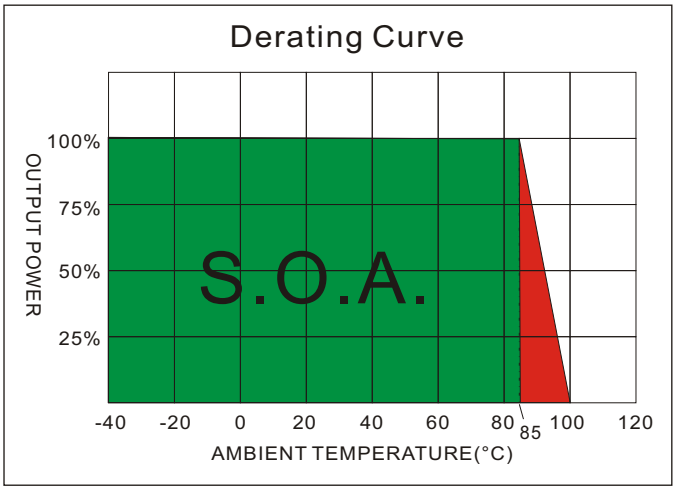
ABSOLUTE MAXIMUM RATINGS(6)

These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

Input Surge Voltage(100mS)	
05 Models	15 Vdc,max.
12 Models	25 Vdc,max.
24 Models	50 Vdc,max.
48 Models	100 Vdc,max.
Soldering Temperature (1.5mm from case 10 sec.max.)	260°C ,max.

PART NUMBER STRUCTURE





MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
MJ1.5-0505S	4.5-9	60	410	5	0	300	73	100
MJ1.5-0512S	4.5-9	60	384	12	0	130	78	100
MJ1.5-0515S	4.5-9	60	384	15	0	100	78	100
MJ1.5-0512D	4.5-9	60	390	±12	0	±65	82	±100
MJ1.5-0515D	4.5-9	60	379	±15	0	±50	81	±100
MJ1.5-1205S	9-18	50	166	5	0	300	75	100
MJ1.5-1212S	9-18	50	156	12	0	130	80	100
MJ1.5-1215S	9-18	50	154	15	0	100	81	100
MJ1.5-1212D	9-18	20	160	±12	0	±65	83	±100
MJ1.5-1215D	9-18	30	154	±15	0	±50	83	±100
MJ1.5-2405S	18-36	40	84	5	0	300	74	100
MJ1.5-2412S	18-36	40	80	12	0	130	78	100
MJ1.5-2415S	18-36	40	79	15	0	100	79	100
MJ1.5-2412D	18-36	20	81	±12	0	±65	81	±100
MJ1.5-2415D	18-36	15	78	±15	0	±50	82	±100
MJ1.5-4805S	36-75	30	43	5	0	300	73	100
MJ1.5-4812S	36-75	30	40	12	0	130	78	100
MJ1.5-4815S	36-75	30	40	15	0	100	78	100
MJ1.5-4812D	36-75	10	40	±12	0	±65	80	±100
MJ1.5-4815D	36-75	10	41	±15	0	±50	79	±100

NOTE

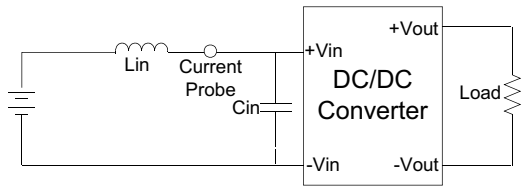
1. One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.
2. Measured with 20MHz bandwidth and 1.0uF ceramic capacitor.
3. Test by nominal input voltage and constant resistive load.
4. Tested by normal Vin and 50% load step change (100%-50% of Io,50%-0% of Io).
5. Measured Input reflected ripple current with a simulated source inductance of 12uH.
6. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : sales@motien.com.tw

TEST CONFIGURATIONS

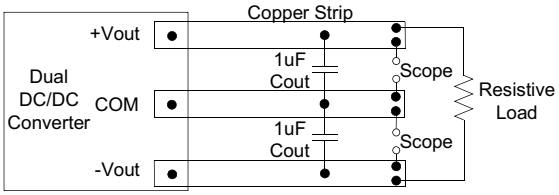
Input Reflected Ripple Current Test Step

Input reflected ripple current is measured through a source inductor Lin(4.7uH) and a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.

