



UFEC40W SERIES

CHASSIS-MOUNT DC-DC CONVERTER

4:1 ULTRA WIDE INPUT RANGE
UP TO 40 Watts



FEATURES

- 1600VDC INPUT TO OUTPUT ISOLATION
- APPLICATION OF CHASSIS-MOUNT DC/DC CONVERTERS
- SCREW TERMINALS FOR INPUT AND OUTPUT CONNECTIONS
- INTERNAL INPUT FUSE PROTECTION
- INTERNAL OUTPUT LED INDICATOR
- MEET EN55022 CLASS B
- SAFETY MEETS UL60950-1, EN60950-1 & IEC60950-1
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- MEASUREMENT EQUIPMENT
- SEMICONDUCTOR EQUIPMENT

1600VDC ISOLATION	REMOTE CONTROL	UVP	OCP	SCP	OVP	FUSE INCLUDED	INRUSH LIMIT	REVERSE POLARITY PROTECTION
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TECHNICAL SPECIFICATION

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

Model Number	Input Range	Output Voltage	Output Current @ Full Load		Input Current @ No Load	Efficiency	Maximum Capacitor Load (1)
	VDC	VDC	Min. Load mA	Full Load A	mA	%	µF
UFEC40-24S3P3W	9.5 ~ 36	3.3	0	10	81	86	25750
UFEC40-24S05W	9.5 ~ 36	5	0	8	101	87	13600
UFEC40-24S12W	9.5 ~ 36	12	0	3.33	54	86	2360
UFEC40-24S15W	9.5 ~ 36	15	0	2.67	54	86	1510
UFEC40-24S24W	9.5 ~ 36	24	0	1.67	74	85	600
UFEC40-24S28W	9.5 ~ 36	28	0	1.33	80	85	375
UFEC40-24D12W	9.5 ~ 36	±12	±65	±1.67	63	85	±1200
UFEC40-24D15W	9.5 ~ 36	±15	±50	±1.33	74	85	±750
UFEC40-48S3P3W	18 ~ 75	3.3	0	10	61	86	25750
UFEC40-48S05W	18 ~ 75	5	0	8	66	88	13600
UFEC40-48S12W	18 ~ 75	12	0	3.33	32	86	2360
UFEC40-48S15W	18 ~ 75	15	0	2.67	32	87	1510
UFEC40-48S24W	18 ~ 75	24	0	1.67	39	86	600
UFEC40-48S28W	18 ~ 75	28	0	1.33	39	85	375
UFEC40-48D12W	18 ~ 75	±12	±65	±1.67	32	86	±1200
UFEC40-48D15W	18 ~ 75	±15	±60	±1.33	32	85	±750

PART NUMBER STRUCTURE

UFEC40 -	48	S	05	W -	N	EC
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	3P3: 3.3 05: 5 12: 12 15: 15 24: 24 28: 28	4:1	□: Positive logic N: Negative logic	□: None EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type
		D: Dual	12: ±12 15: ±15			

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)			8		A
	48Vin(nom)			4		
In-rush current				15		A
Input reflected ripple current	Nominal input and Full load			15		mAp-p
Start up voltage	24Vin(nom)				9.5	VDC
	48Vin(nom)				18	
Shutdown voltage	24Vin(nom)			8		VDC
	48Vin(nom)			16		
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 DC-DC ON (Standard)	Open or 3 ~ 12VDC			mA
		DC-DC OFF	Short or 0 ~ 1.2VDC			
		Negative logic DC-DC ON (Option)	Short or 0 ~ 1.2VDC			
		DC-DC OFF	Open or 3 ~ 12VDC			
Input current of Ctrl pin	24Vin(nom)		-0.5		0.5	mA
		48Vin(nom)		10		
Remote off input current				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		-0.5		+0.5	%
Load regulation	Min. Load to Full Load	3.3Vout	-1.5		+1.5	%
		Others	-1.0		+1.0	
Cross regulation	Asymmetrical load 25%/100% FL		-5.0		+5.0	%
Voltage adjustability	Single output	28Vout	-3		+17	%
		Others	-10		+10	
Ripple and noise	Measured by 20MHz bandwidth	Single		50		mVp-p
			3.3Vout, 5Vout, 12Vout, 15Vout	75		
	24Vout, 28Vout	100				
	Dual	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		
		24Vout		30		
		28Vout		36		
Output indicator			Green LED			
Over load protection	% of Iout 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					4500	pF
Switching frequency			270	300	330	kHz
Safety meets						UL60950-1 EN60950-1 IEC60950-1
Chassis material						Aluminum
Weight						122g (4.29oz)
MTBF	MIL-HDBK-217F, Full load					6.080 x 10 ⁵ hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	Without derating	-40		+55	°C
	With derating	+55		+85	
Over temperature protection	DC/DC Converter Case		110		°C
Storage temperature range		-40		+105	°C
Thermal shock					MIL-STD-810F
Vibration					MIL-STD-810F
Relative humidity					5% to 95% RH

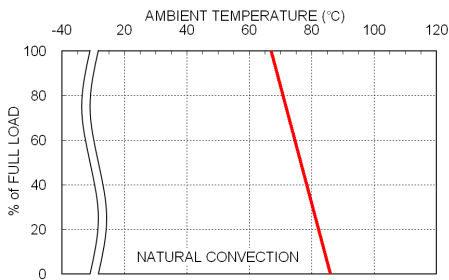
EMC SPECIFICATIONS

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 ± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8 100A/m continuous; 1000A/m 1 second	Perf. Criteria A

