



APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Measurement Equipment
Semiconductor Equipment

FEATURES

- APPLICATION OF CHASSIS-MOUNT DC/DC CONVERTERS
- 20 WATTS MAXIMUM OUTPUT POWER
- OUTPUT CURRENT UP TO 5.5A
- 4:1 ULTRA WIDE INPUT VOLTAGE RANGE
- SCREW TERMINALS FOR INPUT AND OUTPUT CONNECTIONS
- INTERNAL INPUT FUSE
- INTERNAL INPUT REVERSAL PROTECTION
- INTERNAL INPUT IN-RUSH CURRENT LIMIT CIRCUIT
- INTERNAL OUTPUT LED INDICATOR
- MEET EN55022 CLASS B
- COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU

OPTIONS

Din Rail Mounting For DIN 35 Rail
Negative logic Remote On/Off

DESCRIPTION

The UFED20W series is a value added item designed to easy application of chassis mount DC-DC converters. The UFED20W series with 4:1 ultra wide inputvoltage of 9.5-36VDC and 18-75VDC and features 1600VDC of isolation, short-circuit and over-voltage protection.

TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25°C otherwise noted

OUTPUT SPECIFICATIONS			
Output power		20 Watts, max.	
Voltage accuracy	3.3Vout	± 1.5%	
	Others	± 1%	
Minimum load		0%	
Voltage adjustability (Note 6)	Single output	± 10%	
	Dual	± 0.2%	
Line regulation	LL to HL at Full Load	± 0.2%	
	Dual	± 0.5%	
Load regulation	No Load to Full Load	3.3Vout ± 1.5%	
	Others	± 1%	
Load cross regulation (Note 7)	Dual	± 5%	
Ripple and noise	20MHz bandwidth	See table	
Temperature coefficient		±0.02% / °C, max.	
Transient response recovery time	25% load step change	250µs	
Over voltage protection	3.3VDC output	3.9VDC	
	5VDC output	6.2VDC	
	12VDC output	15VDC	
	15VDC output	18VDC	
Output indicator		Green LED	
Over load protection	% of FL at nominal input	150%	
Short circuit protection		Continuous, automatic recovery	
GENERAL SPECIFICATIONS			
Efficiency		See table	
Isolation voltage	Input to Output	1600VDC, min. 1minute	
	Input(Output) to Chassis	1600VDC, min. 1minute	
Isolation resistance	500VDC	10 ⁹ ohms, min.	
Isolation capacitance		4000pF, max.	
Switching frequency		400kHz±10%	
Design meets safety standard	IEC60950-1, UL60950-1, EN60950-1		
Chassis material		Aluminum	
Dimensions		4.00 X 2.25 X 0.75 Inch (101.6 X 57.15 X 19.05 mm)	
Weight		89g (3.13oz)	
MTBF (Note 1)	MIL-HDBK-217F	1.966 x 10 ⁶ hrs	

INPUT SPECIFICATIONS			
Input voltage range	24VDC nominal input	9.5 ~ 36VDC	
	48VDC nominal input	18 ~ 75VDC	
Input surge voltage	24VDC input	50VDC 100ms, max	
	48VDC input	100VDC 100ms, max	
Input fuse (slow blow)	24VDC input	6A	
	48VDC input	4A	
In-rush current		15A	
Input reflected ripple current		10mA _{p-p}	
Start up time	Nominal input and constant resistive load	Power up 100ms	
		Remote ON/OFF 20ms	
Start-up voltage	24VDC input	9.5VDC	
	48VDC input	18VDC	
Shutdown voltage	24VDC input	7.5VDC	
	48VDC input	15VDC	
Remote ON/OFF (Note 8)			
(Positive logic)(Standard)	DC-DC ON	Open or 3V < Vr < 12V	
	DC-DC OFF	Short or 0V < Vr < 1.2V	
(Negative logic)(Option)	DC-DC ON	Short or 0V < Vr < 1.2V	
	DC-DC OFF	Open or 3V < Vr < 12V	
Input current of remote control pin	Nominal input	-0.5mA ~ +0.5mA	
Remote off state input current	Nominal input	2.5mA	
ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature		-40°C ~ +75°C (without derating)	
		+75°C ~ +91°C (with derating)	
Storage temperature range		-40°C ~ +105°C	
Thermal shock		MIL-STD-810F	
Vibration		MIL-STD-810F	
Relative humidity		5% to 95% RH	
EMC CHARACTERISTICS			
EMI	EN55022		Class B
ESD	EN61000-4-2	Air Contact ± 8kV	Perf. Criteria A
		± 6kV	
Radiated immunity	EN61000-4-3	10 V/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	10 Vr.m.s	Perf. Criteria A

