



FEATURES

- 30 WATTS MAXIMUM OUTPUT POWER
- OUTPUT CURRENT UP TO 8A
- STANDARD 2.00 X 1.60 X 0.40 INCH PACKAGE
- HIGH EFFICIENCY UP TO 88%
- 4:1 WIDE INPUT VOLTAGE RANGE
- SIX-SIDED CONTINUOUS SHIELD
- FIXED SWITCHING FREQUENCY
- OFFER SINGLE AND DUAL OUTPUT
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Measurement Equipment
Semiconductor Equipment

OPTIONS

Negative logic Remote On/Off

DESCRIPTION

The FEC30W series offer 30 watts of output power from a 2.00 x 1.60 x 0.40 inch package. The FEC30W series with 4:1 wide input voltage of 10~40VDC and 18~75VDC and features 1600VDC of isolation, short-circuit and over-voltage protection.

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	± 1%	
Minimum load	See Table	
Voltage adjustability	± 10%	
Line regulation	LL to HL at Full Load	± 0.5%
Load regulation	No Load to Full Load	Single ± 0.5% Dual ± 1%
Cross regulation (Dual)	Asymmetrical load 25% / 100% FL	± 5%
Ripple and noise	20MHz bandwidth (Measured with a 0.1µF/50V MLCC)	See table
Temperature coefficient	± 0.02% / °C, max.	
Transient response recovery time	25% load step change	250µs
Over voltage protection Zener diode clamp	1.5VDC output	3.9VDC
	1.8VDC output	3.9VDC
	2.5VDC output	3.9VDC
	3.3VDC output	3.9VDC
	5VDC output	6.2VDC
	12VDC output	15VDC
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 Case	1600VDC, min. 1minute
Isolation resistance	500VDC	10 ⁹ ohms, min.
Isolation capacitance	1000pF, max.	
Switching frequency	300kHz±10%.	
Safety approvals	IEC60950-1, UL60950-1, & EN60950-1	
Case material	Nickel-coated copper	
Base material	FR4 PCB	
Potting material	Epoxy (UL94 V-0)	
Dimensions	2.00 X 1.60 X 0.40 Inch (50.8 X 40.6 X 10.2 mm)	
Weight	48g (1.69oz)	
MTBF (Note 1)	MIL-HDBK-217F	7.598 x 10 ⁵ hrs

INPUT SPECIFICATIONS

Input voltage range	24VDC nominal input	10 – 40VDC
	48VDC nominal input	18 – 75VDC
Input filter	L-C type	
Input surge voltage	24VDC input	50VDC 100ms,max
	48VDC input	100VDC 100ms,max
Input reflected ripple current	20mA _{p-p}	
Start up time	Nominal input and constant resistive load	Power up Remote ON/OFF
		10ms 10ms
Start-up voltage	24VDC input	10VDC
	48VDC input	18VDC
Shutdown voltage	24VDC input	8VDC
	48VDC input	16VDC
Remote ON/OFF (Note 6) (Positive logic)(Standard)	DC-DC ON	Open or 3V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
(Negative logic)(Option)	DC-DC ON	Short or 0V < Vr < 1.2V
	DC-DC OFF	Open or 3V < 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 ~ +85°C (with derating)	
Maximum case temperature	100°C	
Over temperature protection	115°C.	
Storage temperature range	-55°C ~ +125°C	
Thermal impedance	Natural convection	10°C/Watt
(Note 7)	Natural convection with heat-sink	8.24°C/Watt
Thermal shock	MIL-STD-810F	
Vibration	MIL-STD-810F	
Relative humidity	5% to 95% RH	

