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DC–DC

8–15 Watts

JTF Series

xppower.com



- High Power Density
- Wide 4:1 Input Range
- Operating Temperature –40 °C to +85 °C
- Single & Dual Outputs
- Standard Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

Specification

Input

Input Voltage Range	• 24 V (9-36 VDC) 48 V (18-75 VDC)
Input Current	• See table
Input Filter	• Pi network
Input Reflected Ripple Current	• 20 mA pk-pk through 12 µH inductor and 47 µF capacitor, 5 Hz to 20 MHz
Input Surge	• 24 V models: 50 VDC for 100 ms (1 second for 12 W versions) 48 V models: 100 VDC for 100 ms (1 second for 12 W versions)

Output

Output Voltage	• See table
Minimum Load	• No minimum load required
Initial Set Accuracy	• ±1.0% max for JTF15, ±1.2% for others
Start Up Delay	• 20 ms typical
Line Regulation	• ±0.2% max single, ±0.5% dual
Load Regulation	• ±0.5% max single, ±1.0% max dual
Cross Regulation	• ±5% on dual output models (see note 2)
Transient Response	• <3% max deviation, recovery to within 1% in 250 µs for a 25% load change
Ripple & Noise	• 85 mV pk-pk, 20 MHz bandwidth for JTF08, JTF10 and JTF12, 60 mV pk-pk 20 MHz bandwidth for JTF15 (see note 3)
Overload Protection	• 150% of full load typical for JTF08 & JTF15, 170% of full load typical for JTF10 & JTF12
Overvoltage Protection	• 3.3 V models: 3.9 V typical 5 V models: 6.2 V typical 12 V models: 15 V typical 15 V models: 18 V typical ±5 V models: ±6.2 V typical ±12 V models: ±15 V typical ±15 V models: ±18 V typical
Short Circuit Protection	• Trip & restart (hiccup) with auto recovery
Maximum Capacitive Load	• See table
Temperature Coefficient	• ±0.02/°C max
Remote On/Off	• On: 3 to 12 VDC or open circuit Off: <1.2 VDC or short circuit pins 1, 2 & 3

General

Efficiency	• See tables
Isolation	• 1600 VDC Input to Output 1600 VDC Input to Case 1600 VDC Output to Case
Isolation Capacitance	• 2000 pF max for JTF15, 1500 pF max for others
Switching Frequency	• 330 kHz typical for JTF15, 270 kHz typical for others
Power Density	• JTF08: 20 W/in^3, JTF10: 25 w/in^3, JTF12: 30 W/in^3, JTF15: 37.5 w/in^3,
MTBF	• >1 MHrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• -40 °C to +85 °C, derate from 100% load at +60 °C to no load at +105 °C for 10 W, 12 W and 15 W versions and from 100% load at 70 °C to no load at 105 °C for 8 W version
Case Temperature	• +105 °C max
Storage Temperature	• -40 °C to +125 °C
Humidity	• Up to 90%, non-condensing
Cooling	• Natural convection

EMC

Emissions	• EN55032 class A conducted with external components - see application note
ESD Immunity	• EN61000-4-2, level 3, Perf Criteria B
Radiated Immunity	• EN61000-4-3, 10 V/m Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria B*
Surge	• EN61000-4-5, level 2 Perf Criteria B*
Conducted Immunity	• EN61000-4-6, 10 Vrms Perf Criteria A*
Magnetic Field	• EN61000-4-8, 1 A/m Perf Criteria A

Safety

Safety Approvals	• UL60950-1 & UL62368-1 (JTF08, JTF10,and JTF12 only)

