

# UFED40W SERIES

DC/DC Converter Single & Dual Output: 40 Watts



## Features

- 4:1 wide Input range 9V~36V, 18~75V & 43~160V
- Rail EN50155 compliance
- Single and Dual output options
- High efficiency up to 91%
- Regulated output & Short circuit protection
- 1600VDC isolation
- Remote ON / OFF, Negative or Positive Logic
- High operating base plate temperature : -40°to +J1 °C
- Zero load operation
- Output voltage trim Singles
- Output LED
- Optional DIN Rail mounting - "DR"
- 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 uF (1)
UFED40-24S3P3W	9.5 ~ 36	3.3	10000	19	89	26600
UFED40-24S05W	9.5 ~ 36	5	8000	19	90	20000
UFED40-24S12W	9.5 ~ 36	12	3333	19	91	3900
UFED40-24S15W	9.5 ~ 36	15	2666	19	91	2600
UFED40-24S24W	9.5 ~ 36	24	1666	19	90	1300
UFED40-24D12W	9.5 ~ 36	±12	±1666	19	89	± 2600
UFED40-24D15W	9.5 ~ 36	±15	±1333	19	89	± 1600
UFED40-24D24W	9.5 ~ 36	±24	±833	19	90	±650
UFED40-48S3P3W	18 ~ 75	3.3	10000	14	89	26600
UFED40-48S05W	18 ~ 75	5	8000	14	90	20000
UFED40-48S12W	18 ~ 75	12	3333	14	91	3900
UFED40-48S15W	18 ~ 75	15	2666	14	91	2600
UFED40-48S24W	18 ~ 75	24	1666	14	90	1300
UFED40-48D12W	18 ~ 75	±12	±1666	14	89	± 2600
UFED40-48D15W	18 ~ 75	±15	±1333	14	89	± 1600
UFED40-48D24W	18 ~ 75	±24	±833	14	90	±650
UFED40-110S3P3W	43 ~ 160	3.3	10000	10	87	26600
UFED40-110S05W	43 ~ 160	5	8000	10	88	20000
UFED40-110S12W	43 ~ 160	12	3333	10	89.5	3900
UFED40-110S15W	43 ~ 160	15	2666	10	90	2600
UFED40-110S24W	43 ~ 160	24	1666	10	89	1300
UFED40-110D12W	43 ~ 160	±12	±1666	10	88	± 2600
UFED40-110D15W	43 ~ 160	±15	±1333	10	88	± 1600
UFED40-110D24W	43 ~ 160	±24	±833	10	90	±650

## PART NUMBER STRUCTURE

UFED40 -	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: 18~75 110: 43~160	S: Single  D: Dual	3P3: 3.3 05: 5 12: 12 15: 15 24: 24 ----- 12: ±12 15: ±15 24: ±24	4:1	<input type="checkbox"/> : Positive logic <input type="checkbox"/> : Negative logic	<input type="checkbox"/> : No Assembly Option EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type

REV (F1 14) -14)

# UFED40W SERIES

DC/DC Converter Single & Dual Output: 40 Watts



## INPUT SPECIFICATIONS

Parameter	Conditions n.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom)	9.5	24	36
	48Vin(nom)	18	48	75
	110Vin(nom)	43	110	160
Input fuse (slow blow)	24Vin(nom)	8		
	48Vin(nom)	4		A
	110Vin(nom)	2		
In-rush current		15		A
Start-up voltage	24Vin(nom)		9.5	
	48Vin(nom)		18	VDC
	110Vin(nom)		43	
Shutdown voltage	24Vin(nom)	8		
	48Vin(nom)	16		VDC
	110Vin(nom)	40		
Start up time	Constant resistive load	Power up	100	
		Remote ON/OFF	60	ms
Input surge voltage	1 second, max.	24Vin(nom)		50
		48Vin(nom)		100
		110Vin(nom)		170
Remote ON/OFF	Referenced 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	1
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	No Load to Full Load	3.3Vout, 5Vout	-1.5	+1.5	%
		Others	-1.0	+1.0	
Cross regulation	Asymmetrical load 25%/100% FL	-5.0		+5.0	%
Voltage adjustability	Single output	3.3Vout, 5Vout, 12Vout	-10	+10	%
		15Vout, 24Vout	-10	+20	
Ripple and noise	Measured by 20MHz bandwidth	3.3Vout, 5Vout	75		
		12Vout, 15Vout	100		mVp-p
		24Vout	150		
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		
		5Vout	6.2		
		12Vout	15		VDC
		15Vout	20		
		24Vout	30		
Output indicator			Green LED		
Over load protection	% of Iout rated		150		%
Short circuit protection			Continuous, automatics recovery		

## GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	1600		
		Input (Output) to Chassis	1600		VDC
Isolation resistance	500VDC	1			GΩ
Isolation capacitance			4000		pF
Switching frequency		225	250	275	kHz
Safety meets					UL60950-1 EN60950-1 IEC60950-1 EN50155
Chassis material					Aluminum
Weight					110g (3.88oz)
MTBF	MIL-HDBK-217F, Full load				1.944 x 10 <sup>6</sup> hrs

# UFED40W SERIES

DC/DC Converter Single & Dual Output: 40 Watts

## ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	without derating	-40		+63	°C
	with derating	+63		+96	
Over temperature protection	Case of DC/DC module		+115		°C
Storage temperature range		-40		+105	°C
Thermal shock					MIL-STD-810F
Shock					EN61373, MIL-STD-810F
Vibration					EN61373, MIL-STD-810F
Relative humidity					5% to 95% RH

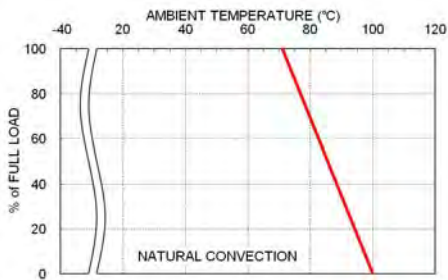
## EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55022	Class B
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 20 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

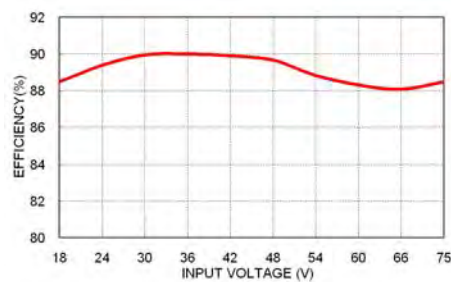
### Note:

1. Test by minimum input and constant resistive load.

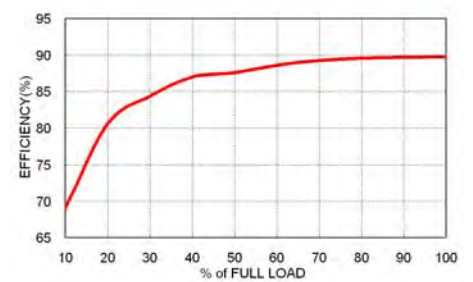
## CHARACTERISTIC CURVES



UFED40-48S05W Derating Curve



UFED40-48S05W Efficiency vs. Input Voltage



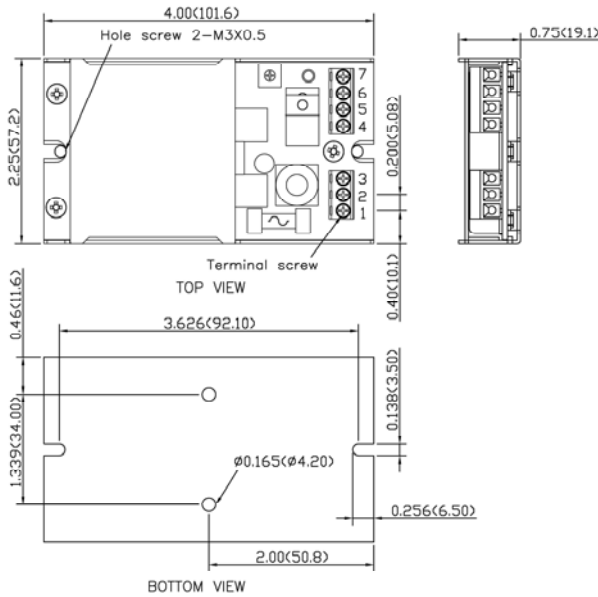
UFED40-48S05W Efficiency vs. Output Load

# UFED40W SERIES

DC/DC Converter Single & Dual Output: 40 Watts

## MECHANICAL DRAWINGS

### CHASSIS MOUNTING TYPE - STD



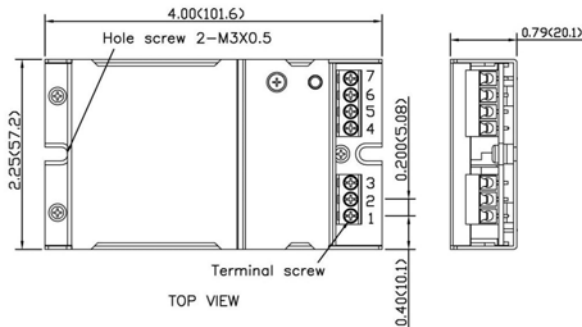
### PIN CONNECTION

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 )

