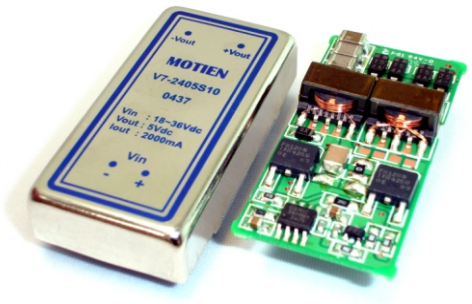
V7 - 12W Series

MOTIEN TECHNOLOGY

12W 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 86%
- -40 ~ 85°C Operation Temperature Range
- EMI Complies With EN55022 Class A



The V7 series is a family of cost effective 12W single & dual output DC-DC converters. These converters are made with nickle-coated brass case in a 2"x1" 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 86% 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	(10% to 100% Loading)±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	470 pF Typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Typical 200kHz
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217 F)	>1.121 Mhrs
Safety Standard : (designed to meet)	IEC 60950-1:2001

EMC SPECIFICATIONS

Radiated Emissions	EN55022	CLASS A
	FCC 47 CFR Part 15 Subpart A	CLASS A
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A

PHYSICAL SPECIFICATIONS

Case Material	Nickel-coated Brass
Pin Material	Ø1.0mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	30.0g
Dimensions	2.00"x1.00"x0.40"

ENVIRONMENT SPECIFICATIONS

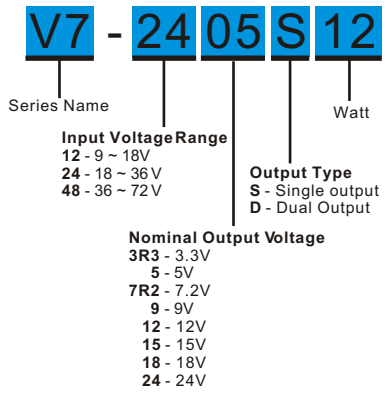
Operating Temperature	-40°C~85°C (See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

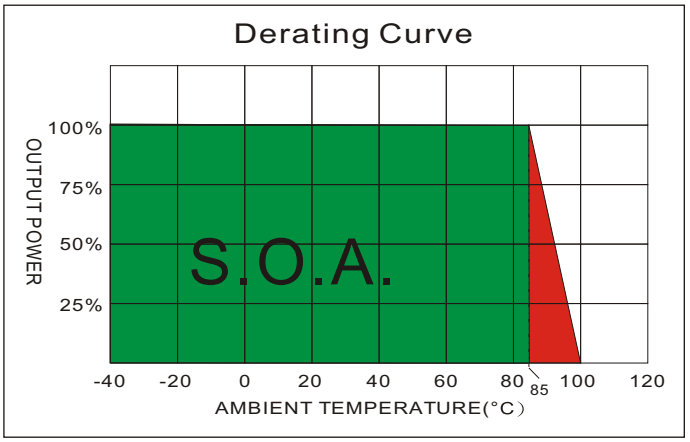
ABSOLUTE MAXIMUM RATINGS(4)

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

Input Voltage(100mS)	
12 Modes	-0.7~24 Vdc
24 Modes	-0.7~40 Vdc
48 Modes	-0.7~80 Vdc
Lead Soldering Temperature (1.5mm from case 10sec.)	260°C

