



FEATURES

- DIN RAIL DC/DC CONVERTERS
- 30 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

APPLICATIONS

Communication System
Industry Control System
Factory Automatic Equipment
Semiconductor Equipment

DESCRIPTION

The DFEC30W 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		30 Watts, max.
Voltage accuracy	3.3Vout	± 1.5%
	Others	± 1%
Minimum load		0%
Voltage adjustability (Note 6)	Single 28Vout	-3% ~ +17%
	Single Others	± 10%
Line regulation	LL to HL at Full load	± 0.5%
Load regulation	No load to Full load	3.3Vout ± 1.5%
	Others	± 1%
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	3.3VDC output	3.9VDC
	5VDC output	6.2VDC
	12VDC output	15VDC
	Zener diode clamp	15VDC output
Zener diode clamp	24VDC output	30VDC
	28VDC output	36VDC
	28VDC output	36VDC
Output indicator		Green LED
Over load protection	% of FL at nominal input	150%, max.
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		300kHz±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		170g (5.98oz)
MTBF (Note 1)	MIL-HDBK-217F	8.412 x 10 ⁵ hrs

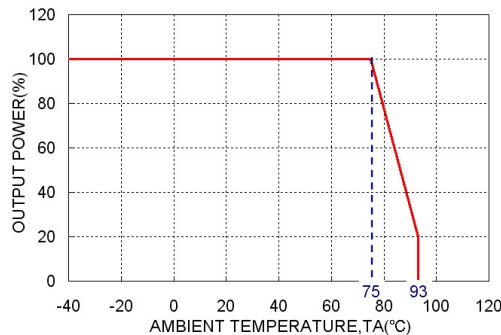
INPUT SPECIFICATIONS			
Input voltage range	24VDC nominal input		10 ~ 40VDC
	48VDC nominal input		18 ~ 75VDC
Input surge voltage	24VDC input		50VDC 100ms,max.
	48VDC input		100VDC 100ms,max.
Input fuse (slow blow)	24VDC input		6A
	48VDC input		4A
In-rush current			15A
Input reflected ripple current			15mA _{p-p}
Start up time	Nominal input and constant resistive load	Power up	100ms
		Remote ON/OFF	10ms
Start-up voltage	24VDC input		10VDC
	48VDC input		18VDC
Shutdown voltage	24VDC input		8VDC
	48VDC input		16VDC
Remote ON/OFF (Note 8)			
(Positive logic) (Standard)	DC-DC ON	Open or 3 V < Vr < 12V	
		Short or 0V < Vr < 1.2V	
(Negative logic) (Option)	DC-DC OFF	Short or 0V < Vr < 1.2V	
		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		3mA
ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature			-40°C ~ +65°C (without derating)
			+65°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 Perf. Criteria A
			± 6kV
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient	EN61000-4-4	± 2kV	Perf. Criteria A
Surge	EN61000-4-5	± 1kV	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				
DFEC30-24S3P3W	10 ~ 40 VDC	3.3 VDC	0mA	6000mA	50mVp-p	52mA	85	19500μF
DFEC30-24S05W	10 ~ 40 VDC	5 VDC	0mA	6000mA	50mVp-p	67mA	85	10200μF
DFEC30-24S12W	10 ~ 40 VDC	12 VDC	0mA	2500mA	75mVp-p	69mA	85	3300μF
DFEC30-24S15W	10 ~ 40 VDC	15 VDC	0mA	2000mA	75mVp-p	75mA	86	1100μF
DFEC30-24S24W	10 ~ 40 VDC	24 VDC	0mA	1250mA	130mVp-p	39mA	82	500μF
DFEC30-24S28W	10 ~ 40 VDC	28 VDC	0mA	1000mA	130mVp-p	45mA	83	340μF
DFEC30-24D12W	10 ~ 40 VDC	±12VDC	0mA	±1250mA	100mVp-p	34mA	82	±1000μF
DFEC30-24D15W	10 ~ 40 VDC	±15VDC	0mA	±1000mA	100mVp-p	40mA	83	±680μF
DFEC30-48S3P3W	18 ~ 75 VDC	3.3 VDC	0mA	6000mA	50mVp-p	32mA	85	19500μF
DFEC30-48S05W	18 ~ 75 VDC	5 VDC	0mA	6000mA	50mVp-p	32mA	86	10200μF
DFEC30-48S12W	18 ~ 75 VDC	12 VDC	0mA	2500mA	75mVp-p	38mA	85	3300μF
DFEC30-48S15W	18 ~ 75 VDC	15 VDC	0mA	2000mA	75mVp-p	48mA	86	1100μF
DFEC30-48S24W	18 ~ 75 VDC	24 VDC	0mA	1250mA	130mVp-p	30mA	83	500μF
DFEC30-48S28W	18 ~ 75 VDC	28 VDC	0mA	1000mA	130mVp-p	30mA	84	340μF
DFEC30-48D12W	18 ~ 75 VDC	±12VDC	0mA	±1250mA	100mVp-p	28mA	83	±1000μF
DFEC30-48D15W	18 ~ 75 VDC	±15VDC	0mA	±1000mA	100mVp-p	28mA	84	±680μF

