

# V7L - 30W Series



30W 2:1 Regulated Single & Dual output

## Features

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 88%
- -40 ~ 85°C Operation Temperature Range



The V7L series is a family of cost effective 30W single & dual output DC-DC converters. These converters are made with nickle-coated brass case in a 2"x2" with high performance features such as 1500 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Devices are encapsulated by using flame retardant resin. Input voltages of 12, 24 and 48 with output voltage of 3.3, 5, 7.2, 9, 12, 15, 18, 24, ±3.3, ±5, ±7.2, ±9, ±12, ±15, ±18, ±24 Vdc. High performance features include high efficiency operation up to 88% 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	
Voltage accuracy	±1%
Line regulation	±0.5%
Load regulation	Single (0% to 100% Load) ±0.5% Dual (10% to 100% Load) ±0.5%
Ripple & noise(20 MHz bandwidth)(1)	100mV pk-pk
Over-current protection	140% of max. Iout
Short circuit protection	Indefinite(Automatic Recovery)
Temperature coefficient	±0.02%/°C
Capacitor load(2)	See table

INPUT SPECIFICATIONS	
Voltage Range	See table
Start up Time(Nominal Vin and constant resistive load)	20mS, typ.
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	Capacitors
Input Reflected Ripple Current(3)	35mA pk-pk

GENERAL SPECIFICATIONS	
Efficiency	See table
I/O Isolation Voltage(3 sec)	
Input/Output	1500Vdc
Case/Input & Output	1000Vdc
I/O Isolation Capacitance	1000 pF typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Typical 125kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

PHYSICAL SPECIFICATIONS	
Case Material	Nickel-coated Brass
Pin Material	Ø1.0mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0-rated)
Weight	60.0g
Dimensions	2.00"x2.00"x0.40"

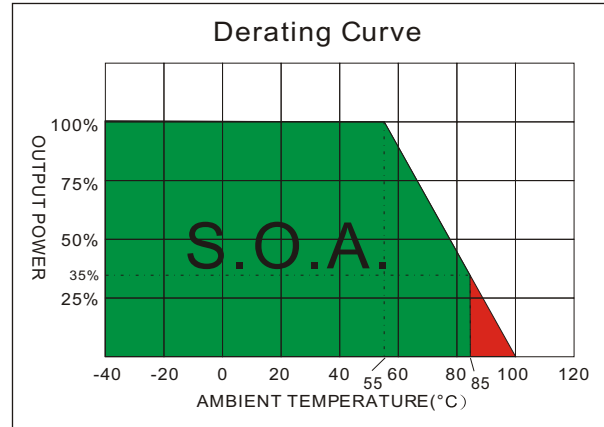
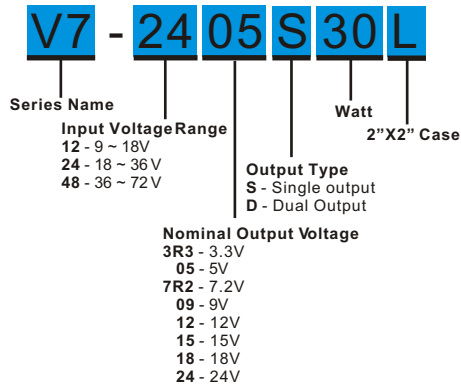
ENVIRONMENT SPECIFICATIONS	
Operating Temperature	-40°C~85°C(See Derating Curve)
Temperature	-40°C~55°C(For 100% load)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

ABSOLUTE MAXIMUM RATINGS(4)	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Surge Voltage(100mS)	
12 Models	25 Vdc max.
24 Models	50 Vdc max.
48 Models	100 Vdc max.
Soldering Temperature	260°C
(1.5mm from case 10sec.max.)	

The information and specifications contained in this data sheet are believed to be correct at time of publication. However, MOTIEN Technologies accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice. No rights under any patent accompany the sale of any such product(s) or information contained herein.