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)
V7-123R3S12	9-18	30	835	3.3	240	2400	79	3300
V7-1205S12	9-18	30	1219	5	240	2400	82	3300
V7-127R2S12	9-18	30	1204	7.2	166	1666	83	2200
V7-1209S12	9-18	30	1204	9	133	1333	83	1000
V7-1212S12	9-18	30	1190	12	100	1000	84	1000
V7-1215S12	9-18	30	1190	15	80	800	84	680
V7-1218S12	9-18	30	1176	18	66	666	85	470
V7-1224S12	9-18	30	1176	24	50	500	85	470
V7-123R3D12	9-18	30	835	±3.3	±120	±1200	79	±1000
V7-1205D12	9-18	30	1219	±5	±120	±1200	82	±1000
V7-127R2D12	9-18	30	1204	±7.2	±83	±833	83	±680
V7-1209D12	9-18	30	1190	±9	±66	±666	84	±470
V7-1212D12	9-18	30	1190	±12	±50	±500	84	±470
V7-1215D12	9-18	30	1176	±15	±40	±400	85	±330
V7-1218D12	9-18	30	1176	±18	±33	±333	85	±220
V7-1224D12	9-18	30	1176	±24	±25	±250	85	±220
V7-243R3S12	18-36	25	417	3.3	240	2400	79	3300
V7-2405S12	18-36	25	609	5	240	2400	82	3300
V7-247R2S12	18-36	25	602	7.2	166	1666	83	2200
V7-2409S12	18-36	25	595	9	133	1333	84	1000
V7-2412S12	18-36	25	595	12	100	1000	84	1000
V7-2415S12	18-36	25	588	15	80	800	85	680
V7-2418S12	18-36	25	588	18	66	666	85	470
V7-2424S12	18-36	25	581	24	50	500	86	470
V7-243R3D12	18-36	25	417	±3.3	±120	±1200	79	±1000
V7-2405D12	18-36	25	609	±5	±120	±1200	82	±1000
V7-247R2D12	18-36	25	602	±7.2	±83	±833	83	±680
V7-2409D12	18-36	25	602	±9	±66	±666	83	±470
V7-2412D12	18-36	25	595	±12	±50	±500	84	±470
V7-2415D12	18-36	25	595	±15	±40	±400	84	±330
V7-2418D12	18-36	25	588	±18	±33	±333	85	±220
V7-2424D12	18-36	25	588	±24	±25	±250	85	±220

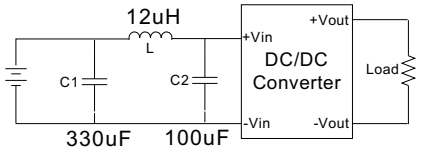
The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : sales@motien.com.tw

V7 - 12W 2:1 Regulated Single & Dual output

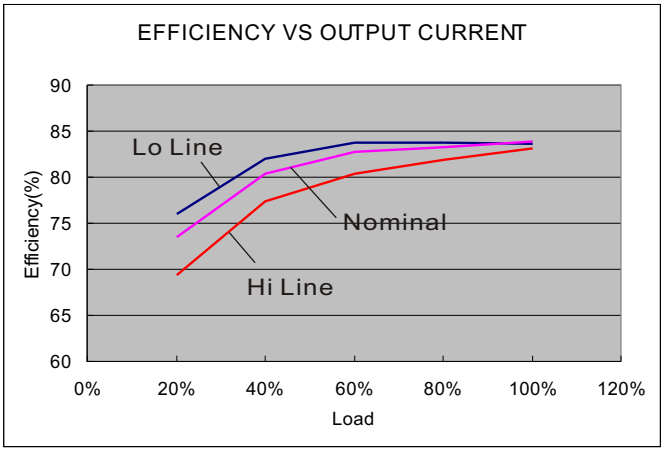
MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
V7-483R3S12	36-72	20	208	3.3	240	2400	79	3300
V7-4805S12	36-72	20	301	5	240	2400	83	3300
V7-487R2S12	36-72	20	301	7.2	166	1666	83	2200
V7-4809S12	36-72	20	297	9	133	1333	84	1000
V7-4812S12	36-72	20	297	12	100	1000	84	1000
V7-4815S12	36-72	20	297	15	80	800	84	680
V7-4818S12	36-72	20	294	18	66	666	85	470
V7-4824S12	36-72	20	294	24	50	500	86	470
V7-483R3D12	36-72	20	208	±3.3	±120	±1200	79	±1000
V7-4805D12	36-72	20	304	±5	±120	±1200	82	±1000
V7-487R2D12	36-72	20	297	±7.2	±83	±833	84	±680
V7-4809D12	36-72	20	297	±9	±66	±666	84	±470
V7-4812D12	36-72	20	294	±12	±50	±500	85	±470
V7-4815D12	36-72	20	294	±15	±40	±400	85	±330
V7-4818D12	36-72	20	290	±18	±33	±333	86	±220
V7-4824D12	36-72	20	290	±24	±25	±250	86	±220

