POWER MATE TECHNOLOGY CO., LTD.

UFEC40W SERIES

40WATTS DC-DC CONVERTER

FEATURES

- APPLICATION OF CHASSIS-MOUNT DC/DC CONVERTERS
- 40 WATTS MAXIMUM OUTPUT POWER
- OUTPUT CURRENT UP TO 10A
- 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

APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Measurement
Semiconductor Equipment

DESCRIPTION

The UFEC40W series is a value added item designed to easy application of chassis mount DC-DC converters. The UFEC40W series with 4:1 wide input voltage 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 25ºC otherwise noted

OUTPUT SPECIFICATIONS

Output power			40 Watts, max.
Voltage accuracy		3.3Vout Others	± 1.5% ± 1%
Minimum load (Note 6)			See Table
Voltage adjustability (Note 7)		Single 28Vout Single Others	-3% ~ +17% ± 10%
Line regulation	LL to HL at Full Load		± 0.5%
Load regulation (Note 8)	Min. Load to Full Load	3.3Vout Others	± 1.5% ± 1%
Load cross regulation (Note 9)		Dual	± 5%
Ripple and noise	20MHz bandwidth		See table
Temperature coefficient			±0.02% / ºC, max.
Transient response recovery time	25% load step change		250µs
Over voltage protection Zener diode clamp	3.3VDC output 5VDC output 12VDC output 15VDC output 24VDC output 28VDC output		3.9VDC 6.2VDC 15VDC 18VDC 30VDC 36VDC
Output indicator			Green LED
Over load protection	% of FL at nominal input		150%, max.
Short circuit protection		Continuous, automatics recovery	

GENERAL SPECIFICATIONS

Efficiency		See table
Isolation voltage	Input to Output Input(Output) to Chassis	1600 VDC, min. 1minute 1600 VDC, min. 1minute
Isolation resistance	500VDC	10^9 ohms, min.
Isolation capacitance		4500pF, max.
Switching frequency		300kHz±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		122g (4.29oz)
MTBF (Note 1)	MIL-HDBK-217F	6.080 x 10^5 hrs

INPUT SPECIFICATIONS

Input voltage range		24VDC nominal input 48VDC nominal input	9.5 ~ 36VDC 18 ~ 75VDC
Input surge voltage		24VDC input 48VDC input	50VDC 100ms, max. 100VDC 100ms, max.
Input fuse (slow blow)		24VDC input 48VDC input	8A 4A
In-rush current			15A
Input reflected ripple current			15mAp-p
Start up time	Nominal input and constant resistive load	Power up Remote ON/OFF	100ms 20ms
Start-up voltage		24VDC input 48VDC input	9.5VDC 18VDC
Shutdown voltage		24VDC input 48VDC input	8VDC 16VDC
Remote ON/OFF (Note 10) Positive logic (standard) Negative logic (option)		DC-DC ON DC-DC OFF DC-DC ON DC-DC OFF	Open or 3V < Vr < 12V Short or 0V < Vr < 1.2V Short or 0V < Vr < 1.2V Open or 3V < Vr < 12V
Input current of remote control pin		Nominal input	-0.5mA ~ +0.5mA
Remote off state input current		24VDC input 48VDC input	10mA 5mA

ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature	-40ºC ~ +55ºC (without derating) +55ºC ~ +85ºC (with derating)
Storage temperature range	-40ºC ~ +105ºC
Over temperature protection (DC/DC Converter Case)	110ºC
Thermal shock	MIL-STD-810F
Vibration	MIL-STD-810F
Relative humidity	5% to 95% RH

EMC CHARACTERISTICS

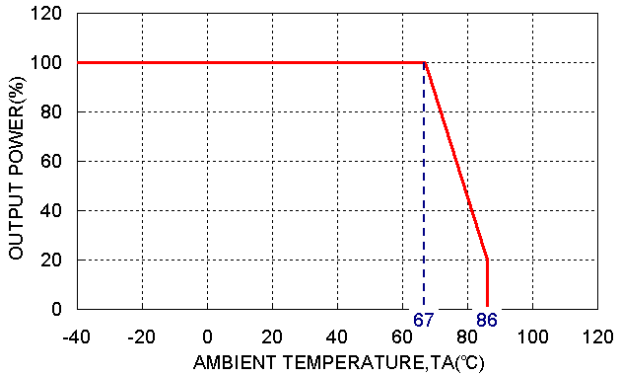
EMI	EN55022		Class B
ESD	EN61000-4-2	Air ± 8kV Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient	EN61000-4-4	± 2kV	Perf. Criteria A
Surge	EN61000-4-5	± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

