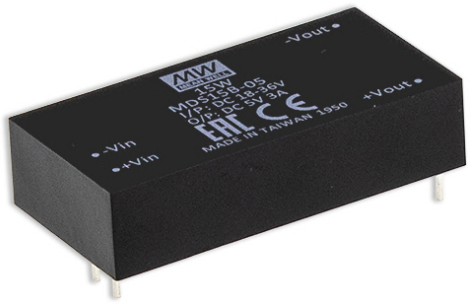
15W 2"x1" Package Medical Grade DC-DC Converter

MDS15 series



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℃
- Medical safety approved (2xMOPP) according to IEC60601-1
- No minimum load required
- Protections: Short circuit (Continuous) / Overload / Input under voltage
- 4000VAC hight I/O isolation (Reinforced isolation)
- 3 years warranty

Applications

- Medical devices
- Medical oxygen monitor
- CT scanning
- Medical carts
- Oral care equipment

GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

MDS15 series is 15W isolated and requlated module type medical grade DC-DC converter with 2"x1" package. It features international standard pins, a high efficiency up to 88%, wide working temperature range -40~+90℃, 4KVAC I/P-O/P hight isolation voltage, compliance with IEC60601-1 medical standard, continuous-mode short circuit protection, etc. The models account for different input voltage 9~18V, 18~36V and 36~75V 2:1 wide input range, and various output voltage 5V/12V/15V/24V, which are suitable for medical systems, ultra low leakage current.

Model Encoding

MDS15 A – 12

- 12 — Output voltage (5/12/15/24Vdc)
- A — Input voltage (A: 9~18Vdc，B: 18~36Vdc，C: 36~75Vdc)
- 15 — Rated wattage
- MDS — Series name

MODEL SELECTION TABLE

ORDER NO.	INPUT			OUTPUT		EFFICIENCY (Typ.)	CAPACITOR LOAD (MAX.)
	INPUT VOLTAGE (RANGE)	INPUT CURRENT		OUTPUT VOLTAGE	OUTPUT CURRENT		
		NO LOAD	FULL LOAD				
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

SPECIFICATION

INPUT	VOLTAGE RANGE	A: 9~18Vdc B: 18~36Vdc C: 36~75Vdc		
	SURGE VOLTAGE (100ms max.)	12Vin models : 25Vdc, 24Vin models : 50Vdc, 48Vin models : 100Vdc		
	FILTER	Pi type		
	PROTECTION	Fuse recommended. 12Vin models: 4A delay time Type, 24Vin models: 2A delay time Type, 48Vin models: 1A delay time Type		
OUTPUT	VOLTAGE ACCURACY	±1%		
	RATED POWER	15W		
	RIPPLE & NOISE Note.2	60mVp-p		
	LINE REGULATION Note.3	±0.5%		
	LOAD REGULATION Note.4	±0.5%		
	SWITCHING FREQUENCY (Typ.)	12Vin/24Vin:250KHz, 48Vin:300KHz		
PROTECTION	SHORT CIRCUIT	Protection type : Continuous, automatic recovery		
	OVERLOAD	110 ~ 185% rated output power		
		Protection type : Recovers automatically after fault condition is removed		
	UNDER VOLTAGE LOCKOUT	12Vin: 7.5Vdc, 24Vin: 15Vdc, 48Vin: 33Vdc		
ENVIRONMENT	COOLING	Free-air convection		
	WORKING TEMP.	-40 ~ +90℃ (Refer to "Derating Curve")		
	CASE TEMPERATURE	+110℃ max.		
	WORKING HUMIDITY	20% ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-55 ~ +125℃, 10 ~ 95% RH non-condensing		
	TEMP. COEFFICIENT	0.03% / ℃ (0 ~ 70℃)		
	SOLDERING TEMPERATURE	1.5mm from case of 1 ~ 3sec./260℃ max.		
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes		
SAFETY & EMC (Note.6)	SAFETY STANDARDS	IEC60601-1(LVD) 3rd edition, EAC TP TC 020/2011(EAC TP TC 004 for 48Vin type only) approved		
	WITHSTAND VOLTAGE	I/P-O/P 4KVAC		
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH		
	ISOLATION CAPACITANCE (Typ.)	100pF		
	EMC EMISSION	**Parameter**	**Standard**	**Test Level / Note**
		Conducted	BS EN/EN55011	Class A without external components
		Radiated	BS EN/EN55011	Class A without external components
	EMC IMMUNITY	**Parameter**	**Standard**	**Test Level / Note**
		ESD	BS EN/EN61000-4-2	Level 1, ±15KV air, ±8KV contact
		Radiated Susceptibility	BS EN/EN61000-4-3	Level 1, 10V/m
		EFT/Bursts	BS EN/EN61000-4-4	Level 1, ±2KV
		Surge	BS EN/EN61000-4-5	Level 1, ±1KV Line-Line, ±2KV Line-GND
		Conducted	BS EN/EN61000-4-6	Level 1, 10Vrms(e.m.f.)
		Magnetic Field	BS EN/EN61000-4-8	Level 2, 10A/m
OTHERS	MTBF	1060Khrs MIL-HDBK-217F(25℃)		
	DIMENSION (L*W*H)	50.8*25.4*12mm (2*1*0.47 inch)		
	CASE MATERIAL	UL94V-0 plastic case		
	PACKING	30g; 18pcs/per tube, 432pcs/24 tube max./carton		

