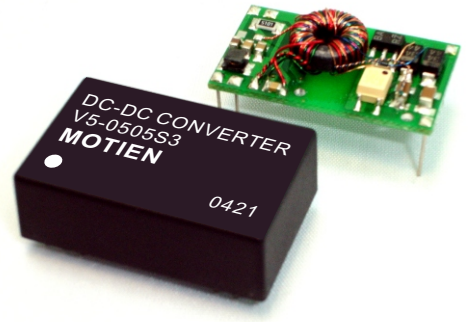
V5-3W Series

3W Regulated Single & Dual output

MOTIEN TECHNOLOGY

Features

- Regulated 24 Pin DIL Package
- Full SMD Technology
- 1000 VDC Isolation, Up to 6000 VDC(Metal Case Up To 3000Vdc)
- Continuous Short Circuit Protection
- Efficiency up to 80%
- -40 ~ 85°C Operation Temperature Range
- Plastic Case Standard, Optional Metal Case



The V5 series is a family of cost effective 3W single & dual output DC-DC converters. These converters combine miniature package in a 24-pin DIL compatible case with high performance features such as 1000 VDC~6000 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Devices are encapsulated using flame retardant resin. Input voltages of 5, 12, 24 with output voltage of 3.3, 5, 9, 12, 15, 24, ±3.3, ±5, ±9, ±12, ±15 and ±24 Vdc. High performance features include high efficiency operation up to 80% and output voltage accuracy of ±2% maximum. Standard features include an input range of ±10% tolerance and low output noise and ripple.

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

OUTPUT SPECIFICATIONS

Voltage accuracy	±2%
Line regulation	±0.5%
Load regulation	(From 0% to 100% Load) ±0.5% (Output 3.3V Model) ±1.5%
Ripple & noise (20 MHz bandwidth)(1)	75mV pk-pk
Short Circuit Protection	Indefinite(Automatic Recovery)
Temperature coefficient	±0.02%/°C
Capacitor load(2)	See table

INPUT SPECIFICATIONS

Voltage Range	±10%
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	PI type
Input Reflected Ripple Current(3)	35mA pk-pk

GENERAL SPECIFICATIONS

Efficiency	See table
I/O Isolation Voltage(3 sec)	
Input/Output	1000~6000Vdc
Metal Case/Input&Ouput	1000Vdc
I/O Isolation Capacitance	60 pF Typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Single 40kHz typ Dual 250kHz typ
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>3.072 Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

PHYSICAL SPECIFICATIONS

Case Material	Non-conductive Black Plastic(UL94V-0 rated) Nickel-coated Copper
Base Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	0.5mm Alloy42 Solder-coated Ø0.5mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	12.5g(Plastic Case)/15.0g(Metal Case)
Dimensions	1.25"x0.8"x0.4"

ENVIRONMENT SPECIFICATIONS

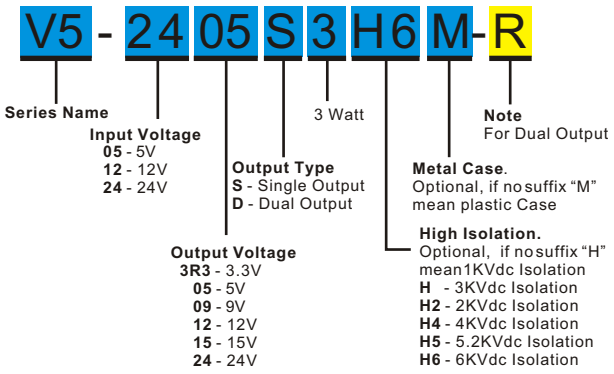
Operating Temperature	-40°C~85°C(See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

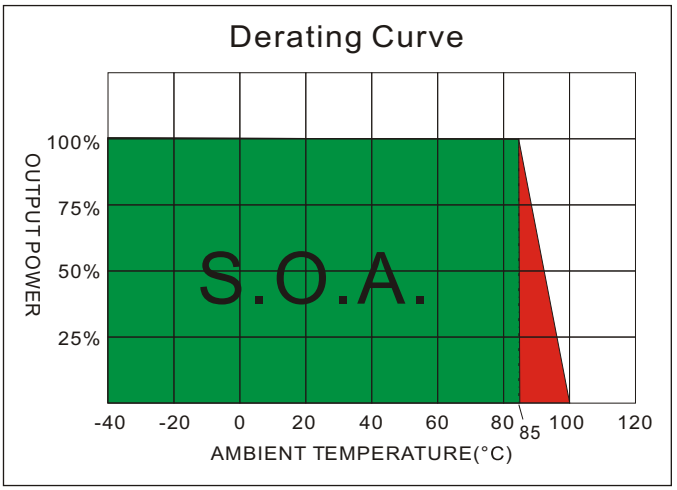
ABSOLUTE MAXIMUM RATINGS(4)