## V7L - 30W 2:1 Regulated Single & Dual output

### PART NUMBER STRUCTURE



## MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL (%)	Capacitor Load (uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
V7-1205 S30L	9-18	30	3048	5	0	6000	82	3300
V7-127R2 S30L	9-18	30	3012	7.2	0	4166	83	2200
V7-1209 S30L	9-18	30	2976	9	0	3333	84	1000
V7-1212 S30L	9-18	30	2976	12	0	2500	84	1000
V7-1215 S30L	9-18	30	2941	15	0	2000	85	1000
V7-1218 S30L	9-18	30	2941	18	0	1666	85	680
V7-1224 S30L	9-18	30	2941	24	0	1250	85	470
V7-123R3D 30L	9-18	25	2115	±3.3	±0	±3000	78	±2200
V7-1205D3 0L	9-18	25	3048	±5	±0	±3000	82	±2200
V7-127R2D 30L	9-18	25	3012	±7.2	±0	±2083	83	±1000
V7-1209D3 0L	9-18	25	2976	±9	±0	±1666	84	±1000
V7-1212D3 0L	9-18	25	2976	±12	±0	±1250	84	±1000
V7-1215D3 0L	9-18	35	2941	±15	±0	±1000	85	±470
V7-1218D3 0L	9-18	35	2941	±18	±0	±833	85	±330
V7-1224D3 0L	9-18	35	2941	±24	±0	±625	85	±220
V7-243R3 S30L	18-36	25	1031	3.3	0	6000	80	3300
V7-2405 S30L	18-36	25	1488	5	0	6000	84	3300
V7-247R2 S30L	18-36	25	1488	7.2	0	4166	84	2200
V7-2409 S30L	18-36	25	1436	9	0	3333	87	1000
V7-2412 S30L	18-36	25	1436	12	0	2500	87	1000
V7-2415 S30L	18-36	25	1436	15	0	2000	87	1000
V7-2418 S30L	18-36	25	1436	18	0	1666	87	680
V7-2424 S30L	18-36	25	1436	24	0	1250	87	470
V7-243R3D 30L	18-36	25	1057	±3.3	±0	±3000	78	±2200
V7-2405D3 0L	18-36	25	1488	±5	±0	±3000	84	±2200
V7-247R2D 30L	18-36	25	1488	±7.2	±0	±2083	84	±1000
V7-2409D3 0L	18-36	25	1470	±9	±0	±1666	85	±1000
V7-2412D3 0L	18-36	25	1470	±12	±0	±1250	85	±1000
V7-2415D3 0L	18-36	25	1436	±15	±0	±1000	87	±470
V7-2418D3 0L	18-36	25	1436	±18	±0	±833	87	±330
V7-2424D3 0L	18-36	30	1436	±24	±0	±625	87	±220

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

## V7L - 30W 2:1 Regulated Single & Dual output

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL (%)	Capacitor Load (uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
V7-483R3 S30L	36-72	20	522	3.3	0	6000	79	3300
V7-4805 S30L	36-72	20	753	5	0	6000	83	3300
V7-487R2 S30L	36-72	20	744	7.2	0	4166	84	2200
V7-4809 S30L	36-72	20	744	9	0	3333	84	1000
V7-4812 S30L	36-72	20	726	12	0	2500	86	1000
V7-4815 S30L	36-72	20	710	15	0	2000	88	1000
V7-4818 S30L	36-72	20	710	18	0	1666	88	680
V7-4824 S30L	36-72	20	710	24	0	1250	88	470
V7-483R3D 30L	36-72	20	515	±3.3	±0	±3000	80	±2200
V7-4805D3 0L	36-72	20	735	±5	±0	±3000	85	±2200
V7-487R2D 30L	36-72	20	735	±7.2	±0	±2083	85	±1000
V7-4809D3 0L	36-72	20	735	±9	±0	±1666	85	±1000
V7-4812D3 0L	36-72	20	718	±12	±0	±1250	87	±1000
V7-4815D3 0L	36-72	20	710	±15	±0	±1000	88	±470
V7-4818D3 0L	36-72	20	710	±18	±0	±833	88	±330
V7-4824D3 0L	36-72	20	710	±24	±0	±625	88	±220

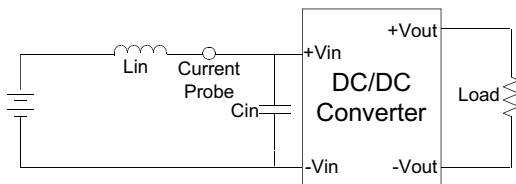
### NOTE

1. Ripple/Noise measured with 20MHz bandwidth and 1.0uF ceramic capacitor.
2. Tested by minimal  $V_{in}$  and constant resistive load.
3. Measured Input reflected ripple current with a simulated source inductance of 12uH.
4. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

### TEST CONFIGURATIONS

#### Input Reflected Ripple Current Test Step

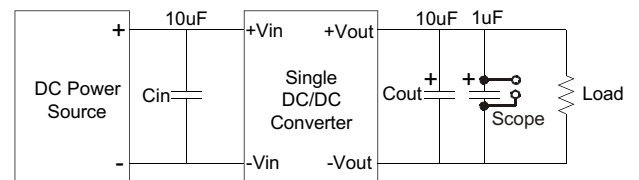
Input reflected ripple current is measured through a source inductor  $L_{in}$  (12uH) and a source capacitor  $C_{in}$  (47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.



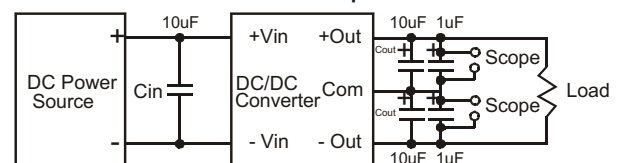
#### Output Ripple & Noise Measurement Test

To reduce ripple and noise, it is recommended to use a 1uF ceramic disk capacitor and a 10uF electrolytic capacitor to at the output.