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				
UFEC40-24S3P3W	9.5 ~ 36 VDC	3.3 VDC	0mA	10000mA	50mVp-p	81mA	86	25750μF
UFEC40-24S05W	9.5 ~ 36 VDC	5 VDC	0mA	8000mA	50mVp-p	101mA	87	13600μF
UFEC40-24S12W	9.5 ~ 36 VDC	12 VDC	50mA	3333mA	75mVp-p	54mA	86	2360μF
UFEC40-24S15W	9.5 ~ 36 VDC	15 VDC	50mA	2666mA	75mVp-p	54mA	86	1510μF
UFEC40-24S24W	9.5 ~ 36 VDC	24 VDC	65 mA	1667mA	100mVp-p	74mA	85	600μF
UFEC40-24S28W	9.5 ~ 36 VDC	28 VDC	50 mA	1333mA	100mVp-p	80mA	85	375μF
UFEC40-24D12W	9.5 ~ 36 VDC	± 12 VDC	±65 mA	± 1667mA	100mVp-p	63mA	85	± 1200μF
UFEC40-24D15W	9.5 ~ 36 VDC	± 15 VDC	±50 mA	± 1333mA	100mVp-p	74mA	85	± 750μF
UFEC40-48S3P3W	18 ~ 75 VDC	3.3 VDC	0mA	10000mA	50mVp-p	61mA	86	25750μF
UFEC40-48S05W	18 ~ 75 VDC	5 VDC	0mA	8000mA	50mVp-p	66mA	88	13600μF
UFEC40-48S12W	18 ~ 75 VDC	12 VDC	50mA	3333mA	75mVp-p	32mA	86	2360μF
UFEC40-48S15W	18 ~ 75 VDC	15 VDC	50mA	2666mA	75mVp-p	32mA	87	1510μF
UFEC40-48S24W	18 ~ 75 VDC	24 VDC	65 mA	1667mA	100mVp-p	39mA	85	600μF
UFEC40-48S28W	18 ~ 75 VDC	28 VDC	60 mA	1333mA	100mVp-p	39mA	85	375μF
UFEC40-48D12W	18 ~ 75 VDC	± 12 VDC	±65 mA	± 1667mA	100mVp-p	32mA	85	± 1200μF
UFEC40-48D15W	18 ~ 75 VDC	± 15 VDC	±60 mA	± 1333mA	100mVp-p	32mA	85	± 750μF

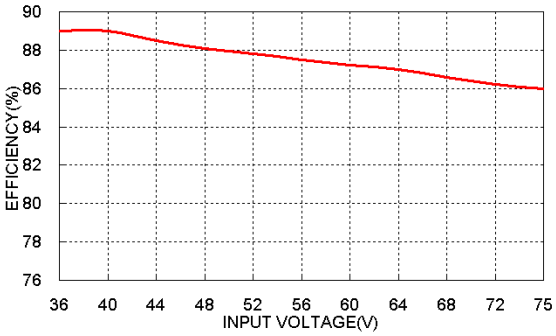
Note

1. MIL-HDBK-217F @Ta=25 ºC, 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. The output requires minimum loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
7. Single output installs a potentiometer to adjust the output voltage.
8. Load regulation for dual output : Min load to 100% load balanced on all outputs
9. Cross regulation for dual output : asymmetrical load 25% / 100% FL
10. The ON/OFF pin voltage is referenced to –INPUT
    To order negative logic ON/OFF control add the suffix-N (Ex:UFEC40-48S05W-N).