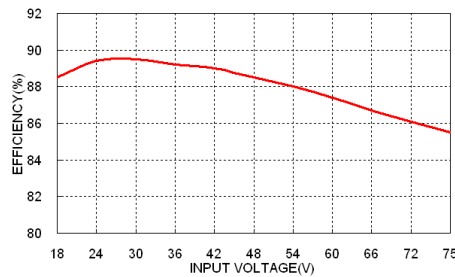
Note:

1. Test by minimum input and constant resistive load.

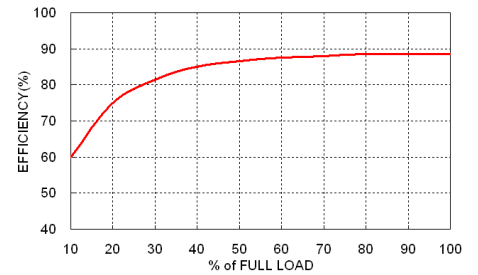
CHARACTERISTIC CURVE



UFEC40-48S05W Derating Curve



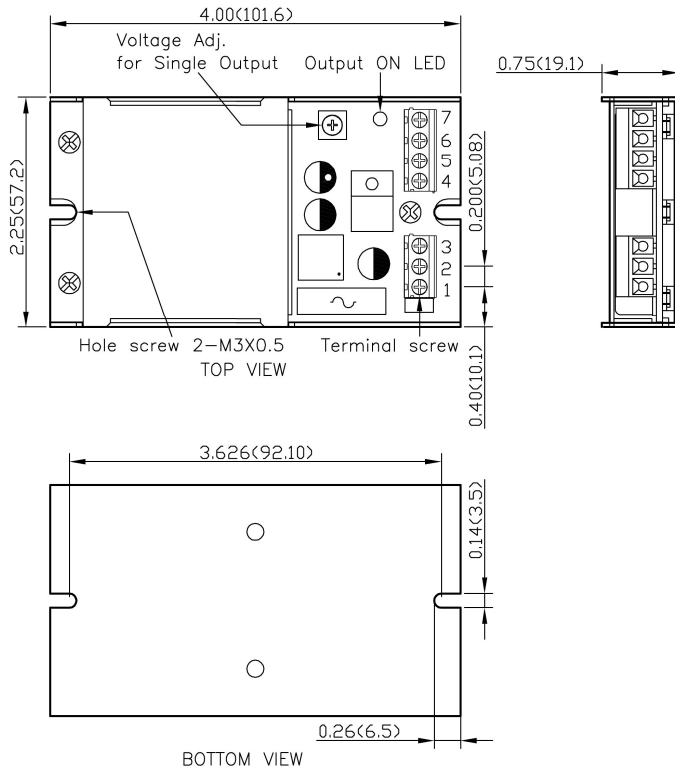
UFEC40-48S05W Efficiency vs. Input Voltage



UFEC40-48S05W Efficiency vs. Output Load

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE

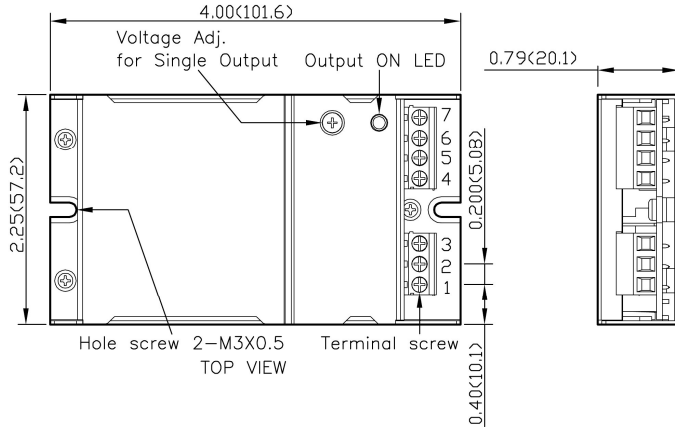


PIN CONNECTION

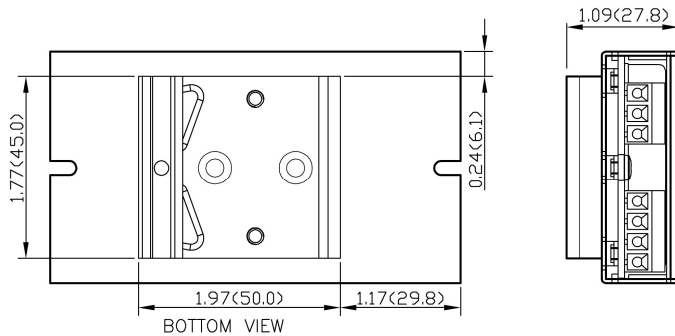
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	NC	NC
5	-Vout	-Vout
6	+Vout	Common
7	NC	+Vout

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

ENCLOSED MOUNTING TYPE



DIN RAIL MOUNTING TYPE



1. All dimensions in Inch (mm)
2. Tolerance : X.XX±0.02 (X.X±0.5)
4. Tolerance : 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)