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

Input Voltage(100mS)	
5 Modes	0~7 Vdc
12 Modes	0~15 Vdc
24 Modes	0~28 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 Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
V5-053R3S3	5	120	720	3.3	600	55	470
V5-0505S3	5	120	923	5	600	65	470
V5-0509S3	5	120	882	9	333	68	470
V5-0512S3	5	120	845	12	250	71	470
V5-0515S3	5	120	845	15	200	71	470
V5-0524S3	5	120	937	24	125	64	470
V5-053R3D3-R	5	30	825	±3.3	±400	64	±1000
V5-0505D3-R	5	30	909	±5	±300	66	±1000
V5-0509D3-R	5	40	882	±9	±167	68	±470
V5-0512D3-R	5	40	857	±12	±125	70	±470
V5-0515D3-R	5	40	857	±15	±100	70	±470
V5-0524D3-R	5	60	869	±24	±63	69	±220
V5-123R3S3	12	50	284	3.3	600	58	470
V5-1205S3	12	50	384	5	600	65	470
V5-1209S3	12	50	357	9	333	70	470
V5-1212S3	12	50	352	12	250	71	470
V5-1215S3	12	50	342	15	200	73	470
V5-1224S3	12	50	367	24	125	68	470

Suffix "H" means 3KVdc isolation Suffix "H2" means 2KVdc isolation Suffix "H4" means 4KVdc isolation
Suffix "H5" means 5.2KVdc isolation Suffix "H6" means 6KVdc isolation
Suffix "M" means Metal Case Up To 3KVdc isolation

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

V5 - 3W 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 Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
V5-123R3D3-R	12	15	326	±3.3	±400	68	±1000
V5-1205D3-R	12	15	333	±5	±300	75	±1000
V5-1209D3-R	12	25	320	±9	±167	78	±470
V5-1212D3-R	12	25	312	±12	±125	80	±470
V5-1215D3-R	12	25	320	±15	±100	78	±470
V5-1224D3-R	12	25	328	±24	±63	76	±220
V5-243R3S3	24	25	142	3.3	600	58	470
V5-2405S3	24	25	192	5	600	65	470
V5-2409S3	24	25	181	9	333	69	470
V5-2412S3	24	25	173	12	250	72	470
V5-2415S3	24	25	173	15	200	72	470
V5-2424S3	24	25	178	24	125	70	470
V5-243R3D3-R	24	15	157	±3.3	±400	70	±1000
V5-2405D3-R	24	15	162	±5	±300	77	±1000
V5-2409D3-R	24	15	160	±9	±167	78	±470
V5-2412D3-R	24	15	156	±12	±125	80	±470
V5-2415D3-R	24	15	160	±15	±100	78	±470
V5-2424D3-R	24	25	164	±24	±63	76	±220

Suffix “H” means 3KVdc isolation Suffix “H2” means 2KVdc isolation Suffix “H4” means 4KVdc isolation
Suffix “H5” means 5.2KVdc isolation Suffix “H6” means 6KVdc isolation
Suffix “M” means Metal Case Up To 3KVdc isolation

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.

