

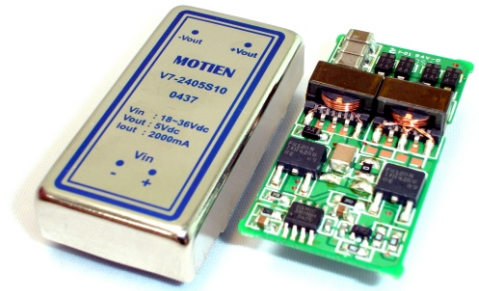
V7 - 15W Series

15W 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 87%
- -40 ~ 85°C Operation Temperature Range
- EMI Complies With EN55022 Class A



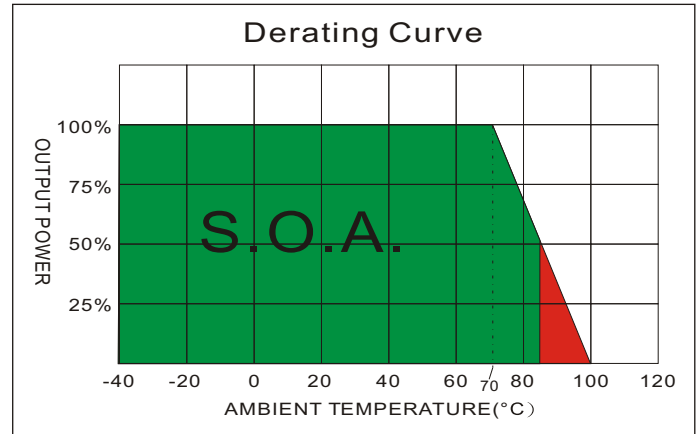
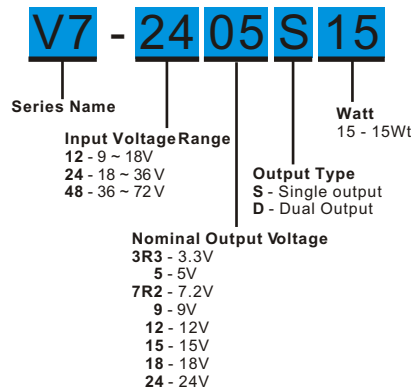
The V7 series is a family of cost effective 15W single & dual output DC-DC converters. These converters are made with nickle-coated brass case in a 2"x1" with high performance features such as 1500 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight 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 87% and output voltage accuracy of $\pm 1\%$ maximum.

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

OUTPUT SPECIFICATIONS	
Voltage accuracy	$\pm 1\%$
Line regulation	$\pm 0.5\%$
Load regulation(0% to 100% Load)	(Single Output) $\pm 0.5\%$ (Dual Output) $\pm 1.0\%$
Ripple & noise(20 MHz bandwidth)(1)	100mV pk-pk
Over-current protection	140% of max. Iout
Short circuit protection	Indefinite(Automatic Recovery)
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
Capacitor load(2)	See table
Transient Recovery Time(3)	250us, typ
Transient Response Deviation(3)	$\pm 3\%$, max
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	Pi Type
Input Reflected Ripple Current(4)	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	500 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
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	$\varnothing 1.0\text{mm}$ 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) -40°C~70°C(For 100% load)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection
ABSOLUTE MAXIMUM RATINGS(5)	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Voltage(100mS)	
12 Modes	-0.7~25 Vdc
24 Modes	-0.7~50 Vdc
48 Modes	-0.7~100 Vdc
Soldering Temperature (1.5mm from case 10sec.)	260°C

