



APPLICATIONS

Communication System
Industry Control System
Factory Automatic Equipment
Semiconductor Equipment

FEATURES

- DIN RAIL DC/DC CONVERTERS
- 20 WATTS MAXIMUM OUTPUT POWER
- OFFER SINGLE AND DUAL OUTPUT
- OVERLOAD AND SHORT CIRCUIT PROTECTION
- OVER VOLTAGE PROTECTION
- RELIABLE SNAP-ON FOR DIN RAIL TS-35/7.5 OR TS-35/15
- I/O-ISOLATION 1600 VDC
- CASE PROTECTION MEET IP20(IEC60529)
- INTERNAL INPUT FUSE PROTECTION
- INTERNAL INPUT REVERSAL POLARITY PROTECTION
- INTERNAL INPUT IN-RUSH CURRENT LIMIT CIRCUIT
- INTERNAL OUTPUT DC-OK INDICATOR
- MEET EN55022 CLASS B
- COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU

DESCRIPTION

The DFED20W series was designed to easy application of din rail DC-DC converters. Easy installation is provided with snap-on mounting on the DIN-rail. Internal protection circuits such as input reversal and in-rush current limit protection, as well as output short-circuit and over-voltage protection. A green LED at the front displays the status of the output(s).

TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS			
Output power		20 Watts, max	
Voltage accuracy		3.3Vout	± 1.5%
		Others	± 1%
Minimum load		0%	
Voltage adjustability (Note 6)		Single output	± 10%
Line regulation	LL to hI at Full load	Single	± 0.2%
		Dual	± 0.5%
Load regulation	No load to Full load	± 1.5%	
Load cross regulation (Note 7)		Dual	± 5%
Ripple and noise	20MHz bandwidth	See table	
Temperature coefficient		±0.02% / °C, max	
Transient response recovery time 25% load step change		250µs	
Over voltage protection Zener diode clamp	3.3VDC output	3.9VDC	
	5VDC output	6.2VDC	
	12VDC output	15VDC	
	15VDCoutput	18VDC	
Output indicator		Green LED	
Over load protection	% of FL at nominal input	150%	
Short circuit protection		Continuous, automatics recovery	
GENERAL SPECIFICATIONS			
Efficiency		See table	
Isolation voltage	Input to Output	1600VDC, min. 1minute	
	Input(Output) to Chassis	1600VDC, min. 1minute	
Isolation resistance	500VDC	10 ⁹ ohms, min	
Isolation capacitance		4000pF, max	
Switching frequency		400kHz±10%	
Design meets safety standard		IEC60950-1, UL60950-1, EN60950-1	
Chassis material		Aluminum	
Dimensions		4.92 X2.27 X 0.97 Inch (125.0 X 57.6 X 24.5 mm)	
Weight		147.5g (5.19oz)	
MTBF (Note 1)	MIL-HDBK-217F	1.619 x 10 ⁶ hrs	