EMC CHARACTERISTICS

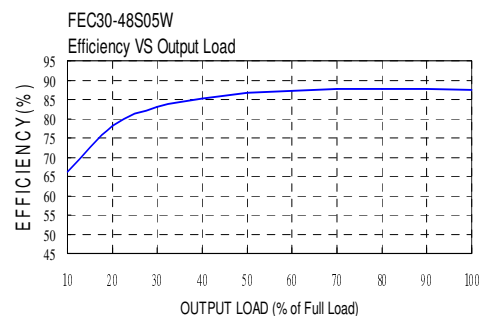
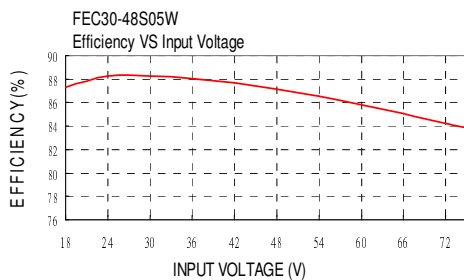
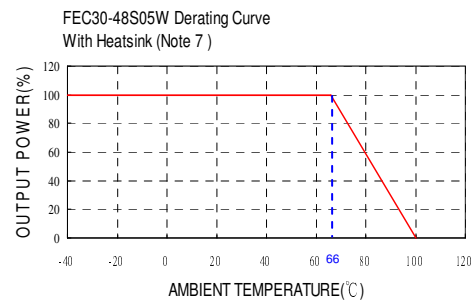
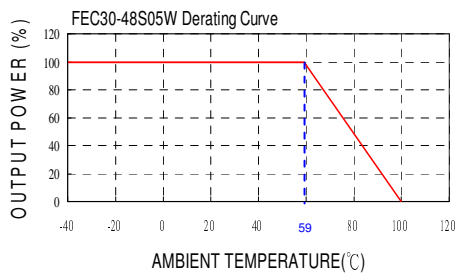
EMI (Note 8)	EN55022	Class A, Class B	
ESD	EN61000-4-2	Air Contact ± 8kV ± 6kV	Perf. Criteria B
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (Note 9)	EN61000-4-4	± 2kV	Perf. Criteria B
Surge (Note 9)	EN61000-4-5	± 1kV	Perf. Criteria B
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. 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				
FEC30-24S1P5W	10 ~ 40 VDC	1.5 VDC	0mA	8000mA	60mVp-p	35mA	80	65000μF
FEC30-24S1P8W	10 ~ 40 VDC	1.8 VDC	0mA	8000mA	60mVp-p	35mA	83	65000μF
FEC30-24S2P5W	10 ~ 40 VDC	2.5 VDC	0mA	8000mA	60mVp-p	40mA	85	33000μF
FEC30-24S3P3W	10 ~ 40 VDC	3.3 VDC	0mA	6000mA	60mVp-p	50mA	87	19500μF
FEC30-24S05W	10 ~ 40 VDC	5 VDC	0mA	6000mA	75mVp-p	65mA	87	10200μF
FEC30-24S12W	10 ~ 40 VDC	12 VDC	0mA	2500mA	100mVp-p	65mA	87	3300μF
FEC30-24S15W	10 ~ 40 VDC	15 VDC	0mA	2000mA	100mVp-p	70mA	88	1100μF
FEC30-24D12W	10 ~ 40 VDC	±12VDC	0mA	±1250mA	100mVp-p	30mA	84	±1000μF
FEC30-24D15W	10 ~ 40 VDC	±15VDC	0mA	±1000mA	100mVp-p	35mA	85	±680μF
FEC30-48S1P5W	18 ~ 75 VDC	1.5 VDC	0mA	8000mA	60mVp-p	20mA	80	65000μF
FEC30-48S1P8W	18 ~ 75 VDC	1.8 VDC	0mA	8000mA	60mVp-p	20mA	83	65000μF
FEC30-48S2P5W	18 ~ 75 VDC	2.5 VDC	0mA	8000mA	60mVp-p	25mA	86	33000μF
FEC30-48S3P3W	18 ~ 75 VDC	3.3 VDC	0mA	6000mA	60mVp-p	30mA	87	19500μF
FEC30-48S05W	18 ~ 75 VDC	5 VDC	0mA	6000mA	75mVp-p	30mA	88	10200μF
FEC30-48S12W	18 ~ 75 VDC	12 VDC	0mA	2500mA	100mVp-p	35mA	87	3300μF
FEC30-48S15W	18 ~ 75 VDC	15 VDC	0mA	2000mA	100mVp-p	45mA	88	1100μF
FEC30-48D12W	18 ~ 75 VDC	±12VDC	0mA	±1250mA	100mVp-p	25mA	85	±1000μF
FEC30-48D15W	18 ~ 75 VDC	±15VDC	0mA	±1000mA	100mVp-p	25mA	86	±680μF

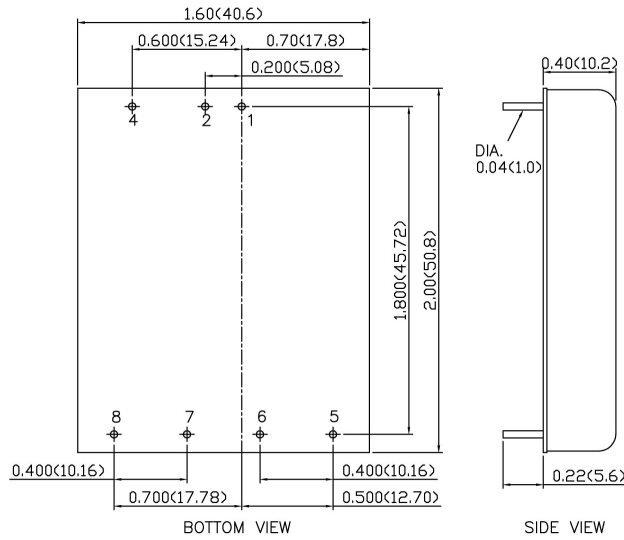
Note

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. The CTRL pin voltage is referenced to -INPUT.
To order negative logic ON-OFF control add the suffix-N (Ex: FEC30-24S05W-N).
7. Heat-sink is optional and P/N: 7G-0011C-F.
8. The FEC30W series standard module meets EN55022 Class A and Class B with external components.
For more detail information, please contact with P-DUKE.
9. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220μF/100V.

CAUTION: This power module is not internally fused. An input line fuse must always be used.



MECHANICAL DRAWING



1. All dimensions in Inch (mm)
Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01 (0.25)
3. Pin dimension tolerance ±0.004 (0.1)

PIN CONNECTION		
PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
4	CTRL	CTRL
5	NO PIN	+ OUTPUT
6	+ OUTPUT	COMMON
7	- OUTPUT	- OUTPUT
8	TRIM	TRIM

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.
() FOR DUAL OUTPUT TRIM

