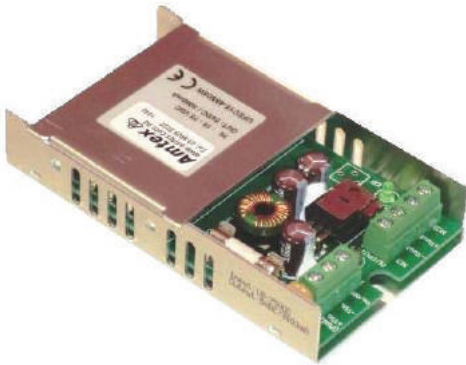


# UFED20W SERIES

DC/DC Converter Single & Dual Output: 20 Watts



## Features

- 4:1 wide Input range: 9.5~ 36V & 18~75V
- High quality Panel mount assembly
- Single & Dual outputs
- High efficiency up to 87%
- Regulated output & Short circuit protection
- 1600V isolation
- High operating temperature up to +85°C
- Zero load operation
- Designed to EN60950, UL1950
- EMC Compliant
- Input In-rush current limit & Transient Protection
- Voltage output trim- singles
- Option. DIN Rail mounting - "DR" to model
- Option. Fully enclosed case - "EC" to model

Model Number	Input Range VDC	Output Voltage VDC	Output Current @Full Load mA	Input Current @ No Load mA	Efficiency %	Maximum Capacitor Load (1) uF
UFED20-24S3P3W	9.5 ~ 36	3.3	5500	51	84	18000
UFED20-24S05W	9.5 ~ 36	5	4000	66	87	9600
UFED20-24S12W	9.5 ~ 36	12	1670	25	85	1650
UFED20-24S15W	9.5 ~ 36	15	1330	26	85	1050
UFED20-24D05W	9.5 ~ 36	±5	±2000	58	87	±4800
UFED20-24D12W	9.5 ~ 36	±12	±833	33	86	±825
UFED20-24D15W	9.5 ~ 36	±15	±667	34	86	±525
UFED20-48S3P3W	18 ~ 75	3.3	5500	36	84	18000
UFED20-48S05W	18 ~ 75	5	4000	36	87	9600
UFED20-48S12W	18 ~ 75	12	1670	17	86	1650
UFED20-48S15W	18 ~ 75	15	1330	17	86	1050
UFED20-48D05W	18 ~ 75	±5	±2000	36	88	±4800
UFED20-48D12W	18 ~ 75	±12	±833	19	87	±825
UFED20-48D15W	18 ~ 75	±15	±667	19	87	±525

## PART NUMBER STRUCTURE

<b>UFED20</b> -	<b>48</b>	<b>S</b>	<b>05</b>	<b>W</b> -	<b>N</b>	<b>EC</b>
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Remote Control Option	Assembly Option
	24: 9.5~36 48: 18~75	S: Single  D: Dual	3P3: 3.3 05: 5 12: 12 15: 15  05: ±5 12: ±12 15: ±15	4:1	□: Positive logic N: Negative logic	□: No Assembly Option EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type

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## INPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom)		9.5	24	36	VDC
	48Vin(nom)		18	48	75	
Input fuse (slow blow)	24Vin(nom)			6		A
	48Vin(nom)			4		
In-rush current				15		A
Input reflected ripple current	Nominal input and Full load			10		mAp-p
Start up voltage	24Vin(nom)				9.5	VDC
	48Vin(nom)				18	
Shutdown voltage	24Vin(nom)			7.5		VDC
	48Vin(nom)			15		
Start up time	Constant resistive load	Power up		100		ms
		Remote ON/OFF		20		
Input surge voltage	100ms, max.	24Vin(nom)			50	VDC
		48Vin(nom)			100	
Remote ON/OFF	Referred to -Vin pin	Positive logic (Standard)	DC-DC ON		Open or 3 ~ 12VDC	
			DC-DC OFF		Short or 0 ~ 1.2VDC	
		Negative logic (Option)	DC-DC ON		Short or 0 ~ 1.2VDC	
			DC-DC OFF		Open or 3 ~ 12VDC	
		Input current of Ctrl pin		-0.5		0.5
		Remote off input current		2.5		mA

## OUTPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Voltage accuracy	3.3Vout		-1.5		+1.5	%
	Others		-1.0		+1.0	
Line regulation	Low Line to High Line at Full Load	Single	-0.2		+0.2	%
		Dual	-0.5		+0.5	
Load regulation	No Load to Full Load	3.3Vout	-1.5		+1.5	%
		Others	-1.0		+1.0	
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0		+5.0	%
Voltage adjustability	Single output		-10		+10	%
Ripple and noise	Measured by 20MHz bandwidth	Single		60		mVp-p
		Dual	3.3Vout, 5Vout, 12Vout, 15Vout	75		
		All		100		
Temperature coefficient			-0.02		+0.02	%/°C
Transient response recovery time	25% load step change			250		µs
Over voltage protection	Zener diode clamp	3.3Vout		3.9		VDC
		5Vout		6.2		
		12Vout		15		
		15Vout		18		
Output indicator				Green LED		
Over load protection	% of lout rated			150		%
Short circuit protection				Continuous, automatic recovery		

## GENERAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	1600			VDC
		Input (Output) to Chassis	1600			
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					4000	pF
Switching frequency			360	400	440	kHz
Safety meets						UL60950-1 EN60950-1 IEC60950-1
Chassis material						Aluminum
Weight						89g (3.13oz)
MTBF	MIL-HDBK-217F, Full load					1.966 x 10 <sup>6</sup> hrs

# UFED20W SERIES

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## ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	Without derating	-40		+75	°C
	With derating	+75		+91	
Storage temperature range		-40		+105	°C
Thermal shock					MIL-STD-810F
Vibration					MIL-STD-810F
Relative humidity					5% to 95% RH

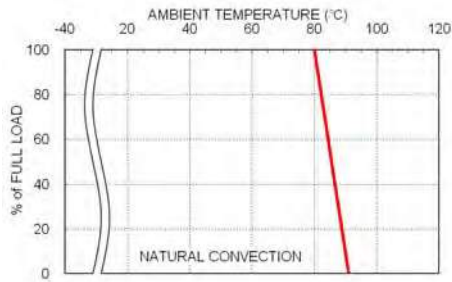
## EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55022	Class B
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10V/m	Perf. Criteria A
Fast transient	EN61000-4-4 ± 2kV	Perf. Criteria A
Surge	EN61000-4-5 ± 0.5kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10Vr.m.s	Perf. Criteria A

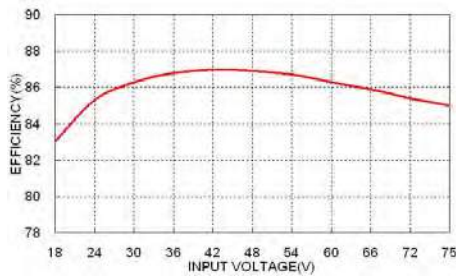
### Note:

1. Test by minimum input and constant resistive load.

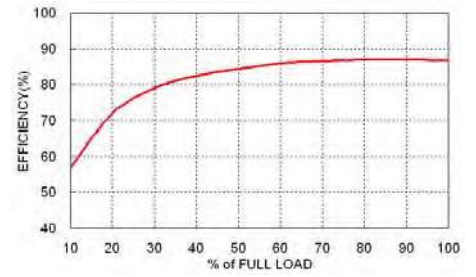
## CHARACTERISTIC CURVES



UFED20-48S05W Derating Curve



UFED20-48S05W Efficiency vs. Input Voltage



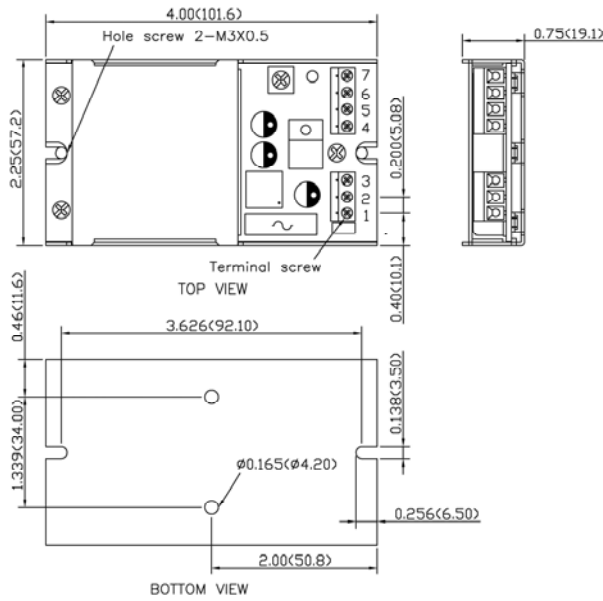
UFED20-48S05W Efficiency vs. Output Load

# UFED20W SERIES

DC/DC Converter Single & Dual Output: 20 Watts

## MECHANICAL DRAWING

### CHASSIS MOUNTING TYPE - STD



### PIN CONNECTION

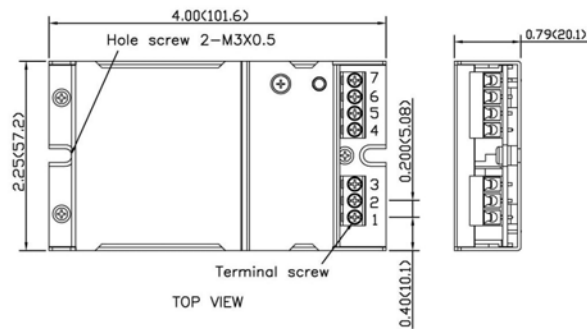
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	NC	NC
5	-Vout	-Vout
6	+Vout	Common
7	NC	+Vout

\* NC : No Connection

\* Screw terminals – wire range from 14 to 18 AWG

1. All dimensions in Inch (mm)
2. Tolerance : X.XX±0.02 (X.X±0.5)  
X.XXX±0.01 (X.XX±0.25)
3. Hole screw locked torque :  
MAX 5.0kgf-cm (0.49N-m)
4. Terminal screw locked torque :  
MAX 2.5kgf-cm (0.25N-m)

### ENCLOSED MOUNTING TYPE: ( OPTION -EC )



### DIN RAIL MOUNTING TYPE: ( OPTION -DR )