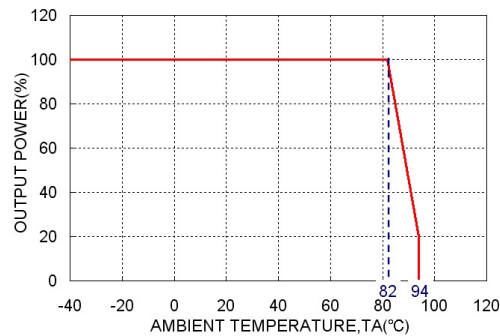
INPUT SPECIFICATIONS			
Input voltage range		24VDC nominal input 48VDC nominal input	9.5 ~ 36VDC 18 ~ 75VDC
Input surge voltage		24VDC input 48VDC input	50VDC 100ms,max 100VDC 100ms,max
Input fuse (slow blow)		24VDC input 48VDC input	6A 4A
In-rush current			15A
Input reflected ripple current			10mA _{p-p}
Start up time	Nominal input and constant resistive load	Power up Remote ON/OFF	100ms 20ms
Start-up voltage	24VDC input		9.5VDC
	48VDC input		18VDC
Shutdown voltage	24VDC input		7.5VDC
	48VDC input		15VDC
Remote ON/OFF (Note 8)			
(Positive logic) (Standard)		DC-DC ON	Open or 3 V < Vr < 12V
		DC-DC OFF	Short or 0V < Vr < 1.2V
(Negative logic) (Option)		DC-DC ON	Short or 0V < Vr < 1.2V
		DC-DC OFF	Open or 3 V < Vr < 12V
Input current of Remote control pin		Nominal input	-0.5mA ~ + 0.5mA
Remote off state input current		Nominal input	2.5mA
ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature		-40°C ~ +78°C (without derating) +78°C ~ +93°C (with derating)	
Storage temperature range		-40°C ~ +105°C	
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 Contact	± 8kV ± 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		± 0.5kV 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				
DFED20-24S3P3W	9.5 ~ 36 VDC	3.3 VDC	0mA	5500mA	60mVp-p	52mA	83	18000μF
DFED20-24S05W	9.5 ~ 36 VDC	5 VDC	0mA	4000mA	75mVp-p	67mA	86	9600μF
DFED20-24S12W	9.5 ~ 36 VDC	12 VDC	0mA	1670mA	75mVp-p	26mA	84	1650μF
DFED20-24S15W	9.5 ~ 36 VDC	15 VDC	0mA	1330mA	75mVp-p	27mA	84	1050μF
DFED20-24D05W	9.5 ~ 36 VDC	±5 VDC	0mA	±2000mA	100mVp-p	59mA	86	±4800μF
DFED20-24D12W	9.5 ~ 36 VDC	±12 VDC	0mA	±833mA	100mVp-p	34mA	85	±825μF
DFED20-24D15W	9.5 ~ 36 VDC	±15 VDC	0mA	±667mA	100mVp-p	35mA	85	±525μF
DFED20-48S3P3W	18 ~ 75 VDC	3.3 VDC	0mA	5500mA	60mVp-p	37mA	83	18000μF
DFED20-48S05W	18 ~ 75 VDC	5 VDC	0mA	4000mA	75mVp-p	37mA	86	9600μF
DFED20-48S12W	18 ~ 75 VDC	12 VDC	0mA	1670mA	75mVp-p	18mA	85	1650μF
DFED20-48S15W	18 ~ 75 VDC	15 VDC	0mA	1330mA	75mVp-p	18mA	85	1050μF
DFED20-48D05W	18 ~ 75 VDC	±5 VDC	0mA	±2000mA	100mVp-p	37mA	87	±4800μF
DFED20-48D12W	18 ~ 75 VDC	±12 VDC	0mA	±833mA	100mVp-p	20mA	86	±825μF
DFED20-48D15W	18 ~ 75 VDC	±15 VDC	0mA	±667mA	100mVp-p	20mA	86	±525μF

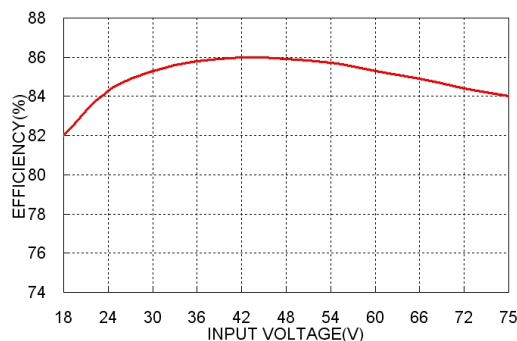
Note

1. MIL-HDBK-217F @Ta=25 °C, 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. Single output installs a potentiometer to adjust the output voltage.
7. Cross regulation for dual output : asymmetrical load 25% / 100% FL
8. The ON/OFF control pin voltage is referenced to -INPUT
To order negative logic ON/OFF control add the suffix-N (Ex:DFED20-48S05W-N)