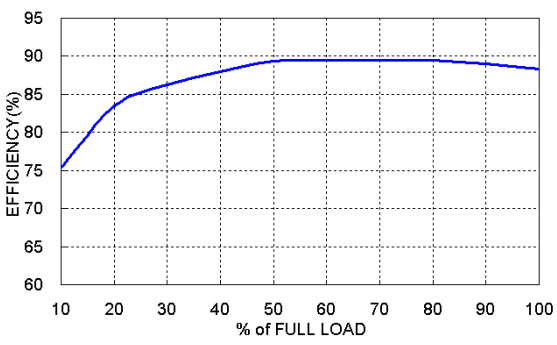
UFEC40-48S05W Derating Curve



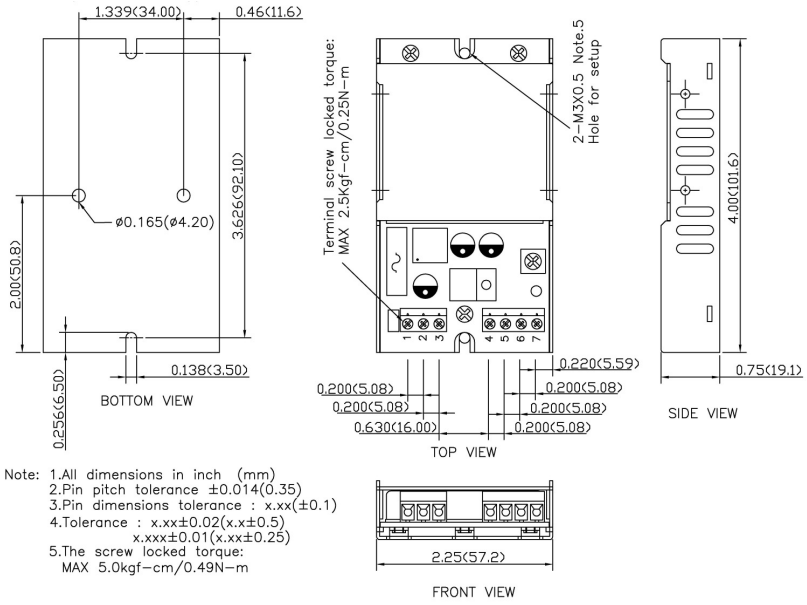
UFEC40-48S05W Efficiency VS Input Voltage



UFEC40-48S05W Efficiency VS Output Current

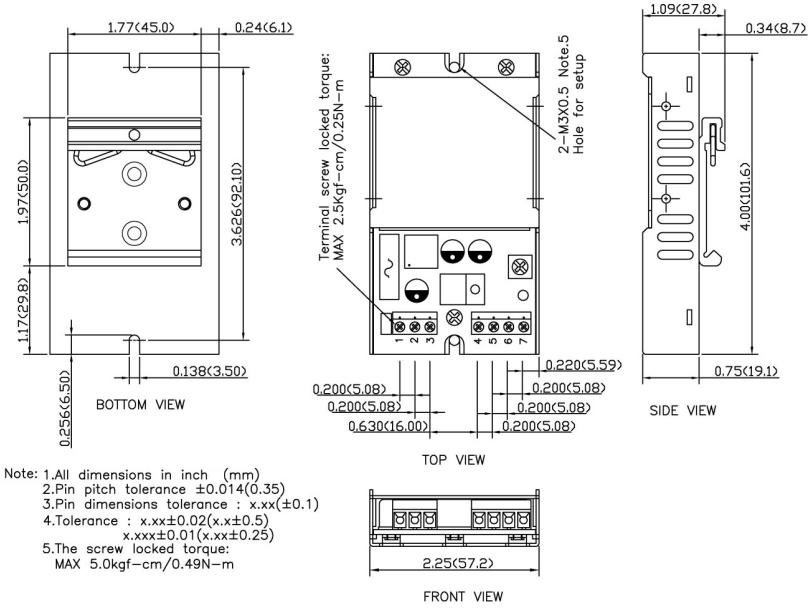


MECHANICAL DRAWING :



Note: 1.All dimensions in inch (mm)
2.Pin pitch tolerance ±0.014(0.35)
3.Pin dimensions tolerance : x.xx(±0.1)
4.Tolerance : x.xx±0.02(x.x±0.5)
x.xxx±0.01(x.xx±0.25)
5.The screw locked torque:
MAX 5.0kgf-cm/0.49N-m

DIN RAIL MOUNTING TYPE OPTION



Note: 1.All dimensions in inch (mm)
2.Pin pitch tolerance ±0.014(0.35)
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4.Tolerance : x.xx±0.02(x.x±0.5)
x.xxx±0.01(x.xx±0.25)
5.The screw locked torque:
MAX 5.0kgf-cm/0.49N-m

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