POWER MATE TECHNOLOGY

DFEC15W – SERIES

FEATURES

- **DIN Rail DC/DC Converters**
- **15 Watts Output Power**
- **Offer Single And Dual Output**
- **Meet EN55022 Class B**
- **Internal input fuse protection**
- **Internal input reverse polarity protection**
- **Internal input in-rush current limit circuit**
- **Overload and short circuit protection**
- **Over voltage protection**
- **Compliant to RoHS EU DIRECTIVE 2002/95/EC**
- **Reliable snap-on for DIN rail TS-35/7.5 OR TS-35/15**
- **I/O-isolation 1600 VDC**
- **Case protection meet IP20(IEC60529)**
- **Output DC-OK indicator**

Communication System
Industry Control System
Factory Automatic Equipment
Semiconductor Equipment

DESCRIPTION

The DFEC15W 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 25ºC otherwise noted

OUTPUT SPECIFICATIONS			
Output power			15 Watts, max
Voltage accuracy		Single/Dual Single (3.3Vo)	± 1.2% ± 2.0%
Minimum load			0%
Line regulation	LL to hl at Full load	Single Dual	± 0.2% ± 0.5%
Load regulation	No load to Full load	Single/Dual Single (3.3Vo)	± 1.5% ± 2.0%
Cross regulation (Dual)	Asymmetrical load 25% / 100% FL		± 5%
Ripple and noise	20MHz bandwidth		See table
Temperature coefficient			±0.02% / ºC, max
Transient response recovery time 25% load step change			250µS
Over voltage protection Zener diode clamp	3.3V output 5V output 12V output 15V output		3.9V 6.2V 15V 18V
Output indicator			Green LED
Over load protection	% of FL at nominal input		150%, typ
Short circuit protection			Hiccup, automatics recovery

GENERAL SPECIFICATIONS		
Efficiency		See table
Isolation voltage	Input to Output Input(Output) to chassis	1600VDC, min 1600VDC, min
Isolation resistance		10^9 ohms, min
Isolation capacitance		4000pF, max
Switching frequency		400KHz, typ
Meet 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)	BELLCORE TR-NWT-000332 MIL-HDBK-217F	1.289×10^6 hrs 9.197×10^5 hrs

INPUT SPECIFICATIONS			
Input voltage range	24V nominal input 48V nominal input		9.5 – 36VDC 18 – 75VDC
Input surge voltage 1S max	24V input 48V input		50VDC 100VDC
Input fuse (slow blow)	24V input 48V input		6A 4A
In-rush current	Nominal Vin and full load		15A typ
Input reflected ripple current	Nominal Vin and full load		10mAp-p
Start up time	Nominal Vin and constant resistive load	Power up	100mS, typ
Start-up voltage	24V input 48V input		9.5VDC 18VDC
Shutdown voltage	24V input 48V input		7.5VDC 15VDC
Remote ON/OFF (Option) (Note 2)			
(Positive logic)	DC-DC ON DC-DC OFF		Open or 3 V < Vr < 12V Short or 0V < Vr < 1.2V
(Negative logic)	DC-DC ON DC-DC OFF		Short or 0V < Vr < 1.2V Open or 3 V < Vr < 12V
Input current of Remote control pin	Nominal Vin		-0.5mA ~ + 0.5mA
Remote off state input current	Nominal Vin		2.5mA

ENVIRONMENTAL SPECIFICATIONS	
Operating ambient temperature	-40ºC ~ +85ºC (without derating) +85ºC ~ +95ºC (with derating)
Storage temperature range	-40ºC ~ +105ºC
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

