POWER MATE TECHNOLOGY CO., LTD.

P-DUKE

UFED20W SERIES

CHASSIS-MOUNT DC-DC CONVERTER

4:1 ULTRA WIDE INPUT RANGE
UP TO 20 Watts

CE

RoHS Compliant

FEATURES

- NO MINIMUM LOAD REQUIRED
- 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

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25℃ otherwise noted

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @ No Load	Efficiency	Maximum Capacitor Load (1)
	VDC	VDC	mA	mA	%	μF
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

UFED20 - 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	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
		D: Dual	**05:** ±5 **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)		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	mA
		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	3.3Vout, 5Vout, 12Vout, 15Vout		60 75		mVp-p
		Dual	All		100		
Temperature coefficient				-0.02		+0.02	%/℃
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 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			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 10^6 hrs

ENVIRONMENTAL SPECIFICATIONS

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

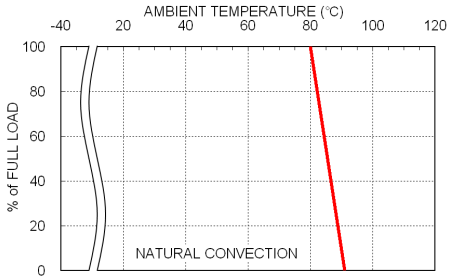
EMC SPECIFICATIONS

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

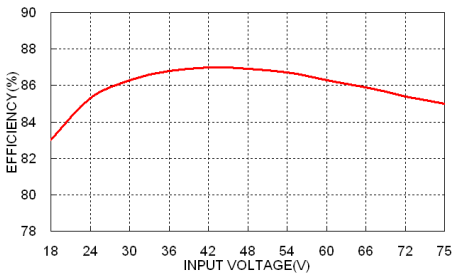
Note:

1. Test by minimum input and constant resistive load.

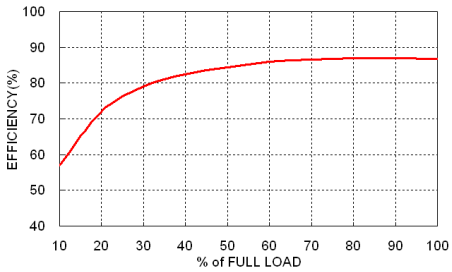
CHARACTERISTIC CURVE



UFED20-48S05W Derating Curve



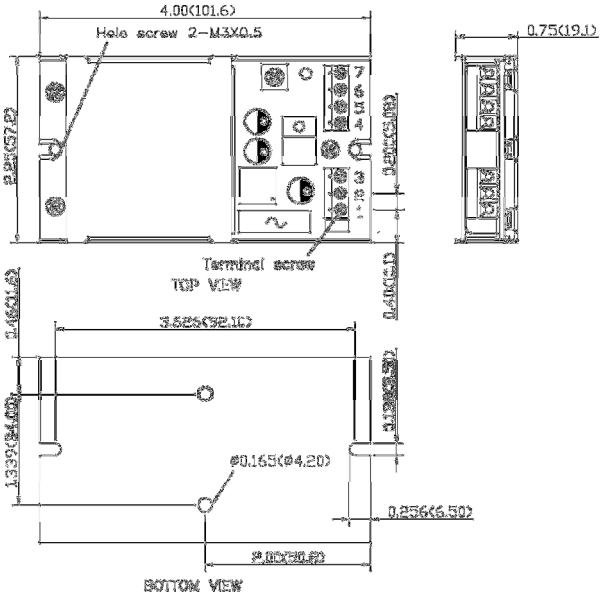
UFED20-48S05W Efficiency vs. Input Voltage



UFED20-48S05W Efficiency vs. Output Load

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE

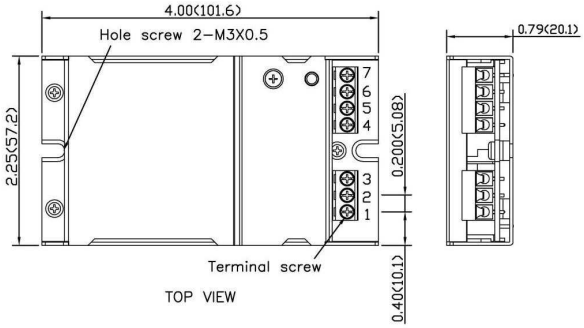


PIN CONNECTION

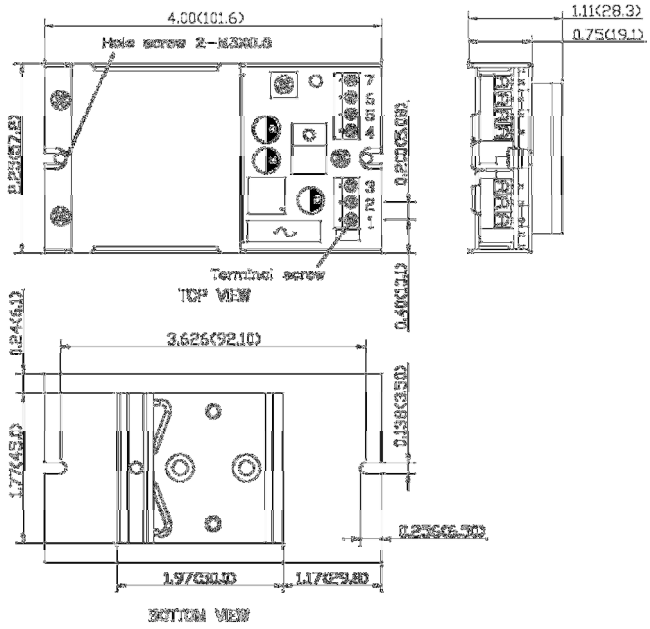
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	NC	NC
5	-Vout	-Vout
6	+Vout	Common
7	NC	+Vout

* 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)
   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)