

# V7-10 Series

10W 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 90%
- -40 ~ 85°C Operation Temperature Range



The V7 series is a family of cost effective 7.5~30W single & dual output DC-DC converters. These converters combine nickel-coated copper package in a 2"x1" and 2"x2" compatible case with high performance features such as 1500 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Wide range devices operate over 2:1 input voltage range providing stable output voltage. Devices are encapsulated using flame retardant resin. Input voltages of 12, 24 and 48 with output voltage of 3.3, 5, 9, 12, 15, 24,  $\pm 3.3$ ,  $\pm 5$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$  or  $\pm 24$  Vdc. High performance features include high efficiency operation up to 90% and output voltage accuracy of  $\pm 1\%$  maximum. Standard features include an input range of  $\pm 10\%$  tolerance and low output noise and ripple.

All specifications typical at  $T_a = 25^\circ\text{C}$ , nominal input voltage and full load unless otherwise specified

| OUTPUT SPECIFICATIONS                |                                |
|--------------------------------------|--------------------------------|
| Voltage Accuracy                     | $\pm 1\%$                      |
| Line Regulation                      | $\pm 0.5\%$                    |
| Load Regulation                      | $\pm 0.5\%$                    |
| Ripple & Noise<br>(20 Mhz bandwidth) | 100mV pk-pk                    |
| Current Limiting                     | $> 140\%$ of max. Iout         |
| Short Circuit Protection             | Indefinite(Automatic Recovery) |
| Temperature Coefficient              | $\pm 0.02\%/^\circ\text{C}$    |
| Capacitor Load                       | See table                      |

| INPUT SPECIFICATIONS                                           |            |
|----------------------------------------------------------------|------------|
| Voltage Range                                                  | See table  |
| Max. Input Current                                             | See table  |
| No-Load Input Current                                          | See table  |
| Input Filter                                                   | Capacitors |
| Input Reflected Ripple<br>rms thru 12uH inductor, 5Hz to 20MHz | 35mA rms   |

| PHYSICAL SPECIFICATIONS |                                         |
|-------------------------|-----------------------------------------|
| Case Material           | Nickel-coated Copper                    |
| Base Material           | Epoxy encapsulayed(UL94V-0 rated)       |
| Pin Material            | $\Phi 0.5\text{mm}$ Brass Solder-coated |
| Potting Material        | Epoxy (UL94V-0 rated)                   |
| Weight                  | 30.0g                                   |
| Dimensions              | 2.00"x1.00"x0.40"                       |

| EMI SPECIFICATIONS |  |
|--------------------|--|
| Radiated Emissions |  |

| GENERAL SPECIFICATIONS            |                  |
|-----------------------------------|------------------|
| Efficiency                        | See table        |
| I/O Isolation Voltage             |                  |
| I/O 1 min(flash tested for 1 sec) | 1500Vdc          |
| Case/Input&Output                 | 1000Vdc          |
| I/O Isolation Capacity            | 500 pF Typ.      |
| I/O Isolation Resistance          | 1000M Ohm        |
| Switching Frequency               | Fixed 200KHz     |
| Humidity                          | 95% rel H        |
| Reliability Calculated MTBF       | $> 1.121$ Mhrs   |
| Safety Standard                   | IEC 60950-1:2001 |
| Safety Approvals                  |                  |

| ENVIRONMENT SPECIFICATIONS |                                            |
|----------------------------|--------------------------------------------|
| Operating Temperature      | $-40^\circ\text{C} \sim 85^\circ\text{C}$  |
| Case Temperature           | $100^\circ\text{C}$                        |
| Storage Temperature        | $-40^\circ\text{C} \sim 125^\circ\text{C}$ |
| Cooling                    | Nature Convection                          |