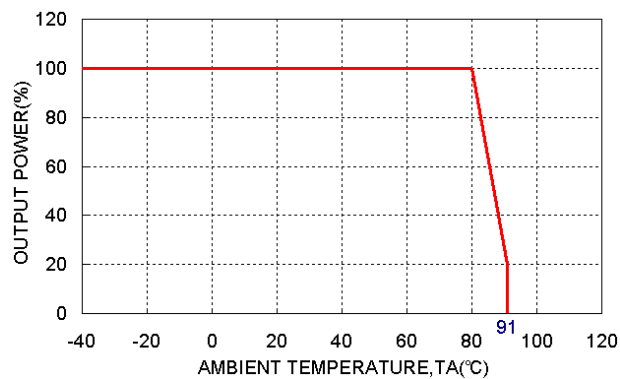


Model Number	Input Range	Output Voltage	Output Current		Output ⁽²⁾ Ripple & Noise	No load ⁽³⁾ Input Current	Eff ⁽⁴⁾ (%)	Capacitor ⁽⁵⁾ Load max
			Min. load	Full load				
UFED20-24S3P3W	9.5 ~ 36 VDC	3.3 VDC	0mA	5500mA	60mVp-p	51mA	84	18000μF
UFED20-24S05W	9.5 ~ 36 VDC	5 VDC	0mA	4000mA	75mVp-p	66mA	87	9600μF
UFED20-24S12W	9.5 ~ 36 VDC	12 VDC	0mA	1670mA	75mVp-p	25mA	85	1650μF
UFED20-24S15W	9.5 ~ 36 VDC	15 VDC	0mA	1330mA	75mVp-p	26mA	85	1050μF
UFED20-24D05W	9.5 ~ 36 VDC	±5 VDC	0mA	±2000mA	100mVp-p	58mA	87	±4800μF
UFED20-24D12W	9.5 ~ 36 VDC	±12 VDC	0mA	±833mA	100mVp-p	33mA	86	±825μF
UFED20-24D15W	9.5 ~ 36 VDC	±15 VDC	0mA	±667mA	100mVp-p	34mA	86	±525μF
UFED20-48S3P3W	18 ~ 75 VDC	3.3 VDC	0mA	5500mA	60mVp-p	36mA	84	18000μF
UFED20-48S05W	18 ~ 75 VDC	5 VDC	0mA	4000mA	75mVp-p	36mA	87	9600μF
UFED20-48S12W	18 ~ 75 VDC	12 VDC	0mA	1670mA	75mVp-p	17mA	86	1650μF
UFED20-48S15W	18 ~ 75 VDC	15 VDC	0mA	1330mA	75mVp-p	17mA	86	1050μF
UFED20-48D05W	18 ~ 75 VDC	±5 VDC	0mA	±2000mA	100mVp-p	36mA	88	±4800μF
UFED20-48D12W	18 ~ 75 VDC	±12 VDC	0mA	±833mA	100mVp-p	19mA	87	±825μF
UFED20-48D15W	18 ~ 75 VDC	±15 VDC	0mA	±667mA	100mVp-p	19mA	87	±525μF

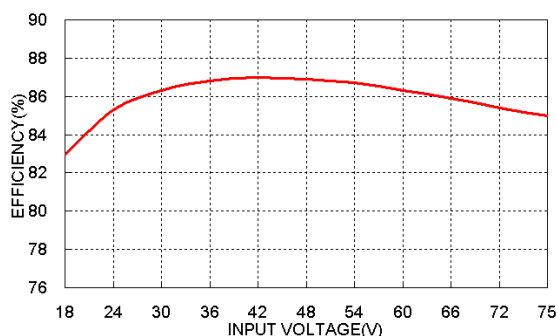
Note

1. MIL-HDBK-217F @Ta=25 °C, Full load.
2. Typical value at nominal input and full load. (20MHZ BW.)
3. Typical value at nominal input and no load.
4. Typical value at nominal input and full load.
5. Test by minimum input and constant resistive load.
6. Single output installs a potentiometer to adjust the output voltage.
7. Cross regulation for dual output : asymmetrical load 25% / 100% FL
8. The ON/OFF control pin voltage is referenced to -INPUT
To order negative logic ON/OFF control add the suffix-N (Ex:UFED20-48S05W-N)

