

**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  $\pm 5$ ,  $\pm 12$  or  $\pm 15$ VDC. Single output models are adjustable  $\pm 10\%$  with a trim resistor.

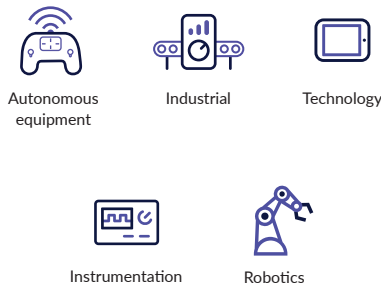


The JTF08 provides 1.6kVDC isolation between input and output. Remote on/off is standard. Operating temperature range is from  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ , with full power to  $+60^{\circ}\text{C}$ .

## Features

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

## Applications



## Dimensions

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

## Models & ratings

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

## Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current <sup>(1)</sup>		Maximum capacitive load
					No load	Full load	
JTF0848S3V3	18-75VDC	3.3VDC	2.7A	84%	15mA	225 mA	1330 $\mu$ F
JTF0848S05		5.0VDC	2.0A	87%	15mA	240 mA	1330 $\mu$ F
JTF0848S12		12.0VDC	0.833A	87%	15mA	240 mA	288 $\mu$ F
JTF0848S15		15.0VDC	0.667A	87%	15mA	240 mA	200 $\mu$ F
JTF0848D05		$\pm$ 5.0VDC	$\pm$ 1.0A	85%	15mA	250 mA	$\pm$ 900 $\mu$ F
JTF0848D12		$\pm$ 12.0VDC	$\pm$ 0.417A	88%	15mA	245 mA	$\pm$ 133 $\mu$ F
JTF0848D15		$\pm$ 15.0VDC	$\pm$ 0.33A	88%	15mA	240 mA	$\pm$ 90 $\mu$ 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 $\mu$ 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 <sup>3</sup> (W/in <sup>3</sup> )	
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	12 $\mu$ H inductor and 47 $\mu$ F 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

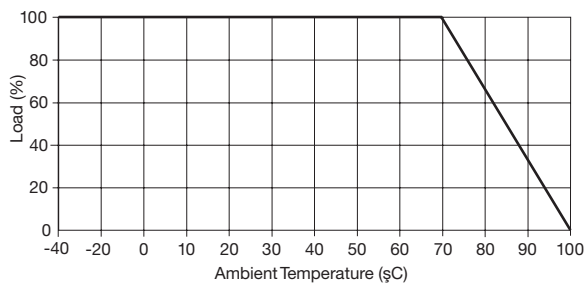
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	With external components
Radiated	EN55032	Class A	

## Immunity - EMC

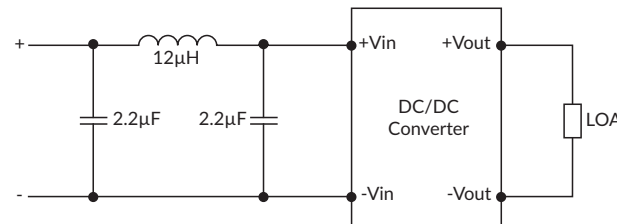
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	Level 3	B	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	3	B	External input capacitor required, 330 $\mu$ F/100V.
Surge	EN61000-4-5	2	B	External input capacitor required, 330 $\mu$ F/100V.
Conducted immunity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

## Application notes

### Derating curve



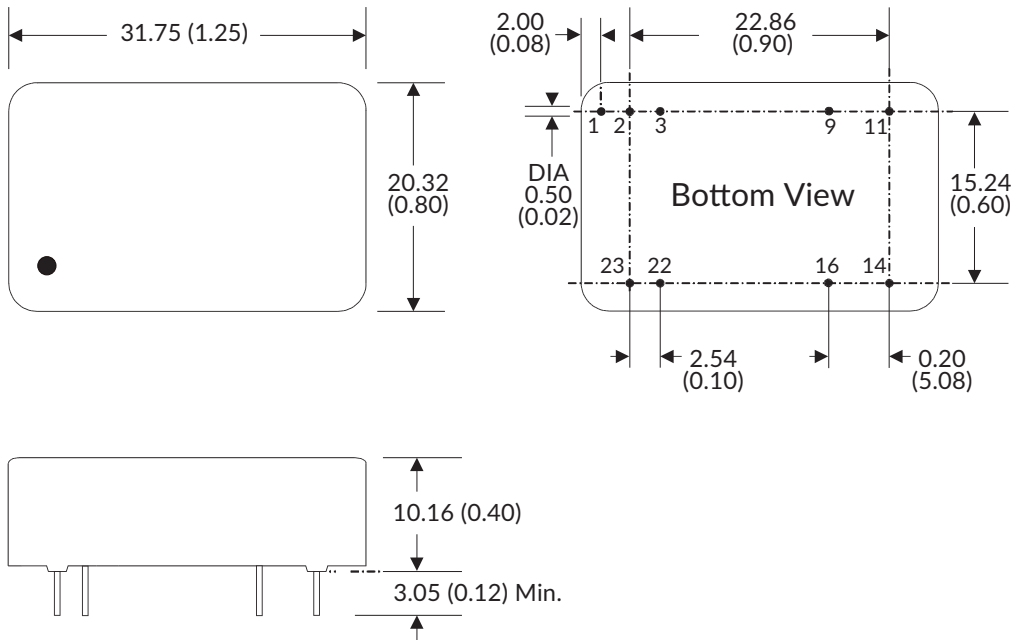
### Input filter



### 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

## Mechanical details



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

### Notes:

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