



DFED20W SERIES

DIN RAIL DC-DC CONVERTER

4:1 ULTRA WIDE INPUT RANGE
UP TO 20 Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- 1600VDC INPUT TO OUTPUT ISOLATION
- SCREW TERMINALS FOR INPUT AND OUTPUT CONNECTIONS
- RELIABLE SNAP-ON FOR DIN RAIL TS-35/7.5 OR TS-35/15
- CASE PROTECTION MEET IP20(IEC60529)
- INTERNAL OUTPUT DC-OK INDICATOR
- MEET EN55022 CLASS B
- SAFETY MEETS UL60950-1, EN60950-1, & IEC60950-1
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- COMMUNICATION SYSTEM
- INDUSTRY CONTROL SYSTEM
- FACTORY AUTOMATIC 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	mA	mA	%	μF
DFED20-24S3P3W	9.5 ~ 36	3.3	5500	52	83	18000
DFED20-24S05W	9.5 ~ 36	5	4000	67	86	9600
DFED20-24S12W	9.5 ~ 36	12	1670	26	84	1650
DFED20-24S15W	9.5 ~ 36	15	1330	27	84	1050
DFED20-24D05W	9.5 ~ 36	±5	±2000	59	86	±4800
DFED20-24D12W	9.5 ~ 36	±12	±833	34	85	±825
DFED20-24D15W	9.5 ~ 36	±15	±667	35	85	±525
DFED20-48S3P3W	18 ~ 75	3.3	5500	37	83	18000
DFED20-48S05W	18 ~ 75	5	4000	37	86	9600
DFED20-48S12W	18 ~ 75	12	1670	18	85	1650
DFED20-48S15W	18 ~ 75	15	1330	18	85	1050
DFED20-48D05W	18 ~ 75	±5	±2000	37	87	±4800
DFED20-48D12W	18 ~ 75	±12	±833	20	86	±825
DFED20-48D15W	18 ~ 75	±15	±667	20	86	±525

PART NUMBER STRUCTURE

DFED20 -	48	S	05	W	-	N
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range		Remote Control 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
		D: Dual	05: ±5 12: ±12 15: ±15			

INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom) 48Vin(nom)	9.5 18	24 48	36 75	VDC
Input fuse (slow blow)	24Vin(nom) 48Vin(nom)		6 4		A
In-rush current			15		A
Input reflected ripple current	Nominal input and Full load		10		mAp-p
Start up voltage	24Vin(nom) 48Vin(nom)			9.5 18	VDC
Shutdown voltage	24Vin(nom) 48Vin(nom)		7.5 15		VDC
Start up time	Nominal input and Constant resistive load		100 20		ms
Input surge voltage	100ms, max. 24Vin(nom) 48Vin(nom)			50 100	VDC
Remote ON/OFF	Referred to –Vin pin Positive logic DC-DC ON (Standard) DC-DC OFF Negative logic DC-DC ON (Option) DC-DC OFF Input current of Ctrl pin Remote off input current			Open or 3 ~ 12VDC Short or 0 ~ 1.2VDC Short or 0 ~ 1.2VDC Open or 3 ~ 12VDC -0.5 2.5	mA mA

OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy	3.3Vout Others	-1.5 -1.0		+1.5 +1.0	%
Line regulation	Low Line to High Line at Full Load Single Dual	-0.2 -0.5		+0.2 +0.5	%
Load regulation	No Load to Full Load	-1.5		+1.5	%
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 Dual All		60 75 100		mVp-p
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 5Vout 12Vout 15Vout		3.9 6.2 15 18		VDC
Output indicator				Green LED	
Over load protection	% of lout rated; Hiccup mode		150		%
Short circuit protection				Continuous, automatic recovery	

GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	1 minute Input to Output Input (Output) to Chassis	1600 1600			VDC
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				147.5g (5.19oz)	
MTBF	MIL-HDBK-217F, Full load			1.619 x 10 ⁶	hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	Without derating With derating	-40 +78		+78 +93	°C
Storage temperature range		-40		+105	°C
Thermal shock				MIL-STD-810F	
Vibration				MIL-STD-810F	
Relative humidity				5% to 95% RH	

