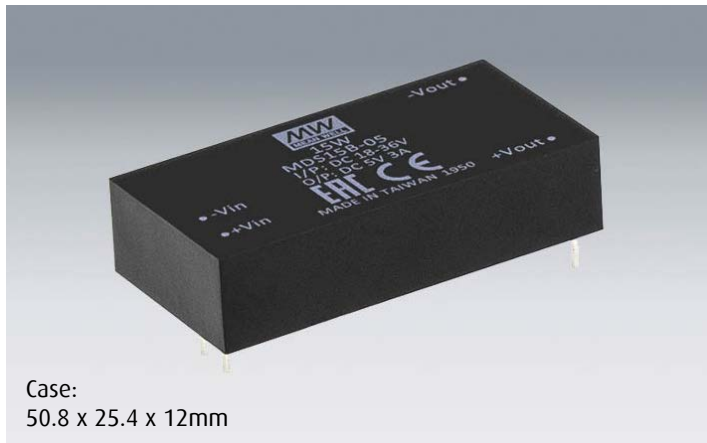


# MDS15 Series

15W 2"x1" Package Medical Grade DC-DC Converter



Case:  
50.8 x 25.4 x 12mm

## Features

- DIP 2"x1" package with international standard pinout
- 2:1 wide input range
- Low patient leakage current <5µA
- Wide operating temperature range -40 ~ +90°C
- Medical safety approved (2xMOOP) according to IEC60601-1
- No minimum load required
- Protection: Short circuit (continuous)/Overload/input under voltage
- 4000VAC height I/O isolation (Reinforced isolation)
- 3 years warranty

MDS - 15 A - 12 ← Output voltage (5/12/15/24Vdc)  
 Series name: MDS - 15 A - 12  
 Rated power: 15W  
 Input Voltage (A: 9~18Vdc; B: 18~36Vdc; C: 36~75Vdc)  
 S: Single output  
 D: Dual output



## Specification

INPUT	<b>Voltage Range</b>	A: 9 ~ 18Vdc B: 18 ~ 36Vdc C: 36 ~ 75Vdc
	<b>Surge Voltage</b>	12Vin in models: 25Vdc, 24Vin in models: 50Vdc, 48Vin in models: 100Vdc
	<b>Filter</b>	Pi type
	<b>Protection</b>	Fuse recommended. 12Vin models: 4A delay time Type, 24Vin models: 2A delay time Type, 48Vin models: 1A delay time Type
OUTPUT	<b>MODEL No.</b>	<b>MDS15 (see page 2 for model selection)</b>
	<b>Voltage Accuracy</b>	±1%
	<b>Rated Power</b>	15W
	<b>R&amp;N</b>	60mVp-p
	<b>Line Regulation</b>	±0.5%
	<b>Load Regulation</b>	±0.5%
	<b>Switching Frequency</b>	12Vin/24Vin: 250KHz, 48Vin: 300KHz
PROTECTION	<b>Short Circuit</b>	Protection type : Continuous, automatic recovery
	<b>Overload</b>	110 ~ 185% rated output power Protection type : Recovers automatically after fault condition is removed
	<b>Under Voltage Lockout</b>	12Vin: 7.5Vdc, 24Vin: 15Vdc, 48Vin: 33Vdc
	<b>Cooling</b>	Free-air convection
ENVIRONMENT	<b>Working Temperature</b>	-40 ~ +90°C(Refer to "Derating Curve")
	<b>Case Temperature</b>	+110°C max.
	<b>Working Humidity</b>	20 ~ 90% RH non-condensing
	<b>Storage Temperature</b>	-55 ~ +125°C, 10 ~ 95% RH non-condensing
	<b>Temp Coefficient</b>	±0.03%/°C (0 ~ 70°C)
	<b>Soldering Temperature</b>	1.5mm from case of 1~3sec./260°C max.
SAFETY & EMC	<b>Vibration</b>	10 ~ 500Hz, 2G 10 min./1cycle, period for 60 min. each along X, Y, Z axes
	<b>Safety Standards</b>	IEC60601-1(LVD) 3 edition, EAC TP TC 004 approved
	<b>Withstand Voltage</b>	I/P-O/P: 4KVAC
	<b>Isolation Resistance</b>	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH
	<b>Isolation Level</b>	Primary-secondary: 1xMOPP/2xMOOP when system input voltage is with 250VAC, 50/60Hz
	<b>Isolation Capacitance (Typ.)</b>	100pF
	<b>EMC Emission</b>	Compliance to EN55011 Class A without external components
OTHERS	<b>EMC Immunity</b>	Compliance to EN61000-4-2,3,4,5,6,8, Level 1, ±15KV air, ±8KV contact
	<b>M.T.B.F.</b>	1060K hrs min. MIL-HDBK-217F (25°C)
	<b>Case Material</b>	UL94V-0 plastic case
	<b>Packing</b>	30g; 18pcs/per tube, 432pcs/24 tube max./carton