NOTE

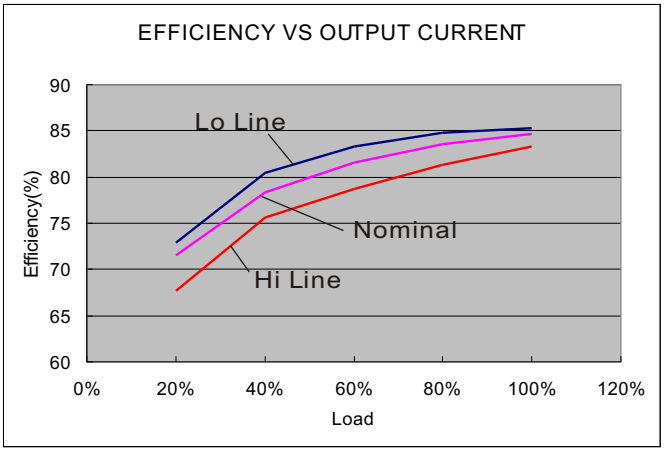
1.Ripple/Noise measured with 20MHz bandwidth.
2.Tested by minimal Vin and constant resistive load.
3.Measured Input reflected ripple current with a simulated source inductance of 12uH.
4.Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5.Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.
6.Suggest adding input external filter (C1 , C2 , L) to meet conducted emissions (En55022 class A)



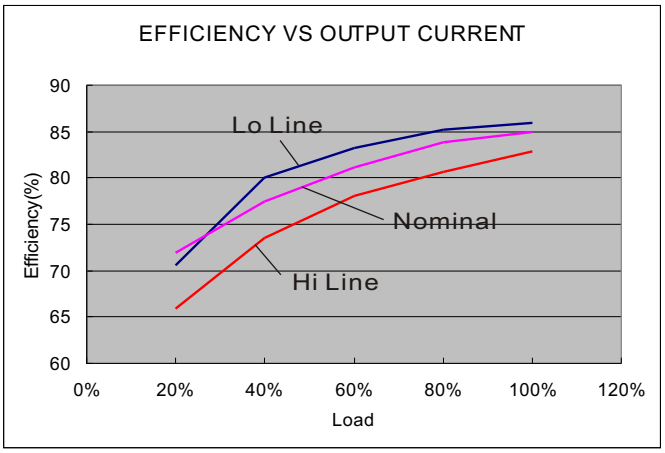
The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : sales@motien.com.tw



12 Models

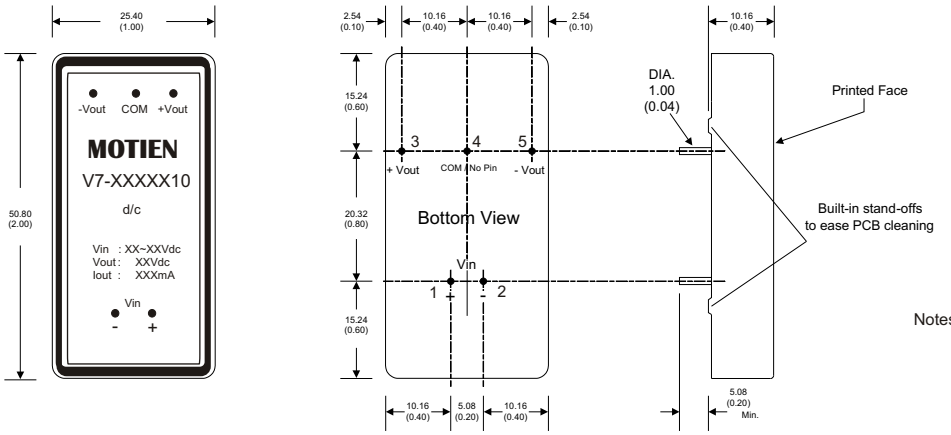


24 Models



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

Notes : All dimensions are typical in millimeters (inches).
1. Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

MOTIEN ISO 9001:2000 REGISTERED
No. 9, Keji 2nd Rd., Technology Industrial Park, Tainan City 70955, Taiwan
Tel: 886-6-384 2366(Rep.) Fax: 886-6-384 2399
Website : www.motien.com.tw Email : sales@motien.com.tw

Last Update : Oct.15.2007