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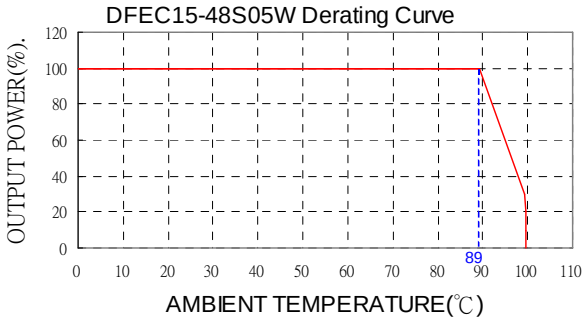
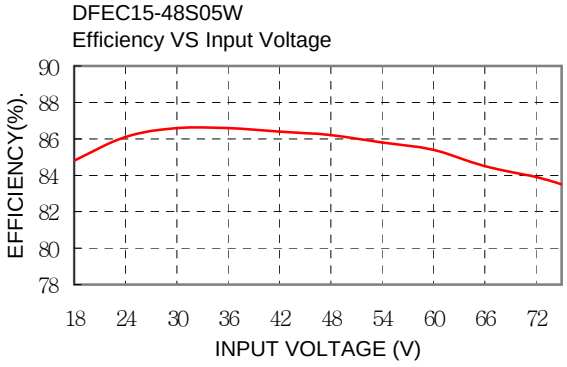
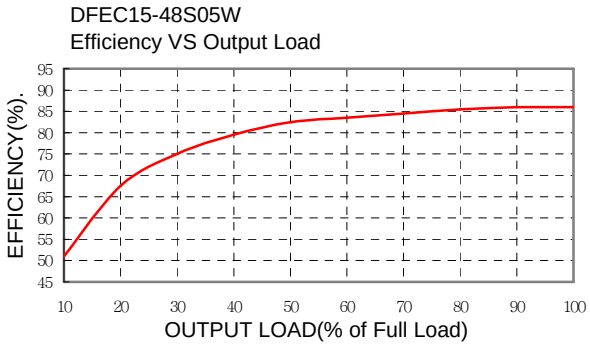
Model Number	Input Range	Output Voltage	Output Current		Output [3] Ripple & Noise	Input Current		Eff [3] (%)	Capacitor [6] Load max
			Min. load	Full load		No Load [4]	Full Load [5]		
DFEC15-24S3P3W	9.5 – 36 VDC	3.3 VDC	0mA	4500mA	50mVp-p	52mA	773mA	84	14700μF
DFEC15-24S05W	9.5– 36 VDC	5 VDC	0mA	3000mA	50mVp-p	67mA	772mA	85	7200μF
DFEC15-24S5P1W	9.5 – 36 VDC	5.1 VDC	0mA	3000mA	50mVp-p	67mA	787mA	85	7200μF
DFEC15-24S12W	9.5– 36 VDC	12 VDC	0mA	1250mA	75mVp-p	26mA	772mA	85	1250μF
DFEC15-24S15W	9.5– 36 VDC	15 VDC	0mA	1000mA	75mVp-p	26mA	772mA	85	800μF
DFEC15-24D05W	9.5– 36 VDC	± 5 VDC	0mA	± 1500mA	75mVp-p	57mA	772mA	85	± 3600μF
DFEC15-24D12W	9.5– 36 VDC	± 12 VDC	0mA	± 625mA	75mVp-p	35mA	762mA	86	± 625μF
DFEC15-24D15W	9.5– 36 VDC	± 15 VDC	0mA	± 500mA	75mVp-p	35mA	762mA	86	± 400μF
DFEC15-48S3P3W	18 – 75 VDC	3.3 VDC	0mA	4500mA	50mVp-p	37mA	387mA	84	14700μF
DFEC15-48S05W	18 – 75 VDC	5 VDC	0mA	3000mA	50mVp-p	38mA	381mA	86	7200μF
DFEC15-48S5P1W	18 – 75 VDC	5.1 VDC	0mA	3000mA	50mVp-p	38mA	389mA	86	7200μF
DFEC15-48S12W	18 – 75 VDC	12 VDC	0mA	1250mA	75mVp-p	18mA	386mA	85	1250μF
DFEC15-48S15W	18 – 75 VDC	15 VDC	0mA	1000mA	75mVp-p	18mA	386mA	85	800μF
DFEC15-48D05W	18 – 75 VDC	± 5 VDC	0mA	± 1500mA	75mVp-p	37mA	381mA	86	± 3600μF
DFEC15-48D12W	18 – 75 VDC	± 12 VDC	0mA	± 625mA	75mVp-p	20mA	381mA	86	± 625μF
DFEC15-48D15W	18 – 75 VDC	± 15 VDC	0mA	± 500mA	75mVp-p	20mA	381mA	86	± 400μF

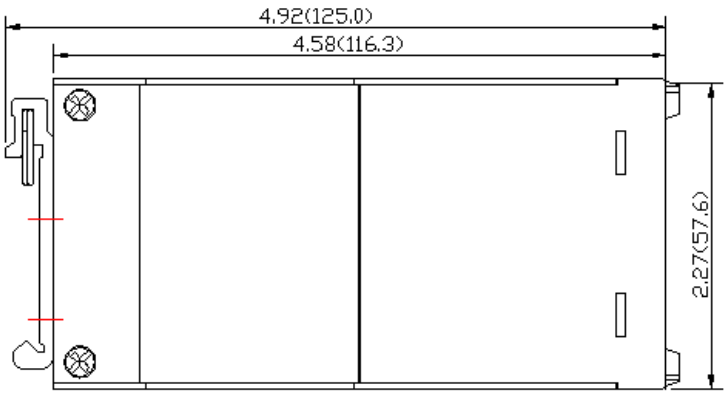
Note

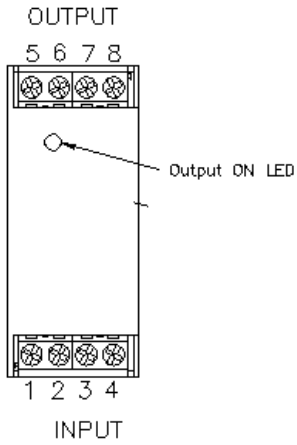
1. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40ºC.
   MIL-HDBK-217F Notice2 @Ta=25 ºC, Full load(Ground, Benign, controlled environment).
2. The ON/OFF control pin voltage is referenced to -Vin.
   To order positive logic ON/OFF control add the suffix-P (Ex:DFEC15-48S05W-P)
   To order negative logic ON/OFF control add the suffix-N (Ex:DFEC15-48S05W-N)
3. Typical value at nominal input voltage and full load.
4. Typical value at nominal input voltage and no load.
5. Maximum value at nominal input voltage and full load.
6. Test by minimum Vin and constant resistive load.

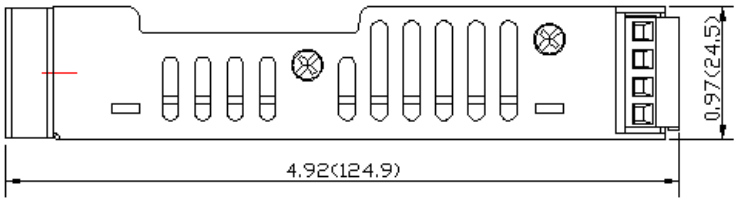












All dimensions in Inches (mm)
Tolerance: X.XX±0.04 (X.X±1.0)
X.XXX±0.02 (X.XX±0.5)

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

PIN CONNCECTION		
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