



FEATURES

- 20 WATTS MAXIMUM OUTPUT POWER
- OUTPUT CURRENT UP TO 5.5A
- STANDARD 2.00 X 1.00 X 0.40 INCH PACKAGE
- HIGH EFFICIENCY UP TO 89%
- 4:1 ULTRA WIDE INPUT VOLTAGE RANGE
- SIX-SIDED CONTINUOUS SHIELD
- FIXED SWITCHING FREQUENCY
- CE MARK MEETS 2006/95/EC, 93/68/EEC AND 2004/108/EC
- UL60950-1, EN60950-1 AND IEC60950-1 LICENSED
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

APPLICATIONS

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

OPTIONS

Negative logic Remote On/Off

DESCRIPTION

The FED20W series offer 20 watts of output power from a 2.00 x 1.00 x 0.40 inch package. The FED20W series with 4:1 ultra wide input voltage of 9~36 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	20 Watts, max.		
Voltage accuracy	± 1%		
Minimum load	0%		
Voltage adjustability	Single output	± 10%	
Line regulation	LL to HL at Full Load	Single	± 0.2%
		Dual	± 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	3.3VDC output	3.9VDC	
	5VDC output	6.2VDC	
Zener diode clamp	12VDC output	15VDC	
	15VDC output	18VDC	
Over load protection	% of FL at nominal input	150%	
Short circuit protection	Hiccup, automatic recovery		

GENERAL SPECIFICATIONS			
Efficiency	See table		
Isolation voltage	Input to Output	1600VDC, min. 1minute	
	Input(Output) to case	1600VDC, min. 1minute	
Case grounding	Connect case to -INPUT with decoupling Y Cap		
Isolation resistance	10 ⁹ ohms, min.		
Isolation capacitance	1500pF, max.		
Switching frequency	400KHz±10%.		
Approvals and standard	IEC60950-1, UL60950-1, EN60950-1		
Case material	Nickel-coated copper		
Base material	FR4 PCB		
Potting material	Epoxy (UL94-V0)		
Dimensions	2.00 X 1.00 X 0.40 Inch (50.8X 25.4 X 10.2 mm)		
Weight	27g (0.95oz)		
MTBF (Note 1)	BELLCORE TR-NWT-000332	1.620 x 10 ⁶ hrs	
	MIL-HDBK-217F	6.590 x 10 ⁵ hrs	

INPUT SPECIFICATIONS			
Input voltage range	24VDC nominal input	9 ~ 36VDC	
	48VDC nominal input	18 ~ 75VDC	
Input filter	Pi 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	20mS.
		Remote ON/OFF	20mS.
Start-up voltage	24VDC input	9VDC	
	48VDC input	18VDC	
Shutdown voltage	24VDC input	7.5VDC	
	48VDC input	15VDC	
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
		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	2.5mA	

ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature	-40°C ~ +66°C (without derating)		
	+66°C ~ +105°C (with derating)		
Maximum case temperature	105°C		
Storage temperature range	-55°C ~ +125°C		
Thermal impedance (Note 7)	Natural convection		12°C/Watt
	Natural convection with heat-sink		10°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	
ESD	EN61000-4-2	Air	± 8KV
		Contact	± 6KV
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 A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A





Model Number	Input Range	Output Voltage	Output Current		Output ⁽⁴⁾ Ripple & Noise	Input Current		Eff ⁽⁴⁾ (%)	Capacitor ⁽⁵⁾ Load max
			Min. load	Full load		No Load ⁽³⁾	Full Load ⁽²⁾		
FED20-24S3P3W	9 ~ 36 VDC	3.3 VDC	0mA	5500mA	60mVp-p	50mA	934mA	85	18000μF
FED20-24S05W	9 ~ 36 VDC	5 VDC	0mA	4000mA	75mVp-p	65mA	992mA	88	9600μF
FED20-24S12W	9 ~ 36 VDC	12 VDC	0mA	1670mA	75mVp-p	22mA	1018mA	86	1650μF
FED20-24S15W	9 ~ 36 VDC	15 VDC	0mA	1330mA	75mVp-p	22mA	1014mA	86	1050μF
FED20-24D05W	9 ~ 36 VDC	±5 VDC	0mA	±2000mA	100mVp-p	55mA	992mA	88	±4800μF
FED20-24D12W	9 ~ 36 VDC	±12 VDC	0mA	±833mA	100mVp-p	30mA	1004mA	87	±825μF
FED20-24D15W	9 ~ 36 VDC	±15 VDC	0mA	±667mA	100mVp-p	30mA	1005mA	87	±525μF
FED20-48S3P3W	18 ~ 75 VDC	3.3 VDC	0mA	5500mA	60mVp-p	35mA	467mA	85	18000μF
FED20-48S05W	18 ~ 75 VDC	5 VDC	0mA	4000mA	75mVp-p	35mA	496mA	88	9600μF
FED20-48S12W	18 ~ 75 VDC	12 VDC	0mA	1670mA	75mVp-p	15mA	503mA	87	1650μF
FED20-48S15W	18 ~ 75 VDC	15 VDC	0mA	1330mA	75mVp-p	15mA	501mA	87	1050μF
FED20-48D05W	18 ~ 75 VDC	±5 VDC	0mA	±2000mA	100mVp-p	35mA	490mA	89	±4800μF
FED20-48D12W	18 ~ 75 VDC	±12 VDC	0mA	±833mA	100mVp-p	17mA	496mA	88	±825μF
FED20-48D15W	18 ~ 75 VDC	±15 VDC	0mA	±667mA	100mVp-p	17mA	496mA	88	±525μF

Note:

- BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C.
MIL-HDBK-217F Notice2 @ Ta=25 °C, Full load(Ground, Benign, controlled environment)
- Maximum value at nominal input and full load.
- Typical value at nominal input and no load.
- Typical value at nominal input and full load.
- Test by minimum input and constant resistive load.
- The ON/OFF control pin voltage is referenced to -INPUT
To order negative logic ON/OFF control add the suffix-N (Ex: FED20-48S05W-N)
- Heat-sink is optional and P/N: 7G-0020C-F.
- The FED20W series can meet EN55022 Class A with parallel an external capacitor to the input pins.
Recommend : 24VDC input : NA.
48VDC input : 1μF/100V 1210 MLCC.
- 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, 220 μF/100V, ESR 48mΩ.

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



