



# P-DUKE POWER

## DFED20W Series

Din Rail DC-DC Converter  
Up to 20 Watts

**3**  
YEARS  
WARRANTY

ROHS  
COMPLIANT

REACH  
COMPLIANT



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway

CB CE UK  
CA

**1600**  
VDC  
Isolation  
Voltage

**4 : 1**  
Wide  
Input  
Range

**FUSE**  
Installed

**INRUSH**  
**CURRENT**  
**LIMIT**

Internal  
EN55032  
Class **B**  
Filter

**NO**  
Min. Load  
Required

**REMOTE**  
**ON**  
**OFF**

**REVERSE**  
**POLARITY**  
**PROTECTION**

**OCP**

**OVP**

**SCP**

**UVP**

### PART NUMBER STRUCTURE

Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Remote Control Options
DFED20 - <b>48</b>	<b>24</b> :9.5~36 <b>48</b> :18~75	<b>S</b> :Single  <b>D</b> :Dual	<b>3P3</b> :3.3 <b>05</b> :5 <b>12</b> :12 <b>15</b> :15  <b>05</b> :±5 <b>12</b> :±12 <b>15</b> :±15	4:1	<b>□</b> :Positive logic <b>N</b> :Negative logic

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

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @No Load	Efficiency	Maximum Capacitor Load
	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	85	1650
DFED20-24S15W	9.5 ~ 36	15	1330	27	85	1050
DFED20-24D05W	9.5 ~ 36	±5	±2000	59	87	±4800
DFED20-24D12W	9.5 ~ 36	±12	±833	34	86	±825
DFED20-24D15W	9.5 ~ 36	±15	±667	35	86	±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

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
Start up voltage	24Vin(nom)				9.5	VDC
	48Vin(nom)				18	
Shutdown voltage	24Vin(nom)		7	8	9	VDC
	48Vin(nom)		14.5	16	17.5	
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
		Negative logic DC-DC ON (Option)		Short or 0 ~ 1.2VDC		
		DC-DC OFF		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 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 Dual		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 Iout rated			150		%
Short circuit protection				Continuous, automatic recovery		

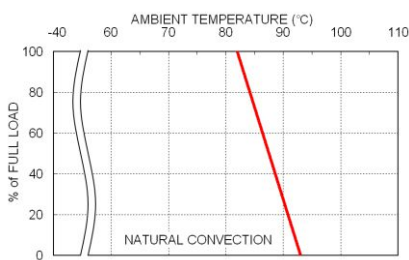
GENERAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output Input (Output) to Chassis	1600 1600			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					4000	pF
Switching frequency			360	400	440	kHz
Safety approvals	IEC/ EN/ UL62368-1				UL:E193009 CB:UL(Demko)	
Chassis material					Aluminum	
Weight					147.5g (5.20oz)	
MTBF	MIL-HDBK-217F, Full load				1.619 x 10 <sup>6</sup> hrs	

ENVIRONMENTAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature		Without derating With derating	-40 +78		+78 +99	°C
Storage temperature range			-40		+105	°C
Thermal shock					MIL-STD-810F	
Vibration					IEC60068-2-6	
Relative humidity					5% to 95% RH	

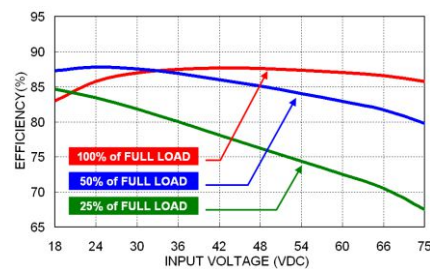
## EMC SPECIFICATIONS

Parameter	Conditions		Level
EMI	EN55032		Class B
EMS	EN55035		
ESD	EN61000-4-2	Air $\pm$ 8kV and Contact $\pm$ 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10V/m	Perf. Criteria A
Fast transient	EN61000-4-4	$\pm$ 2kV	Perf. Criteria A
Surge	EN61000-4-5	$\pm$ 0.5kV	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

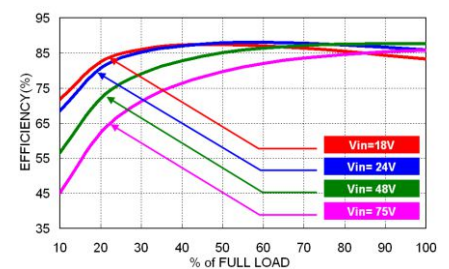
## CHARACTERISTIC CURVE



DFED20-48S05W Derating Curve

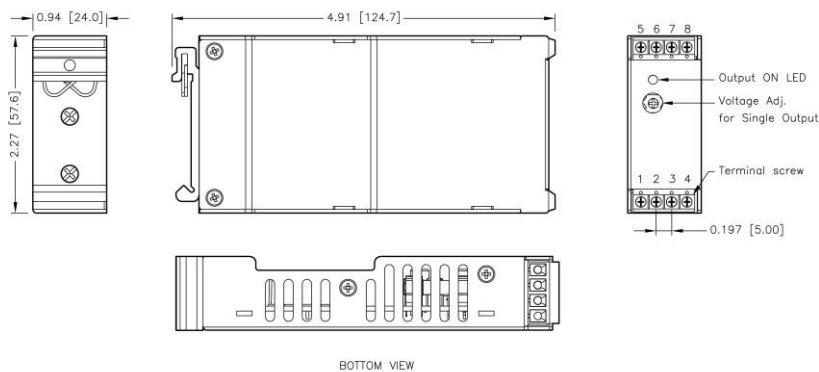


DFED20-48S05W Efficiency vs. Input Voltage



DFED20-48S05W Efficiency vs. Output Load

## MECHANICAL DRAWING



## TERMINAL CONNECTION

NO.	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. Clamp screw locked torque:  
MAX 5.0kgf-cm/0.49N-m
4. Terminal screw locked torque:  
MAX 2.5kgf-cm/0.25N-m