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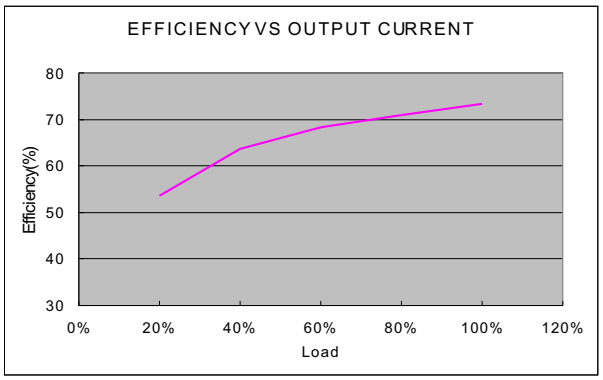
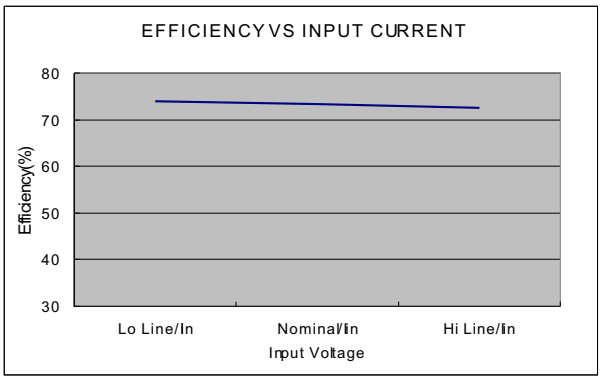
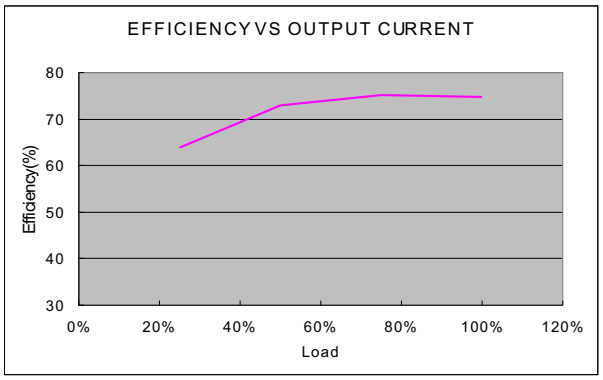
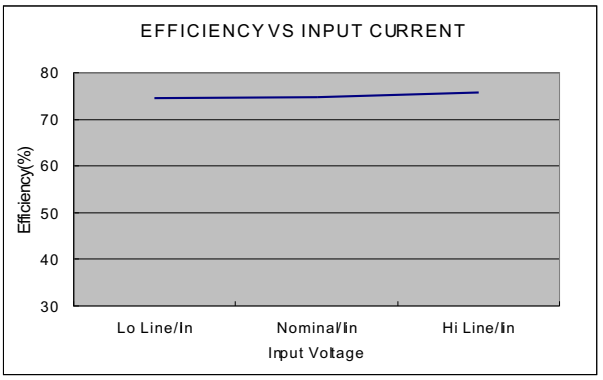