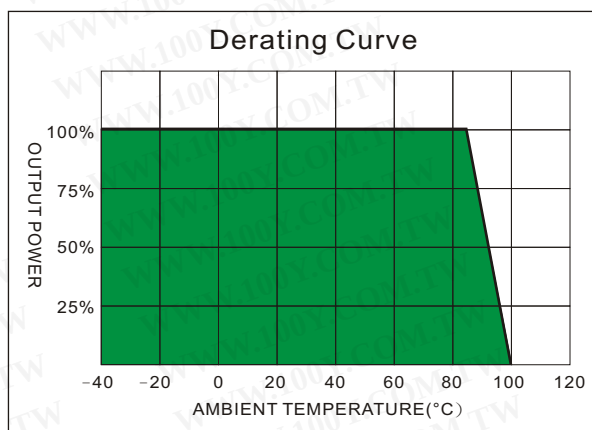
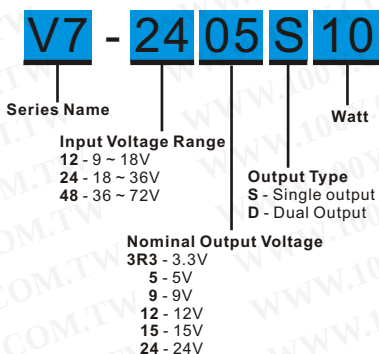
| ABSOLUTE MAXIMUM RATINGS                              |                                            |
|-------------------------------------------------------|--------------------------------------------|
| Input Voltage                                         |                                            |
| 12 Modes                                              | $-0.7 \sim 24$ Vdc                         |
| 24 Modes                                              | $-0.7 \sim 40$ Vdc                         |
| 48 Modes                                              | $-0.7 \sim 75$ Vdc                         |
| Operating Amb. Temperature                            | $-40^\circ\text{C} \sim 85^\circ\text{C}$  |
| Case Temperature                                      | $100^\circ\text{C}$                        |
| Storage Temperature                                   | $-40^\circ\text{C} \sim 125^\circ\text{C}$ |
| Lead Soldering Temperature<br>1.5mm from case 10 sec. | $260^\circ\text{C}$                        |

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.