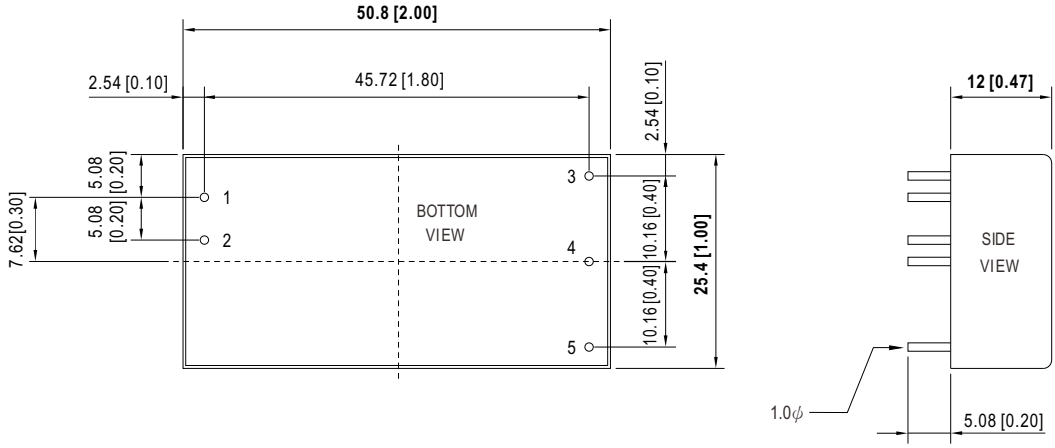
NOTE

1.All parameters are specified at normal input(A:12Vdc, B:24Vdc, C:48Vdc), rated load, 25℃ 70% RH ambient.
2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1μf & 47μf capacitor.
3.Line regulation is measured from low line to high line at rated load.
4.Load regulation is measured from 0% to 100% rated load.
5.2xMOPP base on a working voltage of 250Vac between Primary to Secondary.
6.The final equipment must be re-confirm that it still meet EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."(as available on http://www.meanwell.com)
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

■ 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")

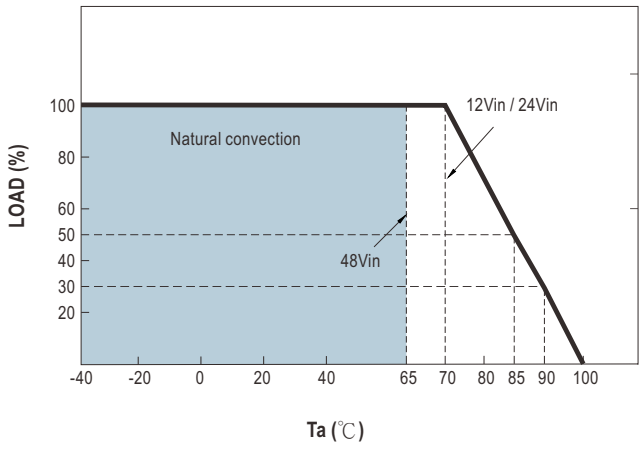
Unit:mm(inch)



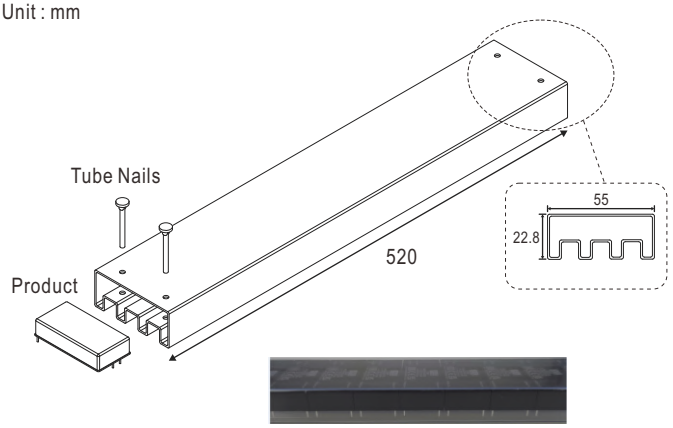
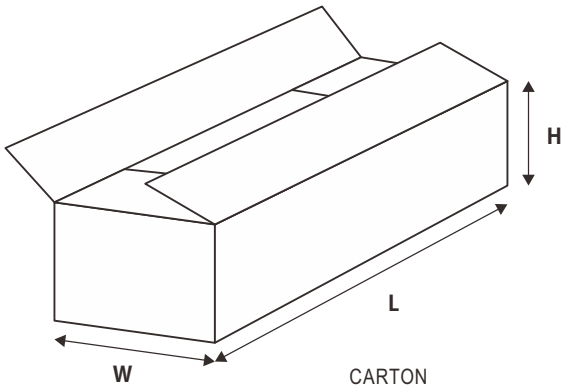
■ Pin Configuration

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

■ Derating Curve



■ Packing

Standard Tube Packing	MPQ Per Tube (PCS)	One Tube G.W.	Max. Q'TY/ Carton(PCS)	One Carton G.W.
Unit : mm  Tube pattern  CARTON L545 x W220 x H240	18	670g	432	16.83Kg

■ Installation Manual

Please refer to : http://www.meanwell.com/manual.html