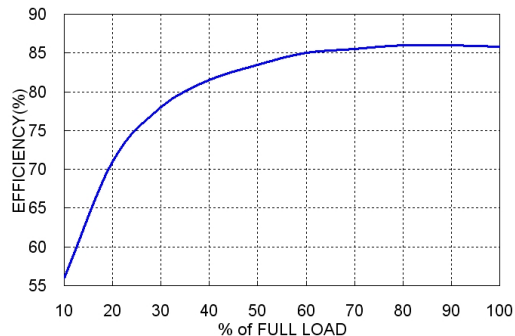
DFED20-48S05W Derating Curve



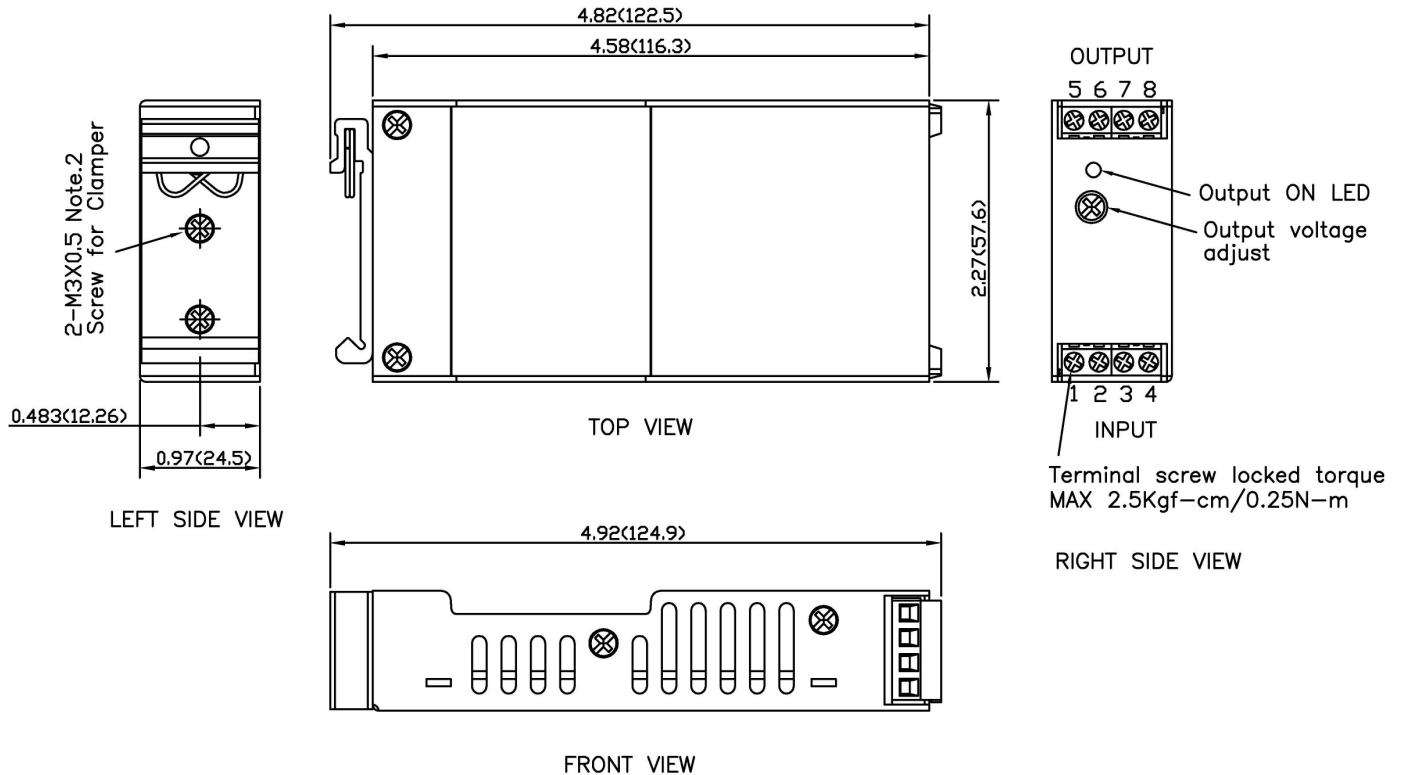
DFED20-48S05W Efficiency VS Input Voltage



DFED20-48S05W Efficiency VS Output Current



MECHANICAL DRAWING :



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

PIN CONNECTION		
PIN	SINGLE	DUAL
1	CTRL	CTRL
2	-INPUT	-INPUT
3	-INPUT	-INPUT
4	+INPUT	+INPUT
5	NC	NC
6	-OUTPUT	-OUTPUT
7	+OUTPUT	COMMON
8	NC	+OUTPUT

※ NC : No Connection

※ Screw terminals – wire range from 14 to 18 AWG

PRODUCT OPTIONS TABLE	
Option	Suffix
Negative logic Remote ON/OFF	-N