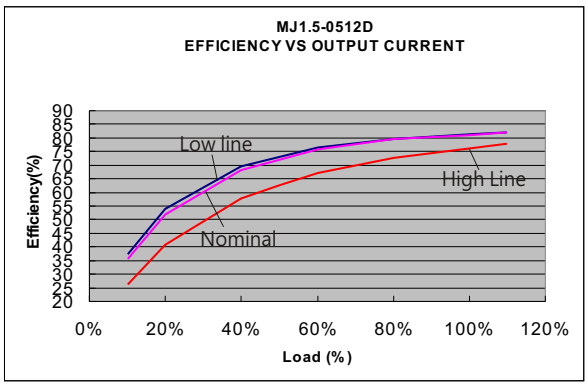


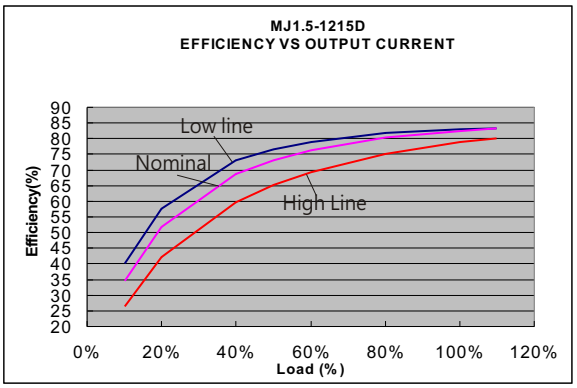
Output Ripple & Noise Measurement Test

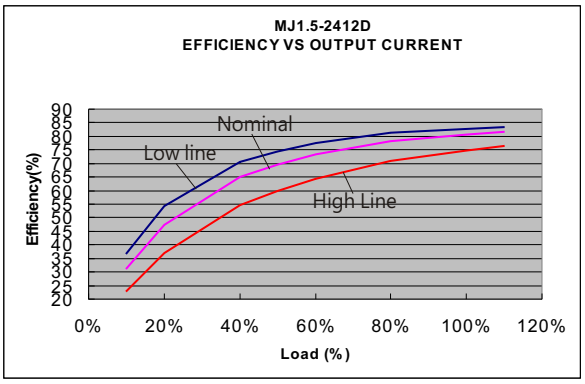
Use a capacitor Cout(1.0uF) measurement.
The Scope measurement bandwidth is 0-20MHz.

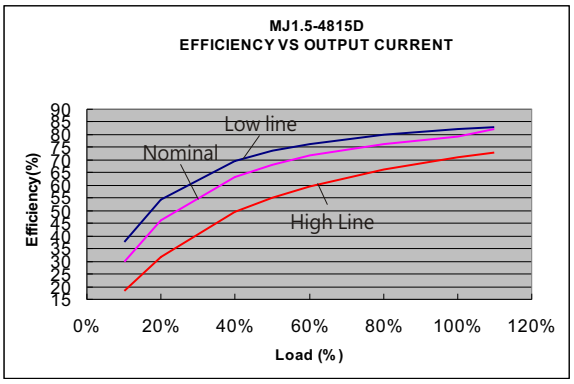


EFFICIENCY VS OUTPUT CURRENT CURVES









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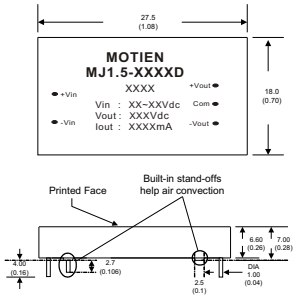
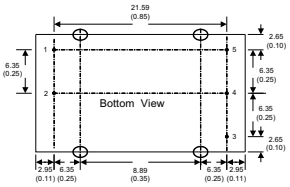
MECHANICAL SPECIFICATIONS





Notes :

All dimensions are typical in millimeters (inches).

1. Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
2. Pin pitch and length tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)
4. The converter is in contact with the slanted area of the P.C.B To keep isolation, adequate wiring on the mounted side is required.

PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	-V Input	-V Input
2	+V Input	+V Input
3	+V Output	+V Output
4	N.P	Common
5	-V Output	-V Output

MOTIEN ISO 9001.ISO14001.IECQ QC080000
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DRAWING: APPROVED:

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