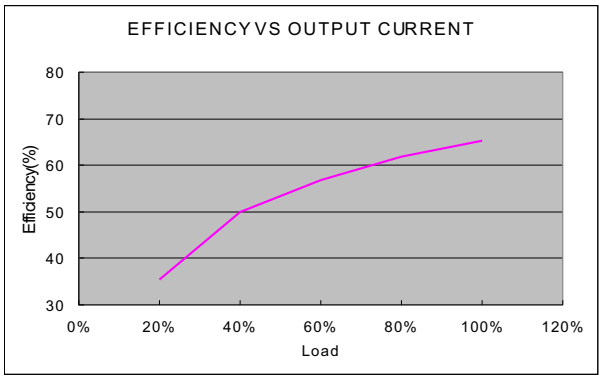


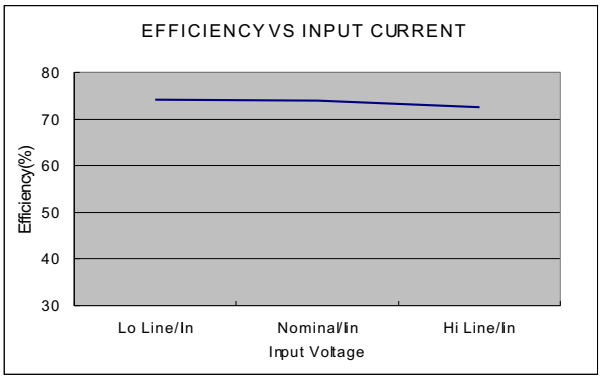
05 Single Output Models



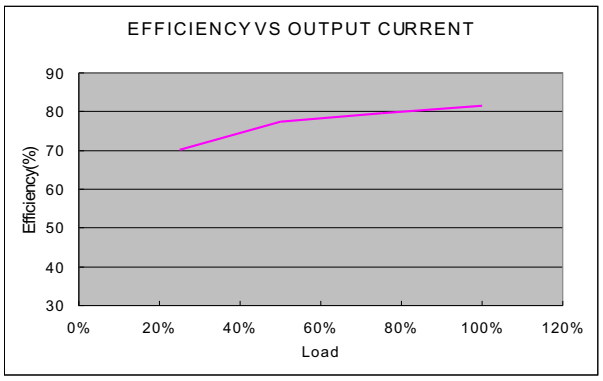


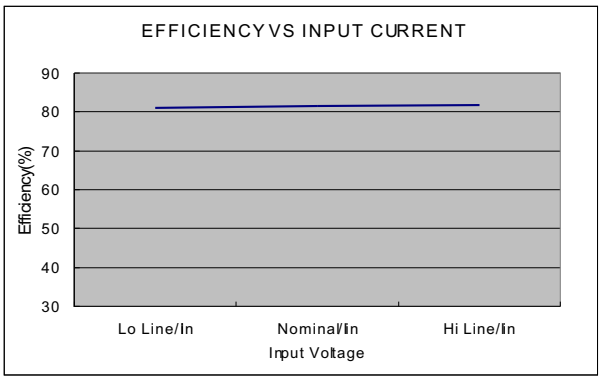
05 Dual Output Models





24 Single Output Models





24 Dual Output Models

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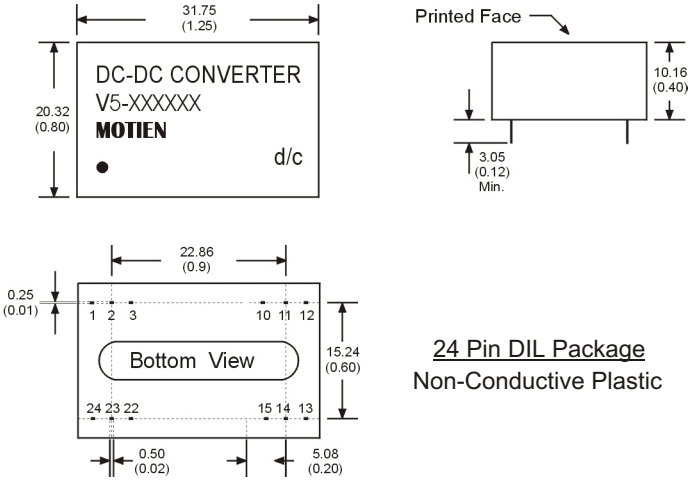
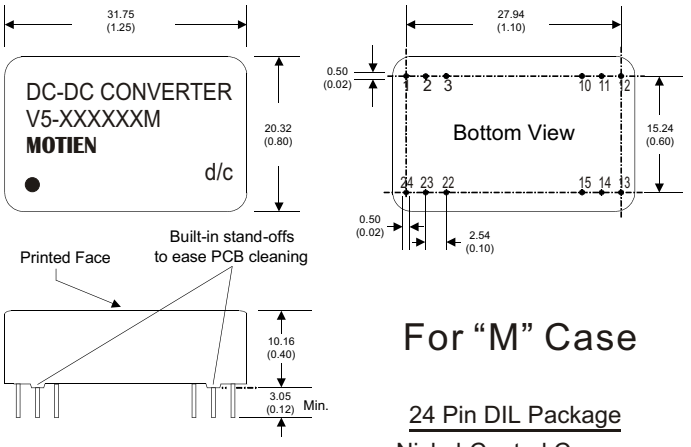
MECHANICAL SPECIFICATIONS



24 Pin DIL Package
Non-Conductive Plastic

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

PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	+V Input	+V Input	+V Input	+V Input
2	N.C.	−V Output	+V Input	+V Input
3	N.C.	Common	N.P.	N.P.
10	−V Output	Common	N.P.	Common
11	+V Output	+V Output	N.P.	Common
12	−V Input	−V Input	−V Output	N.P.
13	−V Input	−V Input	+V Output	−V Output
14	+V Output	+V Output	N.P.	N.P.
15	−V Output	Common	N.P.	+V Output
22	N.C.	Common	N.P.	N.P.
23	N.C.	−V Output	−V Input	−V Input
24	+V Input	+V Input	−V Input	−V Input



For “M” Case

24 Pin DIL Package
Nickel-Coated Copper

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

PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	+V Input	+V Input	+V Input	+V Input
2	N.C.	−V Output	+V Input	+V Input
3	N.C.	Common	N.P.	N.P.
10	−V Output	Common	N.P.	Common
11	+V Output	+V Output	N.P.	Common
12	−V Input	−V Input	−V Output	N.P.
13	−V Input	−V Input	+V Output	−V Output
14	+V Output	+V Output	N.P.	N.P.
15	−V Output	Common	N.P.	+V Output
22	N.C.	Common	N.P.	N.P.
23	N.C.	−V Output	−V Input	−V Input
24	+V Input	+V Input	−V Input	−V Input

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