



**SAFETY APPROVAL PENDING**

- 20 WATTS MAXIMUM OUTPUT POWER
- 2:1 WIDE INPUT VOLTAGE RANGE
- INTERNATIONAL SAFETY STANDARD DESIGNED
- SIX-SIDED CONTINUOUS SHIELD
- HIGH EFFICIENCY UP TO 88%
- STANDARD 2" X 1" X 0.4" PACKAGE
- FIXED SWITCHING FREQUENCY

The FED20 offer 20 Watts of output power from a 2 x 1 x 0.4 inch package without derating to 71°C. The FED20 series with 2:1 wide input voltage of 18-36 and 36-75VDC and features 1600VDC of isolation, short-circuit and over-voltage protection, as well as six sided shielding. The safety design meets the EN60950 and UL1950. All models are particularly suited to telecommunications, industrial, mobile telecom and test equipment applications.

## TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25°C otherwise noted

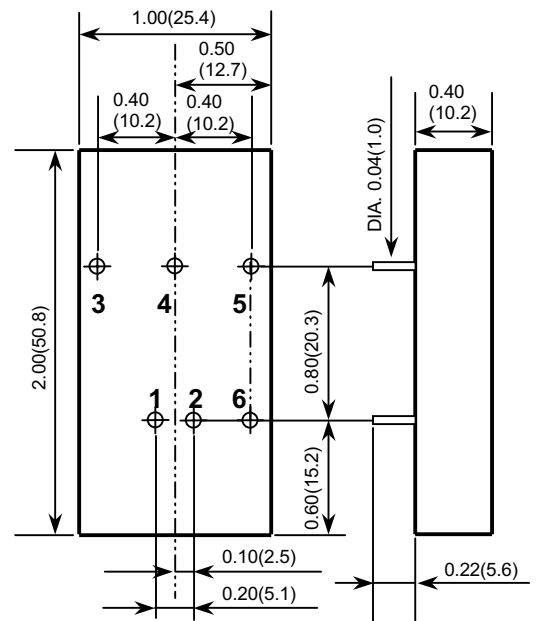
OUTPUT SPECIFICATIONS		
Output Power		20 Watts max
Voltage accuracy	Full load and nominal Vin	± 1%
Voltage adjustability		± 10%
Minimum load(Note1)		10% of FL
Line regulation	LL to HL at FL	± 0.2%
Load regulation	10% to 100% FL	± 0.5%
Ripple and noise	20MHz bandwidth (Measured with a 104pF/50V MLCC)	75mVp-p
Temperature coefficient		± 0.02% / °C, max
Transient response recovery time	25% load step change	300uS
Over voltage protection	1.5V output	TBD
Zener diode clamp	1.8V output	TBD
	2.5V output	3.6V
	3.3V output	3.9V
	5V output	6.2V
Over load protection	% of full load at nominal Vin	150% typ
Short circuit protection		Hiccup, automatics recovery
INPUT SPECIFICATIONS		
Input voltage range	24V nominal input	18 – 36VDC
	48V nominal input	36 – 75VDC
Input filter		L-C type
Input surge voltage	24V input	50VDC
100mS max	48V input	100VDC
Input reflected ripple current	Nominal Vin and full load	100mA pk-pk
Start up time	Nominal Vin and constant resistor load	20mS
Remote ON/OFF (Note2)	DC-DC ON	Open or 3.5V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
Remote off input current	Nominal Vin	2.5mA

GENERAL SPECIFICATIONS		
Efficiency		See table
Isolation Voltage		1600VDC
Isolation resistance		10 <sup>9</sup> ohms
Isolation capacitance		1000pF
Switching frequency		300 KHz
Design meet safety standard		UL1950, EN60950
Case material		Nickel-coated copper
Base material		Non-conducted black plastic
Potting material		Epoxy (UL94-V0)
Weight		27g (0.95 oz)
Dimensions		2.00 x 1.00 x 0.4 Inches (50.8 x 25.4 x 10.2 mm)
MTBF	MIL-HDBK-217F, TA=25°C full load	3.369 x 10 <sup>3</sup> hrs
ENVIRONMENTAL SPECIFICATIONS		
Operation temperature range		-40°C to +85°C (with derating)
Maximum case temperature		+100°C
Storage temperature range		-55°C to +105°C
Thermal impedance(Note3)	Nature convection	12°C/Watt
Thermal shock		MIL-STD-810D
Vibration	10~55Hz, 2G, 3minutes period, 30minutes along X, Y and Z	
Relative humidity		5% to 95% RH
EMC CHARACTERISTICS		
Conducted emissions	EN55022	Level A
Radiated emissions	EN55022	Level A
Conducted immunity	EN61000-4-6	Perf. Criteria2
Radiated immunity	EN61000-4-3	Perf. Criteria2
Surge	EN61000-4-5	Perf. Criteria2
Fast transient	EN61000-4-4	Perf. Criteria2
ESD	EN61000-4-2	Perf. Criteria2

