



P-DUKE POWER

DFED20 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

CE CB

1600
VDC
Isolation
Voltage

2 : 1
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

PART NUMBER STRUCTURE

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

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
DFED20-12S3P3	9.5 ~ 18	3.3	5000	118	83	13000
DFED20-12S05	9.5 ~ 18	5	4000	79	85	6800
DFED20-12S12	9.5 ~ 18	12	1670	97	84	2200
DFED20-12S15	9.5 ~ 18	15	1330	44	84	755
DFED20-12D12	9.5 ~ 18	±12	±833	52	84	±680
DFED20-12D15	9.5 ~ 18	±15	±667	59	84	±450
DFED20-24S3P3	18 ~ 36	3.3	5000	32	84	13000
DFED20-24S05	18 ~ 36	5	4000	37	87	6800
DFED20-24S12	18 ~ 36	12	1670	59	85	2200
DFED20-24S15	18 ~ 36	15	1330	45	86	755
DFED20-24D12	18 ~ 36	±12	±833	34	85	±680
DFED20-24D15	18 ~ 36	±15	±667	35	86	±450
DFED20-48S3P3	36 ~ 75	3.3	5000	17	85	13000
DFED20-48S05	36 ~ 75	5	4000	22	87	6800
DFED20-48S12	36 ~ 75	12	1670	38	86	2200
DFED20-48S15	36 ~ 75	15	1330	53	85	755
DFED20-48D12	36 ~ 75	±12	±833	23	86	±680
DFED20-48D15	36 ~ 75	±15	±667	23	86	±450

INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range	12Vin(nom) 24Vin(nom) 48Vin(nom)		9.5 18 36	12 24 48	18 36 75	VDC
Input fuse	slow blow	12Vin(nom) 24Vin(nom) 48Vin(nom)		6 6 4		A
In-rush current				15		A
Start up time	Constant resistive load	Power up Remote ON/OFF		100 10		ms
Input surge voltage	100ms, max.	12Vin(nom) 24Vin(nom) 48Vin(nom)			36 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	-0.5	Open or 3 ~ 12VDC Short or 0 ~ 1.2VDC Short or 0 ~ 1.2VDC Open or 3 ~ 12VDC 2.5	0.5	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 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			450	500	550	kHz
Safety approvals	IEC/ UL/ EN60950-1				UL:E193009 CB:UL(Demko)	
Chassis material					Aluminum	
Weight					147.5g (5.20oz)	
MTBF	MIL-HDBK-217F, Full load				1.682 x 10 ⁶ hrs	

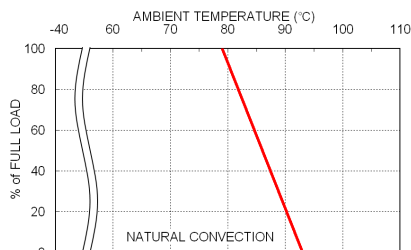
ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature		Without derating With derating	-40 +73		+73 +92	°C
Storage temperature range			-40		+105	°C
Thermal shock					MIL-STD-810F	
Vibration					IEC60068-2-6	
Relative humidity					5% to 95% RH	

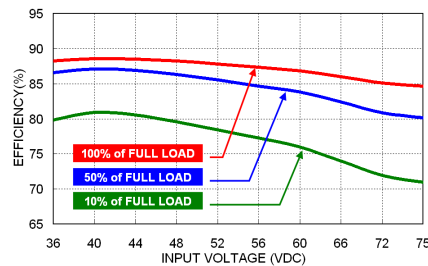
EMC SPECIFICATIONS

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

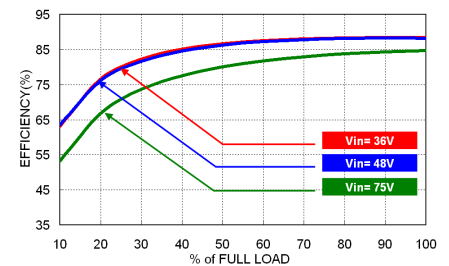
CHARACTERISTIC CURVE



DFED20-48S05 Derating Curve

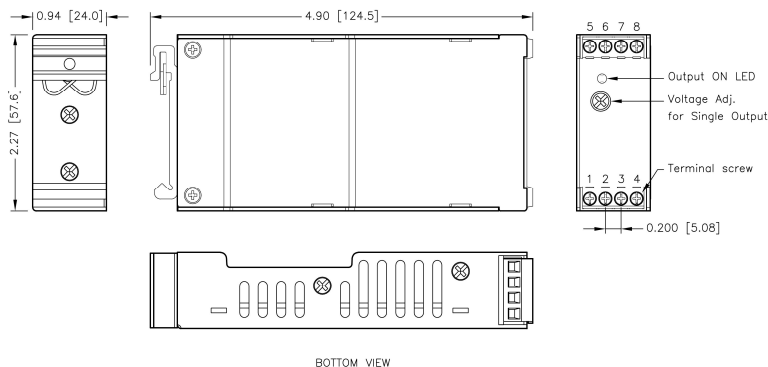


DFED20-48S05 Efficiency vs. Input Voltage



DFED20-48S05 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

- All dimensions in Inch [mm]
- Tolerance : X.XX $\pm$ 0.02 [X.X $\pm$ 0.5]
X.XXX $\pm$ 0.01 [X.XX $\pm$ 0.25]
- Clamp screw locked torque:
MAX 5.0kgf-cm/0.49N-m
- Terminal screw locked torque:
MAX 2.5kgf-cm/0.25N-m