** External input capacitor required, 330 µF/100 V.*

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Models and Ratings

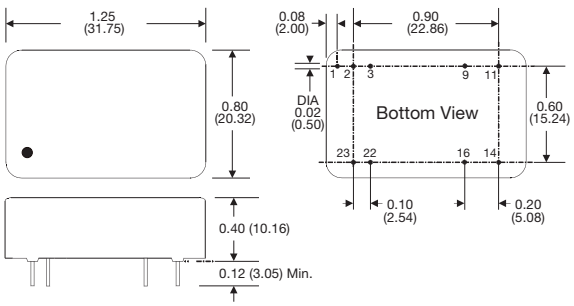
JTF08–15

Input Voltage	Output Voltage	Output Current	Input Current[1]		Max. Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-36 V	3.3 V	2.0 A	10 mA	335 mA	1330 µF	83%	JTF0824S3V3
	5.0 V	1.5 A	10 mA	365 mA	1330 µF	86%	JTF0824S05
	12.0 V	0.665 A	15 mA	385 mA	288 µF	87%	JTF0824S12
	15.0 V	0.535 A	15 mA	385 mA	200 µF	87%	JTF0824S15
	±5.0 V	±0.8 A	10 mA	400 mA	±900 µF	84%	JTF0824D05
	±12.0 V	±0.335 A	15 mA	390 mA	±133 µF	86%	JTF0824D12
	±15.0 V	±0.265 A	10 mA	385 mA	±90 µF	87%	JTF0824D15
18-75 V	3.3 V	2.0 A	10 mA	170 mA	1330 µF	82%	JTF0848S3V3
	5.0 V	1.5 A	10 mA	185 mA	1330 µF	86%	JTF0848S05
	12.0 V	0.665 A	10 mA	195 mA	288 µF	87%	JTF0848S12
	15.0 V	0.535 A	10 mA	195 mA	200 µF	87%	JTF0848S15
	±5.0 V	±0.8 A	10 mA	200 mA	±900 µF	84%	JTF0848D05
	±12.0 V	±0.335 A	10 mA	195 mA	±133 µF	87%	JTF0848D12
	±15.0 V	±0.265 A	10 mA	195 mA	±90 µF	87%	JTF0848D15
9-36 V	3.3 V	2.7 A	15 mA	440 mA	1330 µF	85%	JTF1024S3V3
	5.0 V	2.0 A	15 mA	475 mA	1330 µF	87%	JTF1024S05
	12.0 V	0.833 A	15 mA	475 mA	288 µF	88%	JTF1024S12
	15.0 V	0.667 A	15 mA	480 mA	200 µF	88%	JTF1024S15
	±5.0 V	±1.0 A	15 mA	495 mA	±900 µF	85%	JTF1024D05
	±12.0 V	±0.417 A	15 mA	480 mA	±133 µF	87%	JTF1024D12
	±15.0 V	±0.33 A	15 mA	480 mA	±90 µF	87%	JTF1024D15
18-75 V	3.3 V	2.7 A	15 mA	225 mA	1330 µF	84%	JTF1048S3V3
	5.0 V	2.0 A	15 mA	240 mA	1330 µF	87%	JTF1048S05
	12.0 V	0.833 A	15 mA	240 mA	288 µF	87%	JTF1048S12
	15.0 V	0.667 A	15 mA	240 mA	200 µF	87%	JTF1048S15
	±5.0 V	±1.0 A	15 mA	250 mA	±900 µF	85%	JTF1048D05
	±12.0 V	±0.417 A	15 mA	245 mA	±133 µF	88%	JTF1048D12
	±15.0 V	±0.33 A	15 mA	240 mA	±90 µF	88%	JTF1048D15
9-36 V	3.3 V	3.5 A	15 mA	573 mA	2000 µF	87%	JTF1224S3V3
	5.0 V	2.4 A	15 mA	581 mA	2000 µF	89%	JTF1224S05
	12.0 V	1.0 A	15 mA	574 mA	430 µF	90%	JTF1224S12
	15.0 V	0.8 A	15 mA	574 mA	300 µF	90%	JTF1224S15
	±5.0 V	±1.2 A	15 mA	595 mA	±1250 µF	87%	JTF1224D05
	±12.0 V	±0.5 A	15 mA	574 mA	±200 µF	90%	JTF1224D12
	±15.0 V	±0.4 A	15 mA	574 mA	±120 µF	90%	JTF1224D15
18-75 V	3.3 V	3.5 A	15 mA	286 mA	2000 µF	87%	JTF1248S3V3
	5.0 V	2.4 A	15 mA	290 mA	2000 µF	89%	JTF1248S05
	12.0 V	1.0 A	15 mA	287 mA	430 µF	90%	JTF1248S12
	15.0 V	0.8 A	15 mA	287 mA	300 µF	90%	JTF1248S15
	±5.0 V	±1.2 A	15 mA	297 mA	±1250 µF	87%	JTF1248D05
	±12.0 V	±0.5 A	15 mA	287 mA	±200 µF	90%	JTF1248D12
	±15.0 V	±0.4 A	15 mA	287 mA	±120 µF	90%	JTF1248D15
9-36 V	3.3 V	4.0 A	10 mA	647 mA	4700 µF	87%	JTF1524S3V3
	5.1 V	3.0 A	10 mA	732 mA	3300 µF	89%	JTF1524S05
	12.0 V	1.25 A	10 mA	710 mA	600 µF	90%	JTF1524S12
	15.0 V	1.0 A	10 mA	710 mA	400 µF	90%	JTF1524S15
	±5.0 V	±1.5 A	10 mA	744 mA	±1500 µF	86%	JTF1524D05
	±12.0 V	±0.625 A	10 mA	718 mA	±288 µF	89%	JTF1524D12
	±15.0 V	±0.5 A	10 mA	710 mA	±200 µF	90%	JTF1524D15
18-75 V	3.3 V	4.0 A	5 mA	327 mA	4700 µF	86%	JTF1548S3V3
	5.1 V	3.0 A	5 mA	370 mA	3300 µF	88%	JTF1548S05
	12.0 V	1.25 A	5 mA	355 mA	600 µF	90%	JTF1548S12
	15.0 V	1.0 A	5 mA	359 mA	400 µF	89%	JTF1548S15
	±5.0 V	±1.5 A	5 mA	372 mA	±1500 µF	86%	JTF1548D05
	±12.0 V	±0.625 A	5 mA	359 mA	±288 µF	89%	JTF1548D12
	±15.0 V	±0.5 A	5 mA	355 mA	±200 µF	90%	JTF1548D15

Notes

1. *Input current measured at nominal 24 V and 48 V input.*
2. *When one output is set to 100% load & the other varies between 25% & 100% load.*
3. *Measured with 1 µF ceramic capacitor across output rails.*

Mechanical Details



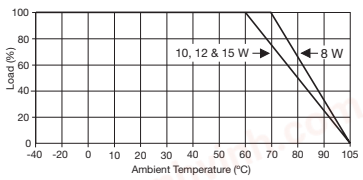
Notes

1. All dimensions are in inches (mm)
2. Weight: 0.04 lbs (18 g). 15W: 0.04 (20 g)
3. Pin diameter: 0.02 ±0.002 (0.5 ±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)
6. Package: 24 pin DIL nickel-coated copper.

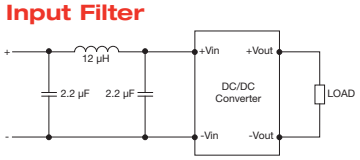
Pin Connections		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
3	-Vin	-Vin
9	No Pin	Common
11	Not Connected	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

Application Notes

Derating Curve



Input Filter



Remote On/Off

Standard ROF logic is positive
Output On: 3 to 12 VDC or open circuit
Output Off: <1.2 VDC or short circuit pins 1, 2 & 3