



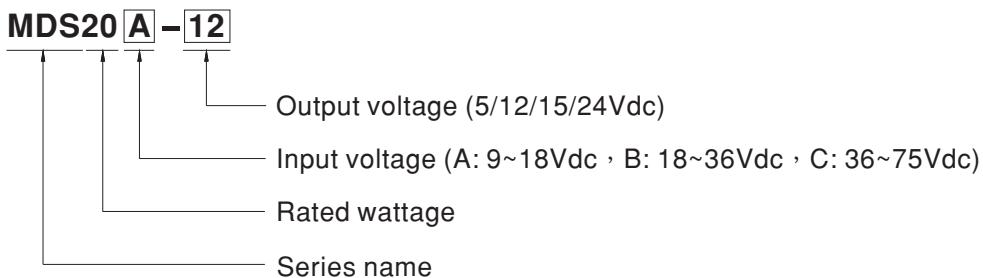
■ Features

- 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 (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

■ Description

MDS20 series is 20W isolated and regulated module type medical grade DC-DC converter with 2"x1" package. It features international standard pins, a high efficiency up to 90%, wide working temperature range -40~+90°C, 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



■ Applications

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



20W 2"x1" Package Medical Grade DC-DC Converter

MDS20 series

MODEL SELECTION TABLE

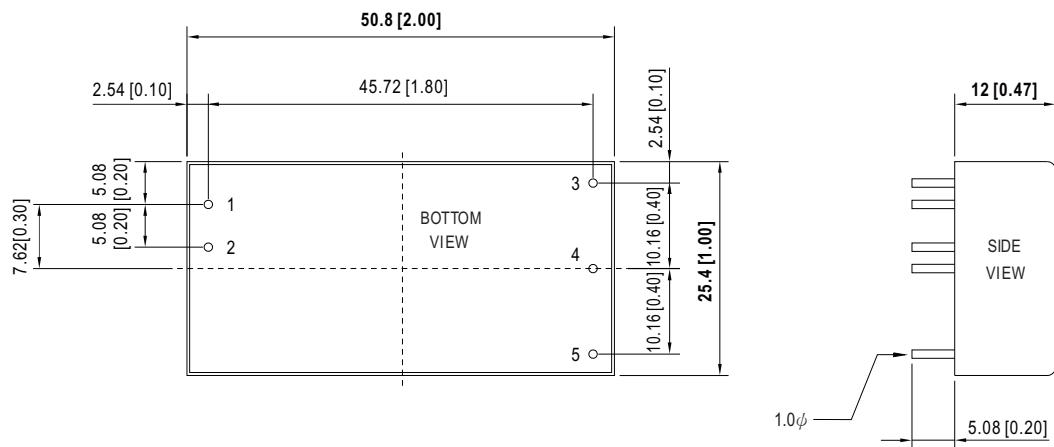
ORDER NO.	INPUT			OUTPUT		EFFICIENCY (Typ.)	CAPACITOR LOAD (MAX.)		
	INPUT VOLTAGE (RANGE)	INPUT CURRENT		OUTPUT VOLTAGE	OUTPUT CURRENT				
		NO LOAD	FULL LOAD						
MDS20A-05	Normal 12V (9 ~ 18V)	10mA	1950mA	5V	4000mA	86%	6800μF		
MDS20A-12		10mA	1950mA	12V	1670mA	89%	1200μF		
MDS20A-15		10mA	1950mA	15V	1333mA	88%	800μF		
MDS20A-24		10mA	1950mA	24V	833mA	88%	300μF		
MDS20B-05	Normal 24V (18 ~ 36V)	7mA	1000mA	5V	4000mA	86%	6800μF		
MDS20B-12		7mA	1000mA	12V	1670mA	88%	1200μF		
MDS20B-15		7mA	1000mA	15V	1333mA	88%	800μF		
MDS20B-24		7mA	1000mA	24V	833mA	89%	300μF		
MDS20C-05	Normal 48V (36 ~ 75V)	5mA	500mA	5V	4000mA	86%	6800μF		
MDS20C-12		5mA	500mA	12V	1670mA	89%	1200μF		
MDS20C-15		5mA	500mA	15V	1333mA	88%	800μF		
MDS20C-24		5mA	500mA	24V	833mA	90%	300μF		