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PARTNUMBER STRUCTURE



MODEL SELECTION GUIDE

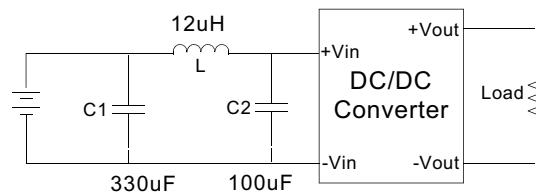
MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL (%)	Capacitor Load (uF)
		No Load (mA)	Full Load (mA)		Min Load (mA)	Full Load (mA)		
V7-123R3 S15	9-18	30	1031	3.3	0	3000	80	3300
V7-1205 S15	9-18	30	1524	5	0	3000	82	3300
V7-127R2 S15	9-18	30	1506	7.2	0	2083	83	2200
V7-1209 S15	9-18	30	1470	9	0	1666	85	1000
V7-1212 S15	9-18	30	1470	12	0	1250	85	1000
V7-1215 S15	9-18	30	1470	15	0	1000	85	680
V7-1218 S15	9-18	30	1470	18	0	833	85	470
V7-1224 S15	9-18	30	1453	24	0	625	86	470
V7-123R3D15	9-18	30	1562	±3.3	0	±1500	80	±1000
V7-1205D15	9-18	30	1524	±5	0	±1500	82	±1000
V7-127R2D15	9-18	30	1506	±7.2	0	±1041	83	±680
V7-1209D15	9-18	30	1488	±9	0	±833	84	±470
V7-1212D15	9-18	30	1488	±12	0	±625	84	±470
V7-1215D15	9-18	30	1488	±15	0	±500	84	±330
V7-1218D15	9-18	30	1470	±18	0	±416	85	±220
V7-1224D15	9-18	30	1470	±24	0	±312	85	±220
V7-243R3 S15	18-36	25	515	3.3	0	3000	80	3300
V7-2405 S15	18-36	25	744	5	0	3000	84	3300
V7-247R2 S15	18-36	25	744	7.2	0	2083	84	2200
V7-2409 S15	18-36	25	735	9	0	1666	85	1000
V7-2412 S15	18-36	25	735	12	0	1250	85	1000
V7-2415 S15	18-36	25	726	15	0	1000	86	680
V7-2418 S15	18-36	25	726	18	0	833	86	470
V7-2424 S15	18-36	25	718	24	0	625	87	470
V7-243R3D15	18-36	25	515	±3.3	0	±1500	80	±1000
V7-2405D15	18-36	25	753	±5	0	±1500	83	±1000
V7-247R2D15	18-36	25	744	±7.2	0	±1041	84	±680
V7-2409D15	18-36	25	735	±9	0	±833	85	±470
V7-2412D15	18-36	25	726	±12	0	±625	86	±470
V7-2415D15	18-36	25	726	±15	0	±500	86	±330
V7-2418D15	18-36	25	718	±18	0	±416	87	±220
V7-2424D15	18-36	25	718	±24	0	±312	87	±220

V7 - 15W 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 S15	36-72	20	257	3.3	0	3000	80	3300
V7-4805 S15	36-72	20	372	5	0	3000	84	3300
V7-487R2 S15	36-72	20	372	7.2	0	2083	84	2200
V7-4809 S15	36-72	20	367	9	0	1666	85	1000
V7-4812 S15	36-72	20	363	12	0	1250	86	1000
V7-4815 S15	36-72	20	359	15	0	1000	87	680
V7-4818 S15	36-72	20	359	18	0	833	87	470
V7-4824 S15	36-72	20	359	24	0	625	87	470
V7-483R3D15	36-72	20	257	±3.3	0	±1500	80	±1000
V7-4805D15	36-72	20	372	±5	0	±1500	84	±1000
V7-487R2D15	36-72	20	372	±7.2	0	±1041	84	±680
V7-4809D15	36-72	20	367	±9	0	±833	85	±470
V7-4812D15	36-72	20	363	±12	0	±625	86	±470
V7-4815D15	36-72	20	359	±15	0	±500	87	±330
V7-4818D15	36-72	20	359	±18	0	±416	87	±220
V7-4824D15	36-72	20	359	±24	0	±312	87	±220

NOTE

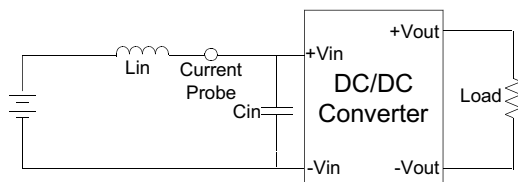
1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal Vin and constant resistive load.
3. Tested by normal Vin and 25% load step change (75%-50%-25% of Io).
4. Measured Input reflected ripple current with a simulated source inductance of 12uH.
5. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
6. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.
7. Suggest adding input external filter (C1, C2, L) to meet conducted emissions (EN55022 Class A)



TEST CONFIGURATIONS

Input Reflected Ripple Current Test Step

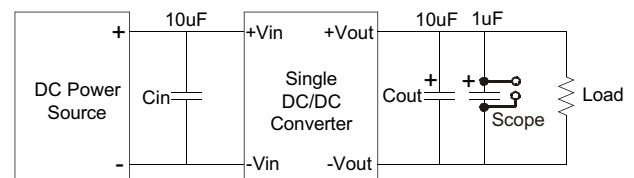
Input reflected ripple current is measured through a source inductor Lin(12uH) and a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.