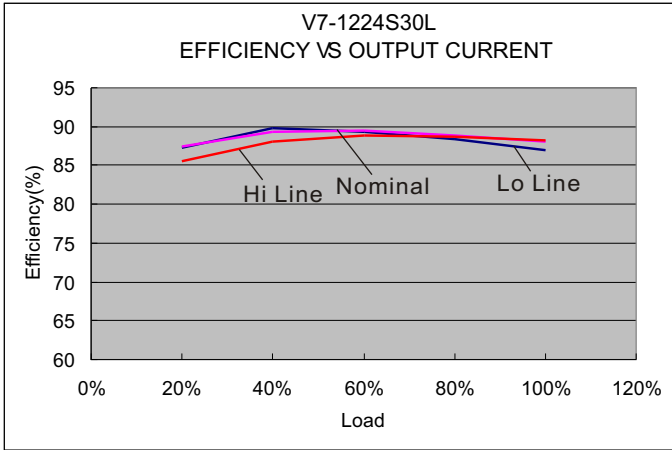
##### Single Output



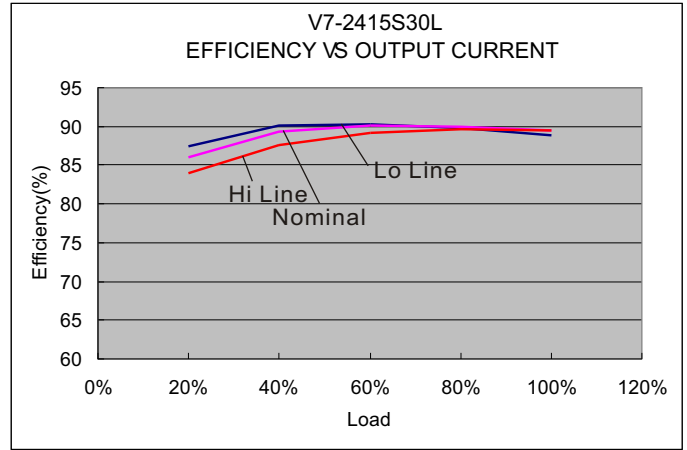
##### Dual Output



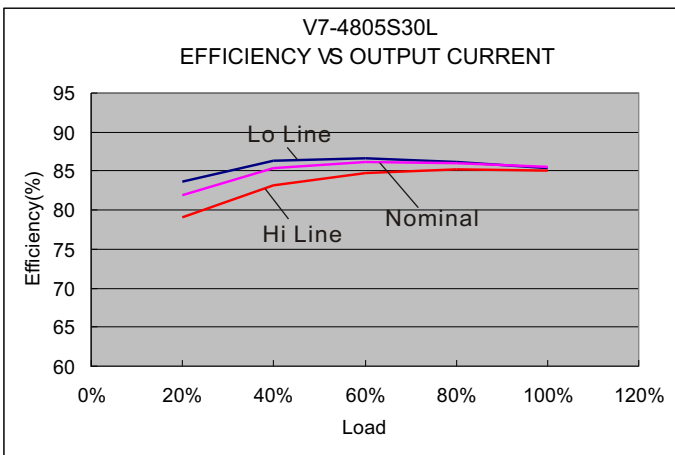
**ELECTRICAL CHARACTERISTIC CURVES**



12 Models

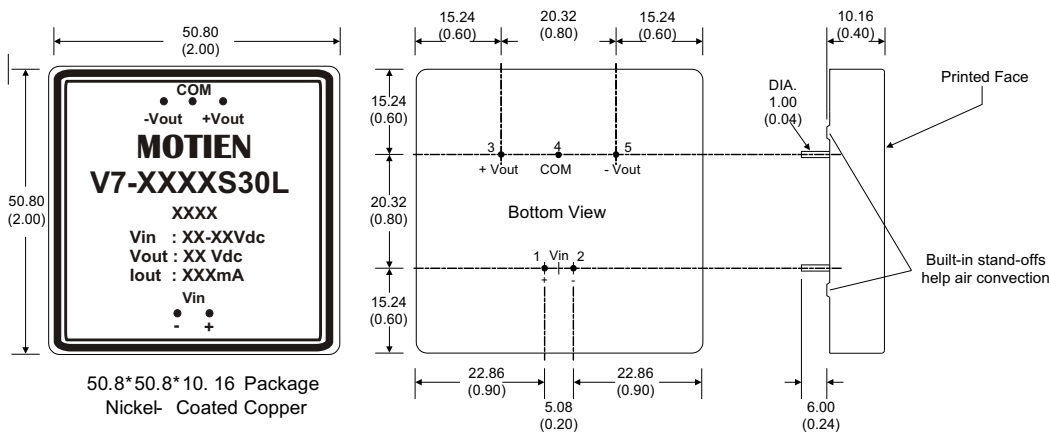


24 Models



48 Models

**MECHANICAL SPECIFICATIONS**



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

- All dimensions are typical in millimeters ( inches ).
1. Pin diameter: 1.00 ±0.05 ( 0.04 ±0.002 )
  2. Pin pitch and length tolerance: ±0.35 ( ±0.014 )
  3. Case Tolerance: ±0.5 ( ±0.02 )