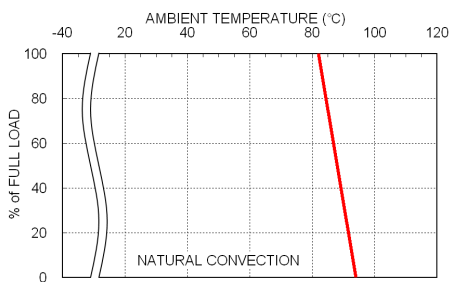
EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55022	Class B
ESD	EN61000-4-2 Air ± 8 kV and Contact ± 6 kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10V/m	Perf. Criteria A
Fast transient	EN61000-4-4 ± 2 kV	Perf. Criteria A
Surge	EN61000-4-5 ± 0.5 kV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10Vr.m.s	Perf. Criteria A

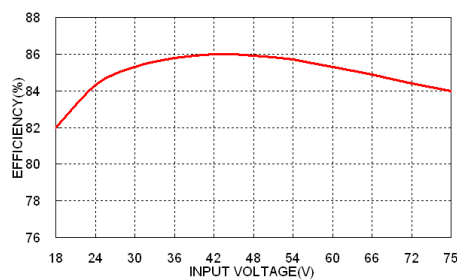
Note:

1. Test by minimum input and constant resistive load.

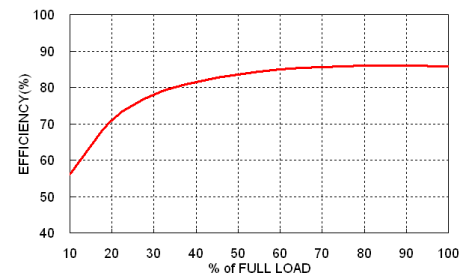
CHARACTERISTIC CURVE



DFED20-48S05W Derating Curve

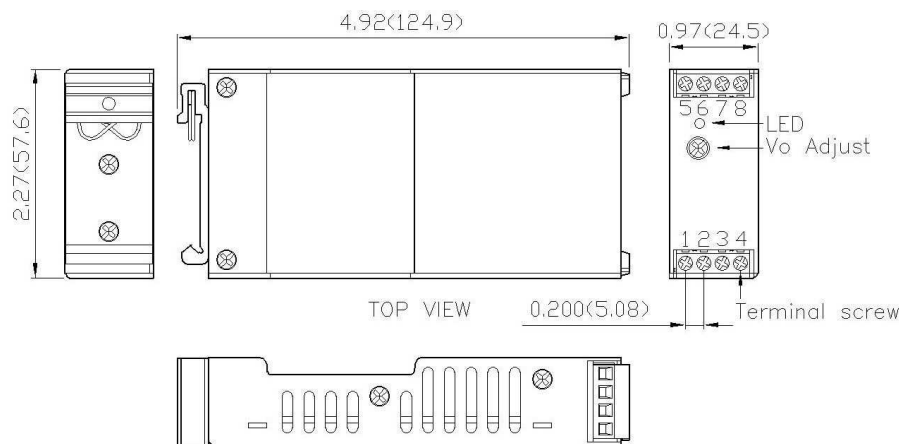


DFED20-48S05W Efficiency vs. Input Voltage



DFED20-48S05W Efficiency vs. Output Load

MECHANICAL DRAWING



PIN CONNECTION

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

* NC : No Connection

* Screw terminals –
wire range from 14 to 18 AWG

1. All dimensions in Inch (mm)
2. Tolerance : X.XX $\pm$ 0.02 (X.X $\pm$ 0.5)
X.XXX $\pm$ 0.01 (X.XX $\pm$ 0.25)
3. Terminal screw locked torque :
MAX 2.5kgf-cm (0.25N-m)