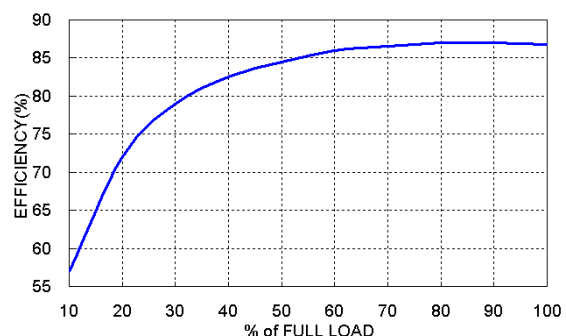
UFED20-48S05W Derating Curve



UFED20-48S05W Efficiency VS Input Voltage

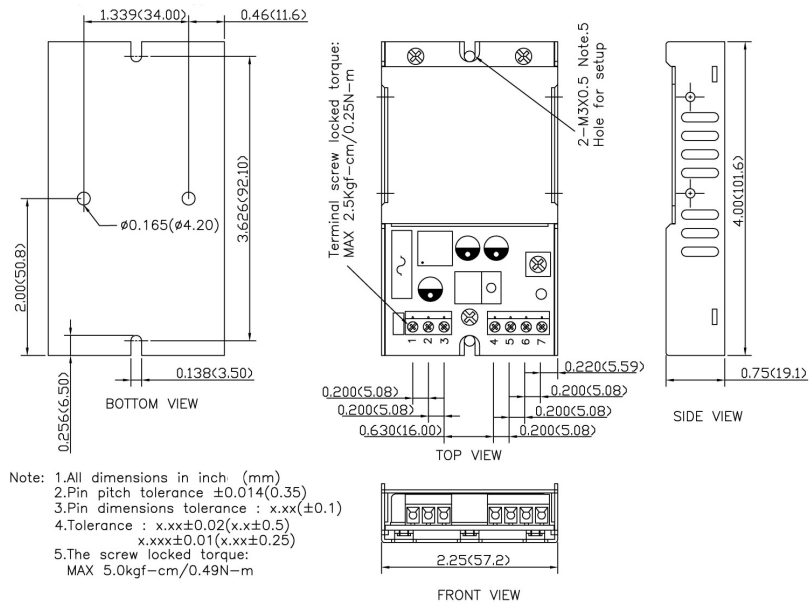


UFED20-48S05W Efficiency VS Output Current

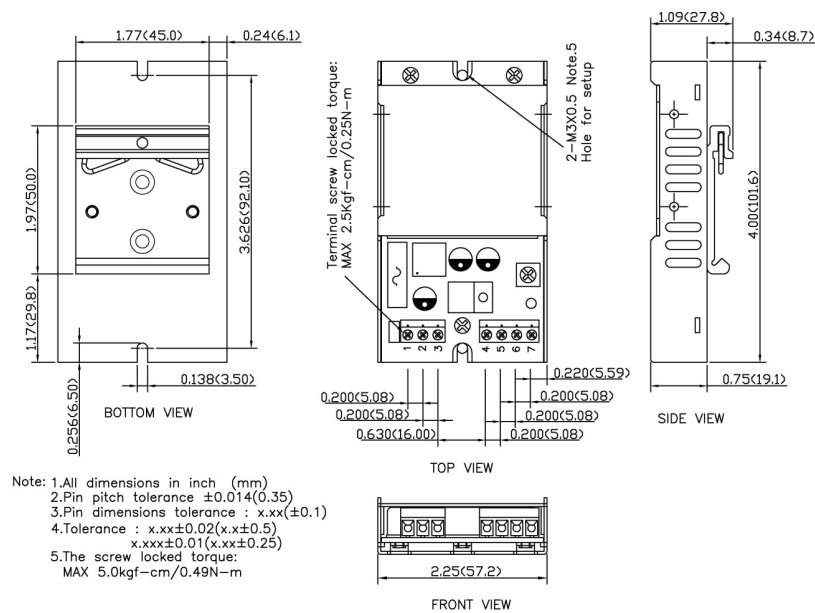




MECHANICAL DRAWING :



DIN RAIL MOUNTING TYPE OPTION



PIN CONNECTION		
PIN	SINGLE	DUAL
1	+INPUT	+INPUT
2	-INPUT	-INPUT
3	CTRL	CTRL
4	NC	NC
5	-OUTPUT	-OUTPUT
6	+OUTPUT	COMMON
7	NC	+OUTPUT

- ※ NC : No Connection
- ※ Screw terminals – wire range from 14 to 18 AWG

PRODUCT OPTIONS TABLE	
Option	Suffix
Din Rail Mounting Type	-DR
Negative logic Remote ON/OFF	-N