

8W

Convection cooled

DC-DC converters



The JTF08 series is housed in a DIP24 metal case. Featuring a 4:1 input voltage range of 9 to 36VDC or 18 to 75VDC with both single and dual outputs, singles have 3.3, 5, 12 or 15VDC with duals having ± 5 , ± 12 or ± 15 VDC. Single output models are adjustable $\pm 10\%$ with a trim resistor.

The JTF08 provides 1.6kVDC isolation between input and output. Remote on/off is standard. Operating temperature range is from -40°C to $+85^{\circ}\text{C}$, with full power to $+60^{\circ}\text{C}$.



Features

- ▶ Regulated single & dual outputs
- ▶ 4:1 input range
- ▶ Single outputs 3.3 to 15VDC
- ▶ Dual outputs ± 5.0 to ± 15 VDC
- ▶ DIP24 metal case
- ▶ 1.6kVDC isolation
- ▶ Remote On/Off
- ▶ -40°C to $+85^{\circ}\text{C}$ operating temperature
- ▶ Full power to $+60^{\circ}\text{C}$
- ▶ 3 year warranty

Applications



Autonomous equipment



Industrial



Technology



Instrumentation



Robotics

Dimensions

31.75 x 20.32 x 10.16mm (1.25" x 0.8" 0.4")

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Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Maximum capacitive load
					No load	Full load	
JTF0824S3V3	9-36VDC	3.3VDC	2.0A	83%	10mA	335mA	1330 μF
JTF0824S05		5.0VDC	1.5A	86%	10mA	365mA	1330 μF
JTF0824S12		12.0VDC	0.665A	87%	15mA	385mA	288 μF
JTF0824S15		15.0VDC	0.535A	87%	15mA	385mA	200 μF
JTF0824D05		± 5.0 VDC	± 0.8 A	84%	10mA	400mA	$\pm 900\mu\text{F}$
JTF0824D12		± 12.0 VDC	± 0.335 A	86%	15mA	390mA	$\pm 133\mu\text{F}$
JTF0824D15		± 15.0 VDC	± 0.265 A	87%	10mA	385mA	$\pm 90\mu\text{F}$

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Notes:

1. Input current measured at nominal 24V and 48V 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.

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Maximum capacitive load
					No load	Full load	
JTF0848S3V3	18-75VDC	3.3VDC	2.7A	84%	15mA	225 mA	1330 μ F
JTF0848S05		5.0VDC	2.0A	87%	15mA	240 mA	1330 μ F
JTF0848S12		12.0VDC	0.833A	87%	15mA	240 mA	288 μ F
JTF0848S15		15.0VDC	0.667A	87%	15mA	240 mA	200 μ F
JTF0848D05		\pm 5.0VDC	\pm 1.0A	85%	15mA	250 mA	\pm 900 μ F
JTF0848D12		\pm 12.0VDC	\pm 0.417A	88%	15mA	245 mA	\pm 133 μ F
JTF0848D15		\pm 15.0VDC	\pm 0.33A	88%	15mA	240 mA	\pm 90 μ F

Notes:

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

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output	1600			VDC	
Isolation: input to case	1600			VDC	
Isolation: output to case	1600			VDC	
Isolation capacitance		1500		pF	
Switching frequency		270		kHz	
Power density		1.2 (20.0)		W/cm ³ (W/in ³)	
Mean time between failure		>1		MHrs	MIL-HDBK-217F, +25°C GB

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	24VDC nominal
	18		75		48VDC nominal
Input current	See models & ratings table				
Input filter	Pi network				
Input reflected ripple current		20		mA	12μH inductor and 47μF capacitor, 5Hz to 20MHz
Input surge		50		VDC	24VDC models (for 1s)
		100			48VDC models (for 1s)

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Minimum load	0			%	No minimum load required
Initial set accuracy		±1.2		%	
Line regulation			±0.2	%	Single output
			±0.5		Dual outputs
Load regulation			±0.5	%	Single output
			±1		Dual outputs
Cross regulation		±5		%	Dual outputs
Transient response			<3	%	Deviation, recovery to within 1% in <250µs for a 25% load change
Start up time		20		ms	
Ripple & noise		85		mV pk-pk	20MHz bandwidth
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Temperature coefficient		±0.02		%/ °C	
Overload protection		150		%	Full load
Remote on/off	On = 3 to 12VDC or open circuit				
	Off = (<1.2VDC) or short circuit pin 1,2 & 3				
Overvoltage protection		3.9		VDC	3.3VDC models
		6.2			5VDC models
		15			12VDC models
		18			15VDC models
		±6.2			±5VDC models
		±15			±12VDC models
		±18			±15VDC models
Maximum capacitive load	See models and ratings table				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	Derate from 100% load at +60°C to no load at +100°C, see derating curve
Storage temperature	-40		+125	°C	
Case temperature			+105	°C	
Cooling	Natural cooled				
Operating humidity			90	%	RH, non condensing

Safety approvals

Safety agency	Standard	Notes & conditions
UL	UL60950-1 & UL62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

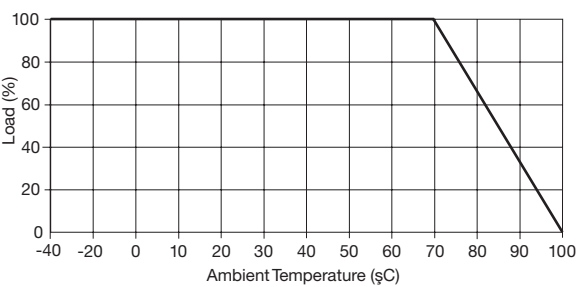
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	With external components
Radiated	EN55032	Class A	

Immunity - EMC

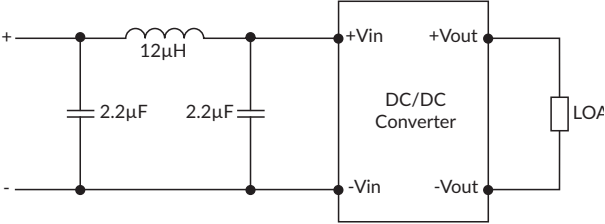
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	Level 3	B	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	3	B	External input capacitor required, 330µF/100V.
Surge	EN61000-4-5	2	B	External input capacitor required, 330µF/100V.
Conducted immunity	EN61000-4-6	10Vrms	A	External input capacitor required, 330µF/100V.
Magnetic fields	EN61000-4-8	1A/m	A	

Application notes

Derating curve



Input filter



Remote on/off

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

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

1. All dimensions are in inches (mm)
2. Weight: 18g (0.04lb). 15W:20g (0.04)
3. Pin diameter: 0.5 ±0.05 (0.02 ±0.002)

4. Pin pitch tolerance: ± 0.35 (± 0.014)
5. Case tolerance: ± 0.5 (± 0.02)
6. Package: 24 pin DIL nickel-coated copper.