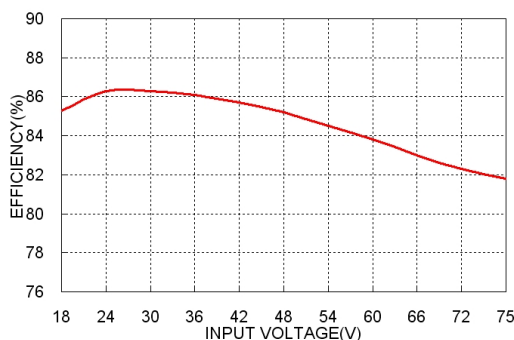
Note

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:DFEC30-48S05W-N)

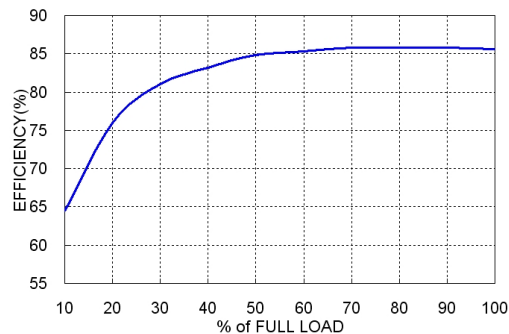
DFEC30-48S05W Derating Curve



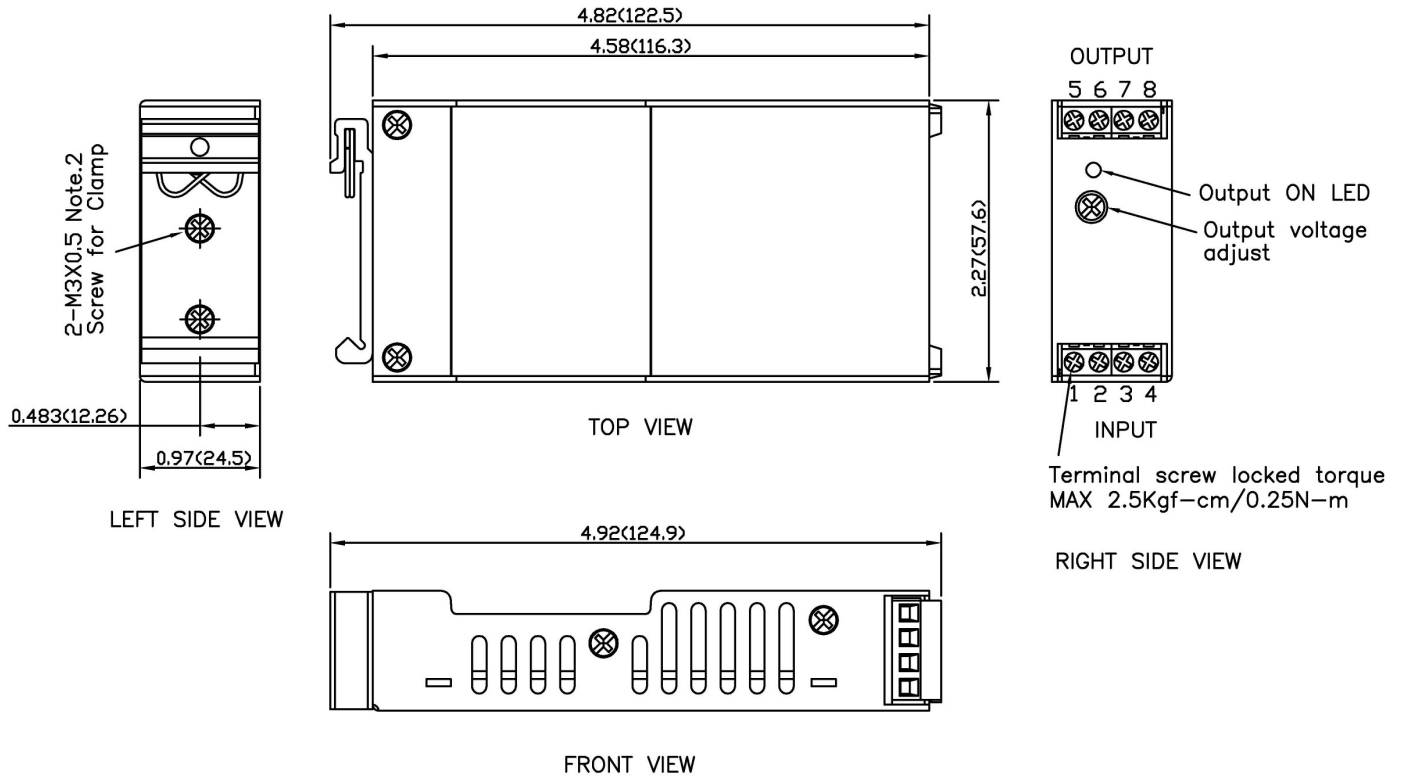
DFEC30-48S05W Efficiency VS Input Voltage



DFEC30-48S05W 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