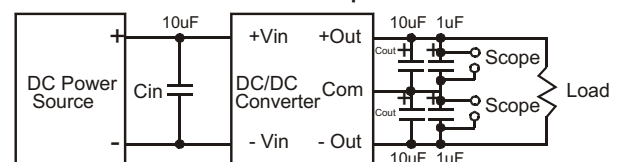
Output Ripple & Noise Measurement Test

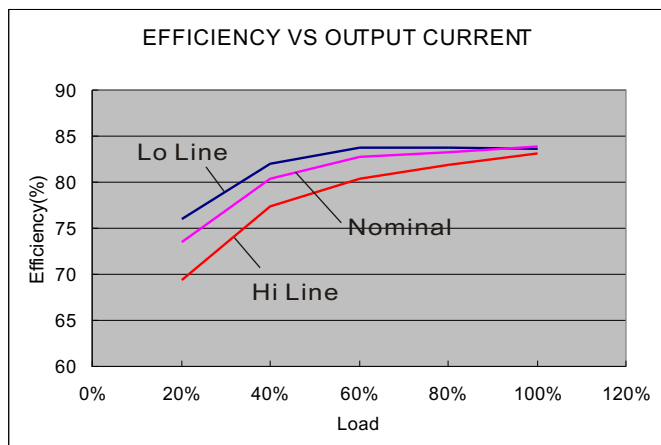
To reduce ripple and noise, it is recommended to use a 1uF ceramic disk capacitor and a 10uF electrolytic capacitor to at the output.

Single Output

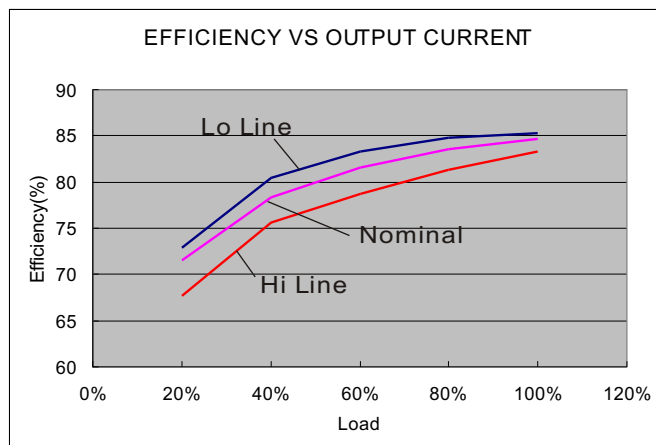


Dual Output

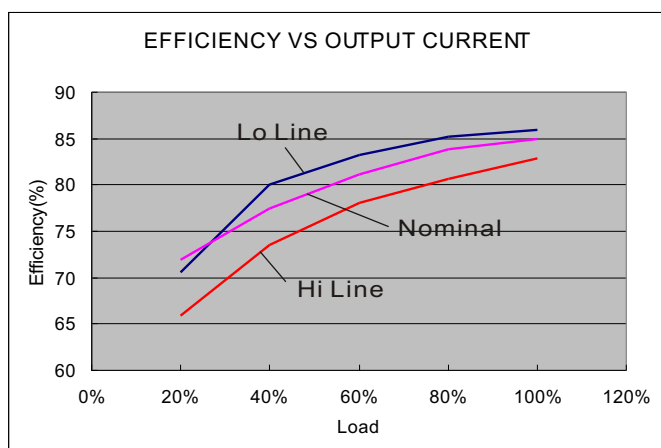




12 Models

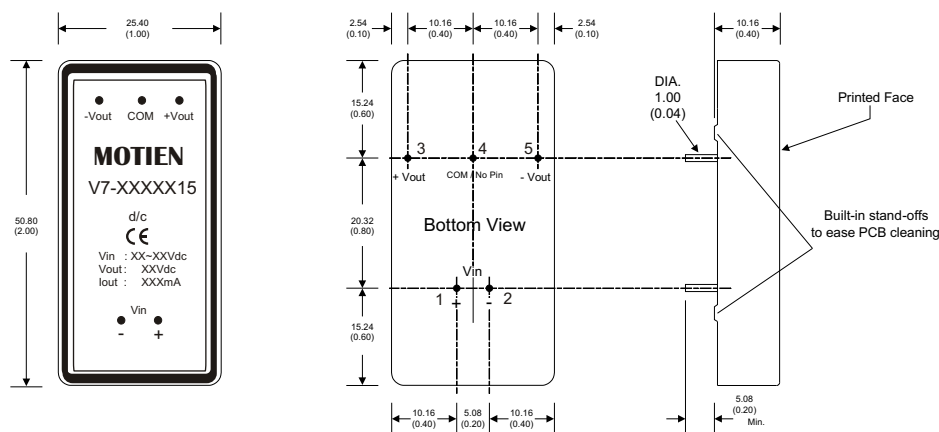


24 Models



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)