## V7 - 10W 2:1 Regulated Single & Dual output



### PART NUMBER STRUCTURE

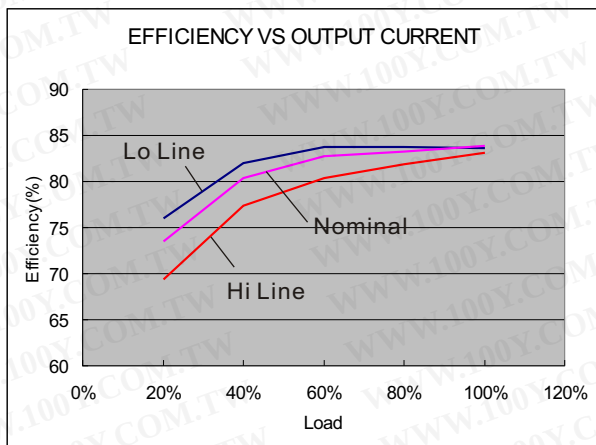


## MODEL SELECTION GUIDE

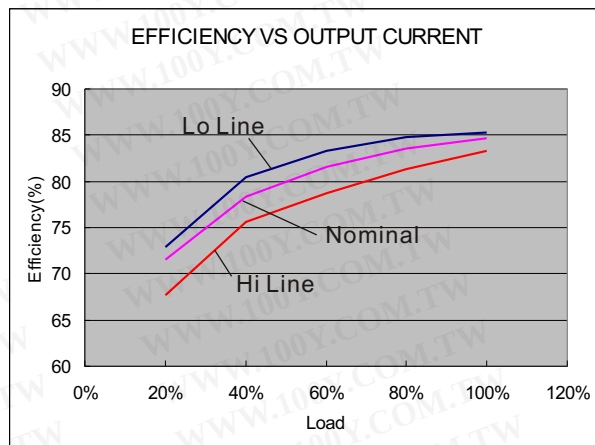
| MODEL NUMBER | INPUT                  |                    |                      | OUTPUT       |             | EFFICIENCY<br>@FL(%) | Capacitor<br>Load(μF) |
|--------------|------------------------|--------------------|----------------------|--------------|-------------|----------------------|-----------------------|
|              | Voltage Range<br>(Vdc) | No-Load<br>Current | Full Load<br>Current | Voltage(Vdc) | Current(mA) |                      |                       |
| V7-123R3S10  | 9-18                   | 30                 | 705                  | 3.3          | 2000        | 78                   | 6800                  |
| V7-1205S10   | 9-18                   | 30                 | 1004                 | 5.0          | 2000        | 83                   | 6800                  |
| V7-1212S10   | 9-18                   | 30                 | 980                  | 12.0         | 833         | 85                   | 1000                  |
| V7-1215S10   | 9-18                   | 30                 | 992                  | 15.0         | 666         | 84                   | 1000                  |
| V7-1224S10   | 9-18                   | 30                 | 980                  | 24.0         | 416         | 85                   | 470                   |
| V7-123R3D10  | 9-18                   | 30                 | 705                  | ±3.3         | ±1000       | 78                   | ±3300                 |
| V7-1205D10   | 9-18                   | 30                 | 1004                 | ±5.0         | ±1000       | 83                   | ±3300                 |
| V7-1212D10   | 9-18                   | 30                 | 980                  | ±12.0        | ±416        | 85                   | ±680                  |
| V7-1215D10   | 9-18                   | 30                 | 980                  | ±15.0        | ±333        | 85                   | ±330                  |
| V7-1224D10   | 9-18                   | 30                 | 980                  | ±24.0        | ±208        | 85                   | ±220                  |
| V7-243R3S10  | 18-36                  | 25                 | 352                  | 3.3          | 2000        | 78                   | 6800                  |
| V7-2405S10   | 18-36                  | 25                 | 502                  | 5.0          | 2000        | 83                   | 6800                  |
| V7-2412S10   | 18-36                  | 25                 | 490                  | 12.0         | 833         | 85                   | 1000                  |
| V7-2415S10   | 18-36                  | 25                 | 484                  | 15.0         | 666         | 86                   | 1000                  |
| V7-2424S10   | 18-36                  | 25                 | 484                  | 24.0         | 416         | 86                   | 470                   |
| V7-243R3D10  | 18-36                  | 25                 | 352                  | ±3.3         | ±1000       | 78                   | ±3300                 |
| V7-2405D10   | 18-36                  | 25                 | 496                  | ±5.0         | ±1000       | 84                   | ±3300                 |
| V7-2412D10   | 18-36                  | 25                 | 490                  | ±12.0        | ±416        | 85                   | ±680                  |
| V7-2415D10   | 18-36                  | 25                 | 484                  | ±15.0        | ±333        | 86                   | ±330                  |
| V7-2424D10   | 18-36                  | 25                 | 490                  | ±24.0        | ±208        | 85                   | ±220                  |
| V7-483R3S10  | 36-72                  | 20                 | 176                  | 3.3          | 2000        | 78                   | 6800                  |
| V7-4805S10   | 36-72                  | 20                 | 248                  | 5.0          | 2000        | 84                   | 6800                  |
| V7-4812S10   | 36-72                  | 20                 | 242                  | 12.0         | 833         | 86                   | 1000                  |
| V7-4815S10   | 36-72                  | 20                 | 245                  | 15.0         | 666         | 85                   | 1000                  |
| V7-4824S10   | 36-72                  | 20                 | 245                  | 24.0         | 416         | 85                   | 470                   |
| V7-483R3D10  | 36-72                  | 20                 | 176                  | ±3.3         | ±1000       | 78                   | ±3300                 |
| V7-4805D10   | 36-72                  | 20                 | 245                  | ±5.0         | ±1000       | 85                   | ±3300                 |
| V7-4812D10   | 36-72                  | 20                 | 242                  | ±12.0        | ±416        | 86                   | ±680                  |
| V7-4815D10   | 36-72                  | 20                 | 242                  | ±15.0        | ±333        | 86                   | ±330                  |
| V7-4824D10   | 36-72                  | 20                 | 245                  | ±24.0        | ±208        | 85                   | ±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

