JTF12 series

XP Power

12W Convection cooled

DC-DC converters

The JTF12 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 ±15VDC. Single output models are adjustable +/-10% with a trim resistor.

The JTF12 provides 1.6kVDC isolation between input and output. Remote on/off is standard. Operating temperature range is from -40°C to +85°C, with derating above +60°C.

Features

- Regulated single & dual outputs
- 4:1 input range
- Single outputs 3.3 to 15VDC
- Dual outputs ±5.0 to ±15VDC
- DIP24 metal case
- 1.6kVDC isolation
- Remote On/Off
- -40°C to +105°C operating temperature
- Full power to +60°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” x 0.4”)

More resources

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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	
JTF1224S3V3	9-36VDC	3.3VDC	3.5A	87%	15mA	573mA	2000µF
JTF1224S05		5.1VDC	2.4A	89%	15mA	581mA	2000µF
JTF1224S12		12.0VDC	1.0A	90%	15mA	574mA	430µF
JTF1224S15		15.0VDC	0.8A	90%	15mA	574mA	300µF
JTF1224D05		±5.0VDC	±1.2A	87%	15mA	595mA	±1250µF
JTF1224D12		±12.0VDC	±0.5A	90%	15mA	574mA	±200µF
JTF1224D15		±15.0VDC	±0.4A	90%	15mA	574mA	±120µF

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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 1µF ceramic capacitor across output rails.

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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	
JTF1248S3V3	18-75VDC	3.3VDC	3.5A	87%	15mA	286 mA	2000µF
JTF1248S05		5.1VDC	2.4A	89%	15mA	290 mA	2000µF
JTF1248S12		12.0VDC	1.0A	90%	15mA	287 mA	430µF
JTF1248S15		15.0VDC	0.8A	90%	15mA	287 mA	300µF
JTF1248D05		±5.0VDC	±1.2A	87%	15mA	297 mA	±1250µF
JTF1248D12		±12.0VDC	±0.5A	90%	15mA	287 mA	±200µF
JTF1248D15		±15.0VDC	±0.4A	90%	15mA	287 mA	±120µF

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 1µF 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		491.61 (30.0)		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 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	20 MHz bandwidth
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Temperature coefficient		±0.02		%/˚C	
Overload protection		170		%	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	

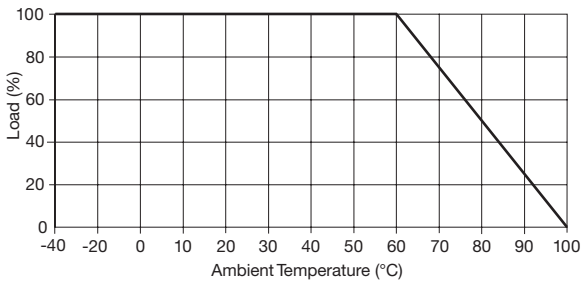
Immunity - EMC

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	

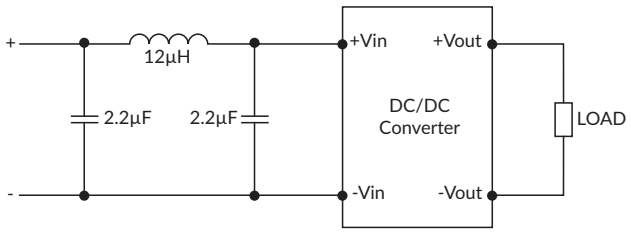
Application notes

Derating curve

12VDC input



Input filter

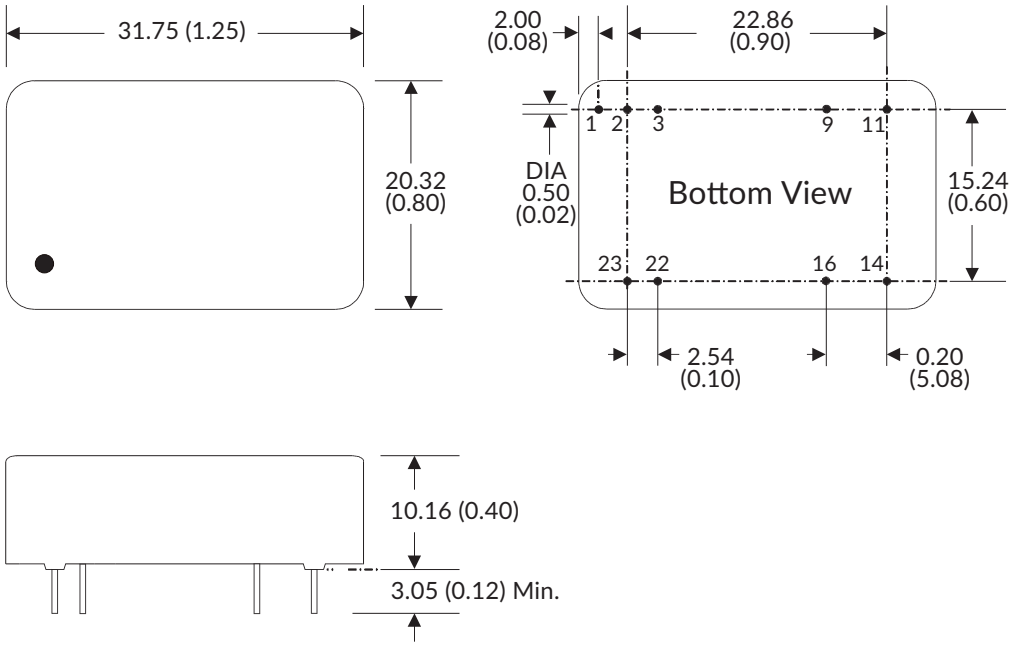


Remote on/off

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

JTF12 series

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 ±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.