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: 5A delay time Type, 24Vin models: 3A delay time Type, 48Vin models: 2A delay time Type	
OUTPUT	VOLTAGE ACCURACY	±1%	
	RATED POWER	20W	
	RIPPLE & NOISE Note.2	60mVp-p	
	LINE REGULATION Note.3	±0.5%	
	LOAD REGULATION Note.4	±0.5%	
PROTECTION	SWITCHING FREQUENCY (Typ.)	12Vin/24Vin:250KHz, 48Vin:300KHz	
	SHORT CIRCUIT	Protection type : Continuous, automatic recovery	
	OVERLOAD	110 ~ 180% rated output power	
		Protection type : Recovers automatically after fault condition is removed	
ENVIRONMENT	UNDER VOLTAGE LOCKOUT	12Vin: 7.5Vdc, 24Vin: 15Vdc, 48Vin: 33Vdc	
	COOLING	Free-air convection	
	WORKING TEMP.	-40 ~ +90°C (Refer to "Derating Curve")	
	CASE TEMPERATURE	+105°C max.	
	WORKING HUMIDITY	20% ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-55 ~ +125°C, 10 ~ 95% RH non-condensing	
	TEMP. COEFFICIENT	0.03% / °C (0 ~ 70°C)	
	SOLDERING TEMPERATURE	1.5mm from case of 1 ~ 3sec./260°C max.	
SAFETY & EMC (Note.6)	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes	
	SAFETY STANDARDS	IEC60601-1(LVD) 3 rd edition, EAC TP TC 004 approved	
	WITHSTAND VOLTAGE	I/P-O/P 4KVAC	
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH	
	ISOLATION CAPACITANCE (Typ.)	100pF	
	EMC EMISSION	Parameter	Standard
		Conducted	EN55011
	EMC IMMUNITY	Radiated	EN55011
		Parameter	Standard
		ESD	EN61000-4-2
		Radiated Susceptibility	EN61000-4-3
		EFT/Burst	EN61000-4-4
		Surge	EN61000-4-5
OTHERS	Conducted	EN61000-4-6	Level 1, 10Vrms(e.m.f.)
	MTBF	1016Khrs	MIL-HDBK-217F(25°C)
	DIMENSION (L*W*H)	50.8*25.4*12mm	(2*1*0.47 inch)
	CASE MATERIAL	UL94V-0 plastic case	
NOTE	PACKING	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.		
	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)		

■ Mechanical Specification

- All dimensions in mm(inch)
- Tolerance: $x.x \pm 0.5\text{mm}$ ($x.xxx \pm 0.125\text{"}$)
- Pin size is $1 \pm 0.1\text{mm}$ ($0.04 \pm 0.004\text{"}$)

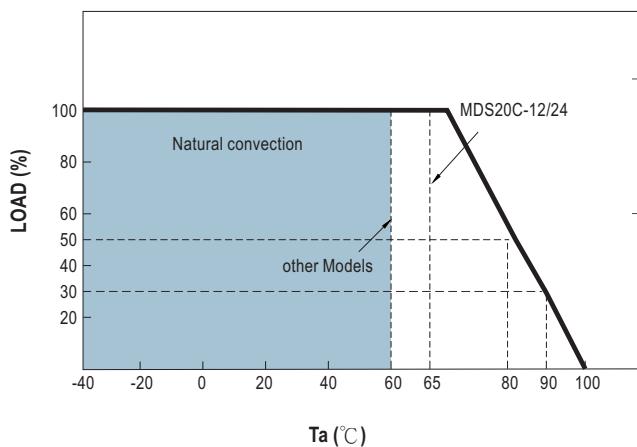
Unit:mm(inch)



■ Pin Configuration

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

■ Derating Curve



■ Installation Manual

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

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MEAN WELL:

[MDS20B-12](#) [MDS20A-12](#) [MDS20C-15](#) [MDS20A-05](#) [MDS20B-15](#) [MDS20C-24](#) [MDS20C-12](#) [MDS20A-15](#)
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