1. All parameters are specified at normal input (A: 12Vdc, B: 24Vdc, C: 48Vdc), rated load, 25°C 70% RH ambient temperature.
2. Ripple and Noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with 0.1µf & 47µf parallel capacitor.
3. Line regulation is measured from low line to high line at rated load.
4. Load regulation is measured from 10% to 100% rated load.
5. 2 X MOPP base on a working voltage of 250Vac between Primary to Secondary.
6. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to 'EMI testing of component power supplies.

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## Model Selection Table

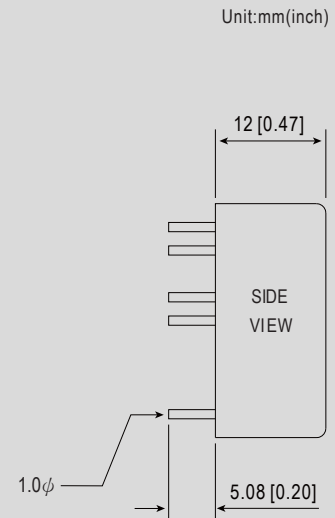
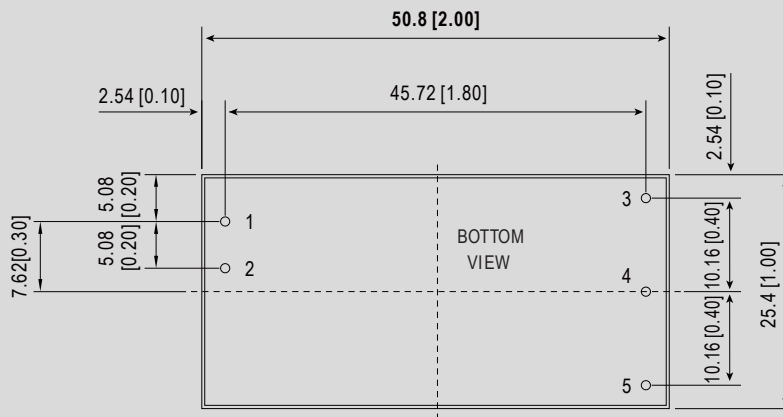
Model No.	Input Voltage Range	INPUT		OUTPUT		Efficiency (Typ.)	Capacitor Load
		No load	Full Load	Output Voltage	Output Current		
MDS15A-05	Normal 12V (9~18V)	10mA	1500mA	5V	3000mA	85%	5600µF
MDS15A-12		10mA	1450mA	12V	1250mA	88%	1000µF
MDS15A-15		10mA	1450mA	15V	1000mA	87%	720µF
MDS15A-24		10mA	1450mA	24V	625mA	85%	220µF
MDS15B-05	Normal 24V (18~36V)	7mA	750mA	5V	3000mA	87%	5600µF
MDS15B-12		7mA	700mA	12V	1250mA	87%	1000µF
MDS15B-15		7mA	700mA	15V	1000mA	86%	720µF
MDS15B-24		7mA	720mA	24V	625mA	87%	220µF
MDS15C-05	Normal 48V (36~75V)	5mA	390mA	5V	3000mA	86%	5600µF
MDS15C-12		5mA	350mA	12V	1250mA	87%	1000µF
MDS15C-15		5mA	360mA	15V	1000mA	87%	720µF
MDS15C-24		5mA	360mA	24V	625mA	88%	220µF

## Mechanical Specification

### Mechanical Specification

- All dimensions in mm(inch)
- Tolerance: x.x ±0.5mm (x.xxx ±0.125")
- Pin size is 1±0.1mm(0.04±0.004")

### Plug Assignment



### Pin Configuration

Pin No.	Pin-Out
1	+Vin
2	-Vin
3	+Vout
4	No Pin
5	-Vout

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## Derating Curve

### Derating Curve