Model Number	Input Range	Output Voltage	Output Current	Input Current <sup>(4)</sup>	Eff <sup>(5)</sup> (%)	Capacitor Load max.
FED20-24S1P5	18 – 36 VDC	1.5 VDC	6000mA	0.500A	79	65000 uF
FED20-24S1P8	18 – 36 VDC	1.8 VDC	6000mA	0.577A	82	65000 uF
FED20-24S2P5	18 – 36 VDC	2.5 VDC	6000mA	0.781A	84	33000 uF
FED20-24S3P3	18 – 36 VDC	3.3 VDC	5000mA	0.838A	86	13000 uF
FED20-24S05	18 – 36 VDC	5 VDC	4000mA	0.992A	88	6800 uF
FED20-48S1P5	36 – 75 VDC	1.5 VDC	6000mA	0.247A	80	65000 uF
FED20-48S1P8	36 – 75 VDC	1.8 VDC	6000mA	0.285A	83	65000 uF
FED20-48S2P5	36 – 75 VDC	2.5 VDC	6000mA	0.386A	85	33000 uF
FED20-48S3P3	36 – 75 VDC	3.3 VDC	5000mA	0.414A	87	13000 uF
FED20-48S05	36 – 75 VDC	5 VDC	4000mA	0.490A	89	6800 uF

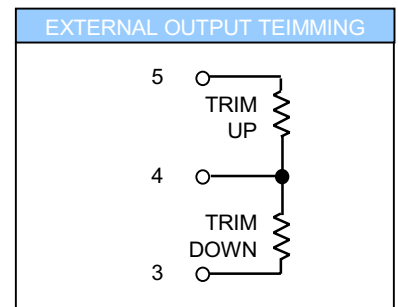
**Note**

- The FED20 series required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification
- The ON/OFF control function. There are positive logic (standard) and negative logic (option). The pin voltage is referenced to negative input  
To order negative logic ON-OFF control add the suffix ' N ' (Ex: FED20-24S05N)
- Heat sink is optional and P/N: 7G-0020, Thermal impedance is 10°C/Watt for natural convection
- Maximum value at nominal input voltage and full load
- Typical value at nominal input voltage and full load

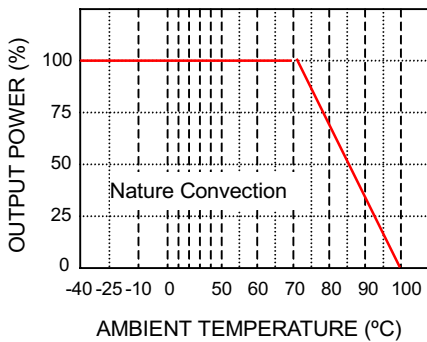


Note: 1. All dimensions in Inches (mm)  
2. Pin Pitch tolerance ±0.5mm

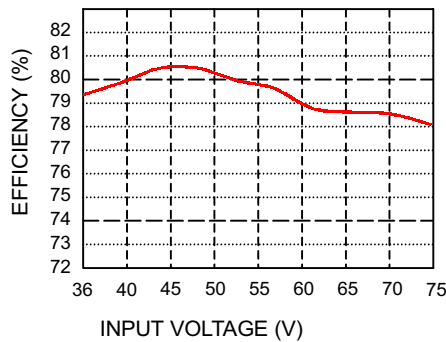
PIN CONNECTION	
PIN	DEFINE
1	+ INPUT
2	- INPUT
3	+ OUTPUT
4	TRIM
5	- OUTPUT
6	CTRL



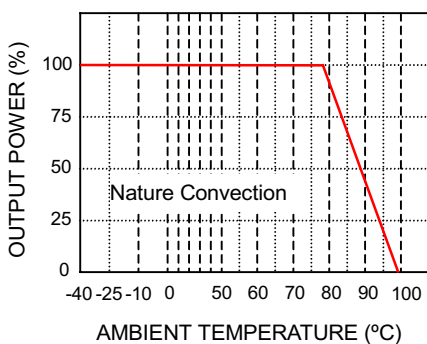
FED20-48S1P5  
Derating Curve without Heat-Sink



FED20-48S1P5  
Efficiency VS Input voltage



FED20-48S1P5 (Note3)  
Derating Curve with Heat-Sink



FED20-48S1P5  
Efficiency VS Output load

