



**P-DUKE**  
**POWER**

**DFEC15W** Series

Din Rail DC-DC Converter  
Up to 15 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

**4 : 1**  
Wide  
Input  
Range

**FUSE**  
Installed

Internal  
EN55032  
Class  
Filter **B**

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

**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 Option
DFEC15 -	<b>48</b>	<b>S</b>	<b>05</b>	<b>W</b>	<b>P</b>
	24:9.5~36 48:18~75	S:Single	3P3:3.3 05:5 5P1:5.1 12:12 15:15	4:1	□:NC P:Positive logic N:Negative logic
		D:Dual	05:±5 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
DFEC15-24S3P3W	9.5 ~ 36	3.3	4500	52	84	14700
DFEC15-24S05W	9.5 ~ 36	5	3000	67	85	7200
DFEC15-24S5P1W	9.5 ~ 36	5.1	3000	67	85	7200
DFEC15-24S12W	9.5 ~ 36	12	1250	26	85	1250
DFEC15-24S15W	9.5 ~ 36	15	1000	26	85	800
DFEC15-24D05W	9.5 ~ 36	±5	±1500	57	85	±3600
DFEC15-24D12W	9.5 ~ 36	±12	±625	35	86	±625
DFEC15-24D15W	9.5 ~ 36	±15	±500	35	86	±400
DFEC15-48S3P3W	18 ~ 75	3.3	4500	37	84	14700
DFEC15-48S05W	18 ~ 75	5	3000	38	86	7200
DFEC15-48S5P1W	18 ~ 75	5.1	3000	38	86	7200
DFEC15-48S12W	18 ~ 75	12	1250	18	85	1250
DFEC15-48S15W	18 ~ 75	15	1000	18	85	800
DFEC15-48D05W	18 ~ 75	±5	±1500	37	86	±3600
DFEC15-48D12W	18 ~ 75	±12	±625	20	86	±625
DFEC15-48D15W	18 ~ 75	±15	±500	20	86	±400

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	7.5	9	VDC
	48Vin(nom)		14.5	15	17.5	
Start up time	Constant resistive load	Power up	100		ms	
Input surge voltage	100ms, max.	24Vin(nom)			50	VDC
		48Vin(nom)			100	
Remote ON/OFF (Option)	Referred to -Vin pin	Positive logic	DC-DC ON	Open or 3 ~ 12VDC		mA
			DC-DC OFF	Short or 0 ~ 1.2VDC		
		Negative logic	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 Others	-2.0 -1.2		+2.0 +1.2	%
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	3.3Vout Others	-2.0 -1.5		+2.0 +1.5	%
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0		+5.0	%
Ripple and noise	Measured by 20MHz bandwidth	Single Dual		50 75 75		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, 5.1Vout 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		

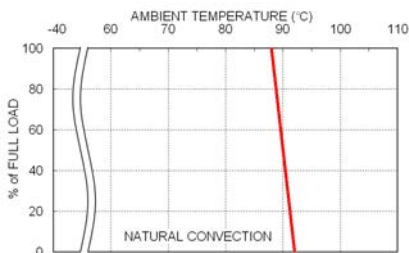
GENERAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output Input (Output) to Chassis	1600 1600			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					4000	pF
Switching frequency			360	400	440	kHz
Safety approvals	IEC/ UL/ EN60950-1				UL:E193009 CB:UL(Demko)	
Chassis material					Aluminum	
Weight					147.5g (5.20oz)	
MTBF	MIL-HDBK-217F, Full load				1.681 x 10 <sup>6</sup> hrs	

ENVIRONMENTAL SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature		without derating with derating	-40 +85		+85 +93	°C
Storage temperature range			-40		+105	°C
Thermal shock					MIL-STD-810F	
Vibration					IEC60068-2-6	
Relative humidity					5% to 95% RH	

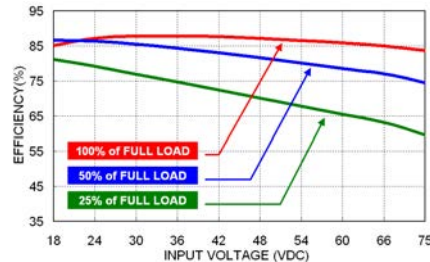
## EMC SPECIFICATIONS

Parameter	Conditions	Level
EMI	EN55032	Class B
ESD	EN61000-4-2 Air ± 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
Power frequency magnetic field	EN61000-4-8 100A/m continuous; 1000A/m 1 second	Perf. Criteria A

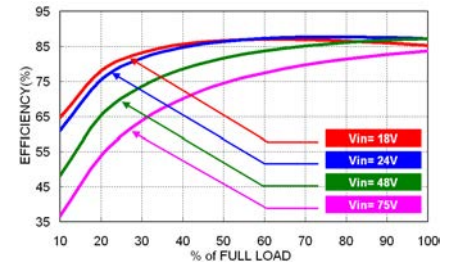
## CHARACTERISTIC CURVE



DFEC15-48S05W Derating Curve

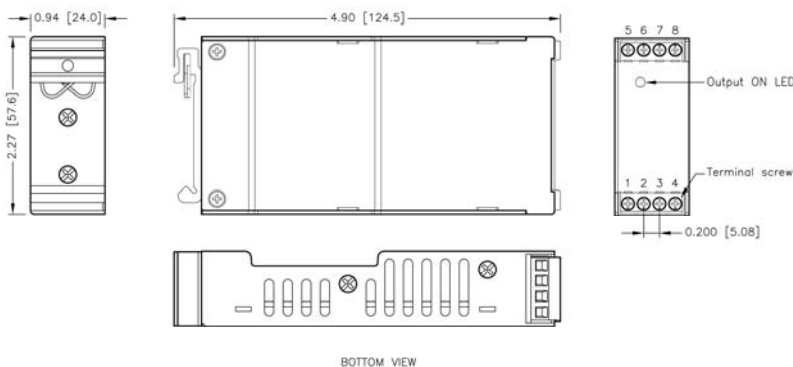


DFEC15-48S05W Efficiency vs. Input Voltage



DFEC15-48S05W Efficiency vs. Output Load

## MECHANICAL DRAWING



## TERMINAL CONNECTION

NO.	SINGLE	DUAL
1	Ctrl(Optional)	Ctrl(Optional)
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±0.02 [X.X±0.5]  
X.XXX±0.01 [X.XX±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