



**THE DATASHEET OF
JTF1224S05**



JTF Series



- High Power Density
- Wide 4:1 Input Range
- Operating Temperature $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$
- Single & Dual Outputs
- Standard Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

Specification

Input

Input Voltage Range	<ul style="list-style-type: none"> • 24 V (9-36 VDC) • 48 V (18-75 VDC)
Input Current	<ul style="list-style-type: none"> • See table
Input Filter	<ul style="list-style-type: none"> • Pi network
Input Reflected Ripple Current	<ul style="list-style-type: none"> • 20 mA pk-pk through 12 μH inductor and 47 μF capacitor, 5 Hz to 20 MHz
Input Surge	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • See table
Minimum Load	<ul style="list-style-type: none"> • No minimum load required
Initial Set Accuracy	<ul style="list-style-type: none"> • $\pm 1.0\%$ max for JTF15, $\pm 1.2\%$ for others
Start Up Delay	<ul style="list-style-type: none"> • 20 ms typical
Line Regulation	<ul style="list-style-type: none"> • $\pm 0.2\%$ max single, $\pm 0.5\%$ dual
Load Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max single, $\pm 1.0\%$ max dual
Cross Regulation	<ul style="list-style-type: none"> • $\pm 5\%$ on dual output models (see note 2)
Transient Response	<ul style="list-style-type: none"> • $< 3\%$ max deviation, recovery to within 1% in 250 μs for a 25% load change
Ripple & Noise	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 150% of full load typical for JTF08 & JTF15, 170% of full load typical for JTF10 & JTF12
Overvoltage Protection	<ul style="list-style-type: none"> • 3.3V models: 3.9 V typical • 5V models: 6.2 V typical • 12 V models: 15 V typical • 15 V models: 18 V typical • $\pm 5\text{ V}$ models: $\pm 6.2\text{ V}$ typical • $\pm 12\text{ V}$ models: $\pm 15\text{ V}$ typical • $\pm 15\text{ V}$ models: $\pm 18\text{ V}$ typical
Short Circuit Protection	<ul style="list-style-type: none"> • Trip & restart (hiccup) with auto recovery
Maximum Capacitive Load	<ul style="list-style-type: none"> • See table
Temperature Coefficient	<ul style="list-style-type: none"> • $\pm 0.02/^{\circ}\text{C}$ max
Remote On/Off	<ul style="list-style-type: none"> • On: 3 to 12 VDC or open circuit • Off: $< 1.2\text{ VDC}$ or short circuit pins 1, 2 & 3

General

Efficiency	<ul style="list-style-type: none"> • See tables
Isolation	<ul style="list-style-type: none"> • 1600 VDC Input to Output • 1600 VDC Input to Case • 1600 VDC Output to Case
Isolation Capacitance	<ul style="list-style-type: none"> • 2000 pF max for JTF15, 1500 pF max for others
Switching Frequency	<ul style="list-style-type: none"> • 330 kHz typical for JTF15, 270 kHz typical for others
Power Density	<ul style="list-style-type: none"> • JTF08: 20 W/in³, JTF10: 25 w/in³, JTF12: 30 W/in³, JTF15: 37.5 w/in³,
MTBF	<ul style="list-style-type: none"> • $> 1\text{ Mhrs}$ to MIL-HDBK-217F at 25 $^{\circ}\text{C}$, GB

Environmental

Operating Temperature	<ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$, derate from 100% load at $+60\text{ }^{\circ}\text{C}$ to no load at $+105\text{ }^{\circ}\text{C}$ for 10 W, 12 W and 15 W versions and from 100% load at 70 $^{\circ}\text{C}$ to no load at 105 $^{\circ}\text{C}$ for 8 W version
Case Temperature	<ul style="list-style-type: none"> • $+105\text{ }^{\circ}\text{C}$ max
Storage Temperature	<ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$
Humidity	<ul style="list-style-type: none"> • Up to 90%, non-condensing
Cooling	<ul style="list-style-type: none"> • Natural convection

EMC

Emissions	<ul style="list-style-type: none"> • EN55032 class A conducted with external components - see application note
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, level 3, Perf Criteria B
Radiated Immunity	<ul style="list-style-type: none"> • EN61000-4-3, 10 V/m Perf Criteria A
EFT/Burst	<ul style="list-style-type: none"> • EN61000-4-4, level 3 Perf Criteria B*
Surge	<ul style="list-style-type: none"> • EN61000-4-5, level 2 Perf Criteria B*
Conducted Immunity	<ul style="list-style-type: none"> • EN61000-4-6, 10 Vrms Perf Criteria A*
Magnetic Field	<ul style="list-style-type: none"> • EN61000-4-8, 1 A/m Perf Criteria A

Safety

Safety Approvals	<ul style="list-style-type: none"> • UL60950-1 & UL62368-1 (JTF08, JTF10, and JTF12 only)
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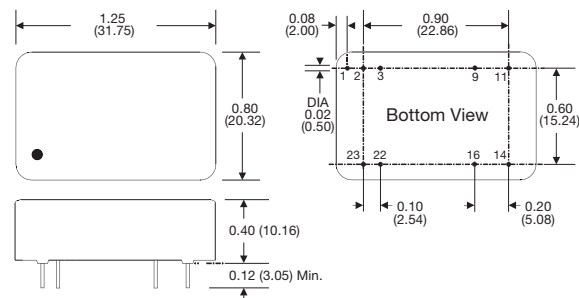
* External input capacitor required, 330 $\mu\text{F}/100\text{ V}$.

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



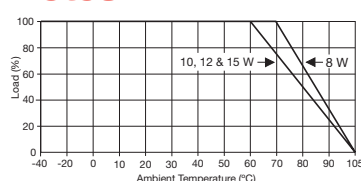
Notes

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.

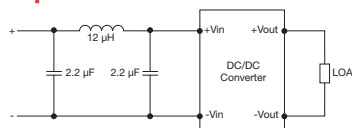
Pin	Pin Connections	
	Single	Dual
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
3	-Vin	-Vin
9	No Pin	Common
11	Not Connected	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

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







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