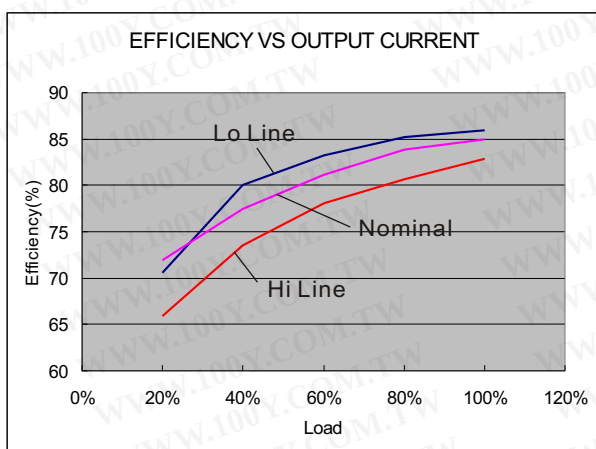
## V7 - 10W 2:1 Regulated Single & Dual output



12 Models



24 Models

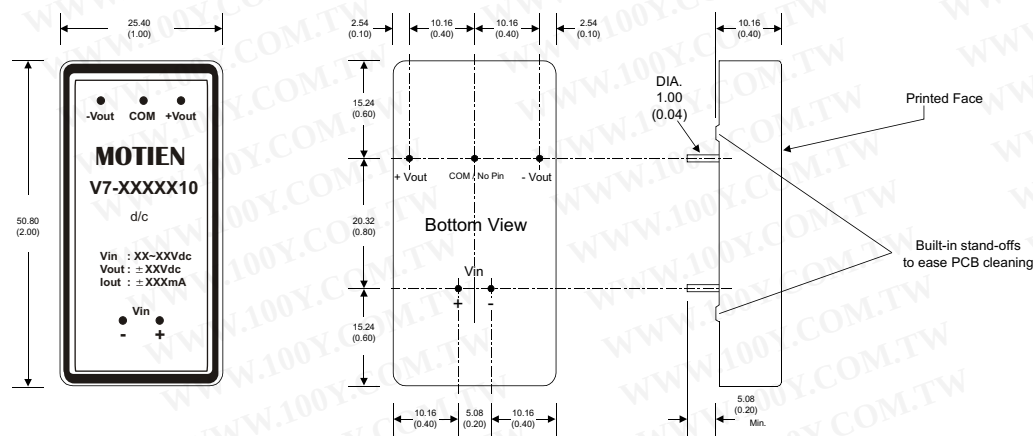


48 Models

### NOTE

1. Maximum value at nominal input voltage and full load.
2. Typical value at nominal input voltage and full load.
3. Test by normal input voltage and constant resistor load.
4. Ripple/Noise measured over a 20MHz bandwidth.
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

### MECHANICAL SPECIFICATIONS



Notes : All dimensions are typical in millimeters ( inches ).  
Tolerance x.xx =  $\pm 0.25$  (  $\pm 0.01$  )



**MOTIEN**



ISO 9001:2000 REGISTERED

#### HEAD OFFICE

2F, No. 191, Cing Ping Rd., Tainan City 70845, Taiwan  
Tel: 886-6-295 8220 (Rep.)  
Fax: 886-6-295 6635  
Email: sales@motien.com.tw  
Website: www.motien.com.tw

#### FACTORY

No. 21, Jin Cheng St., Tainan City 70062, Taiwan  
Tel: 886-6-295 8219 (Rep.) Fax: 886-6-299 3497

#### DESIGN CENTER

6F-7, No. 26, Tai Yuen St., Chu Pei City, Hsin Chu Hsien 30288, Taiwan  
Tel: 886-3-552 6851 (Rep.) Fax: 886-3-552 6852