



1T12CW_1.5RP series

1W - Single Output DC-DC Converter - Fixed Input - Isolated & Regulated

DC-DC Converter

1 Watt

- ⊕ Wide input range (2:1)
- ⊕ SMD package
- ⊕ 1.5kVDC isolation
- ⊕ High efficiency up to 75%
- ⊕ RoHS compliance
- ⊕ Short circuit protection (SCP)

- ⊕ Operating temperature range: -40°C ~ +85°C
- ⊕ International standard pinout
- ⊕ 100% burn in
- ⊕ MTBF >630,000hours

The 1T12CW_1.5RP series is specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is wide range (voltage range $\leq 2:1$);
- 2) Where isolation is necessary between input and output (Isolation Voltage $\leq 1500\text{VDC}$);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.



Common specifications

Short circuit protection:	Continuous
Case temperature:	+110°C MAX
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-55°C~+125°C
Storage humidity range:	95% MAX
Case material:	Non-conductive plastic
MTBF (MIL-HDBK-217F@25°C):	>630,000 hours, ground benign
Radiated emissions:	EN55032 Class A
Weight:	1.4g
Dimensions:	15.24x11.1x7.1mm

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input voltage range				2:1	
Input Filter	Capacitor				
Protection	Fuse recommended				

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	for 10sec.	1500			VDC
Isolation resistance		10 ⁹			Ω
Isolation capacitance		80			pF

Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage tolerance				±2	%
Minimum load	of full load	10			%
Line regulation	High line to low line			±0.5	%
Load regulation	output load current change from 10% to 100%			±0.5	%
Temperature drift	100% full load			±0.05	%/°C
Over load protection			150		%
Ripple & Noise	20MHz Bandwidth			100	mVp-p
Switching frequency	Full load, nominal input		100		KHz

Example:

1T12CW_0515S1.5RP

1 = 1Watt; T12 = SMT12; C = Series; W= Wide input; 5Vin; 15Vout;
S = Single output; 1.5 = 1.5kVDC; R = Regulated output;
P = Short circuit protection (SCP)

Note:

1. Unless otherwise specified, data in this data sheet should be tested under the conditions of Ta = 25°C, nominal input voltage and rated output current;
2. Output filtering is required for operation. A minimum of 10uF is needed. Output capacitance may be increased for additional filtering, not to exceed 470uF.
3. To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 250KHz is required.
4. A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.
5. All index testing methods in this datasheet are based on our Company's corporate standards.

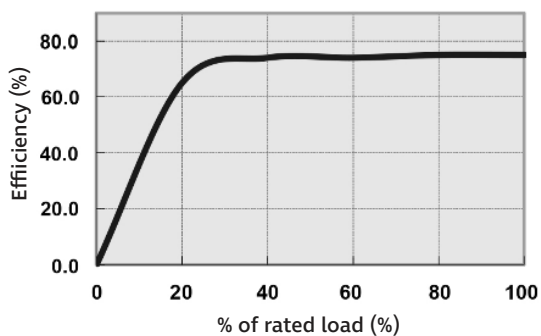
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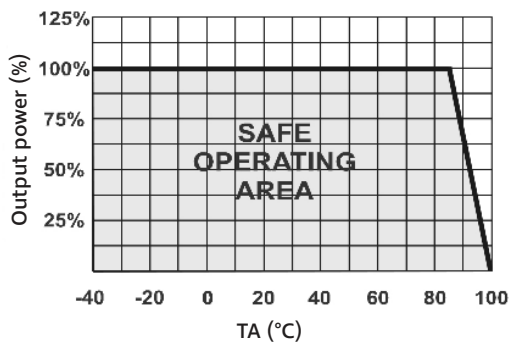
Part Number	Input Voltage Range [V]	Output Voltage [VDC]	Output current [mA]	Input current [mA]		Efficiency [%; Typ]	Capacitive load [μ F; Max]
				Full load	No load		
1T12CW_1205S1.5RP	9-18	5	200	111	20	75	1500
1T12CW_1212S1.5RP	9-18	12	83	111	25	75	470
1T12CW_1215S1.5RP	9-18	15	67	112	25	75	470
1T12CW_2405S1.5RP	18-36	5	200	56	12	75	1500
1T12CW_2412S1.5RP	18-36	12	83	55	15	75	470
1T12CW_2415S1.5RP	18-36	15	67	56	15	75	470
1T12CW_4805S1.5RP	36-72	5	200	28	5	75	1500
1T12CW_4812S1.5RP	36-72	12	83	28	5	75	470
1T12CW_4815S1.5RP	36-72	15	67	28	5	75	470
1T12CW_4824S1.5RP	36-65	24	40	28	7	72	470

Typical characteristics

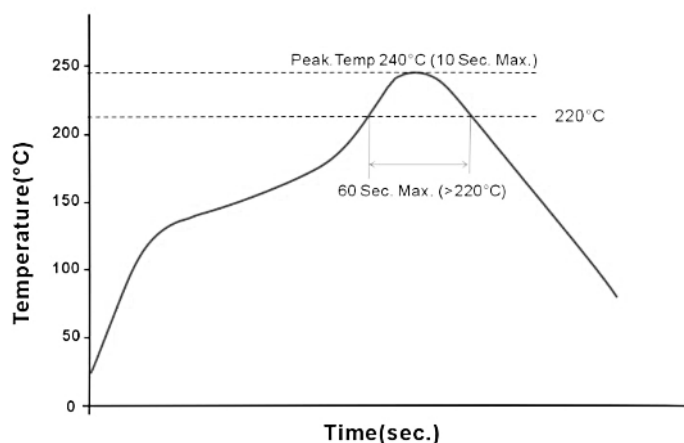
Output load vs. efficiency



Temperature derating



Reflow soldering curve



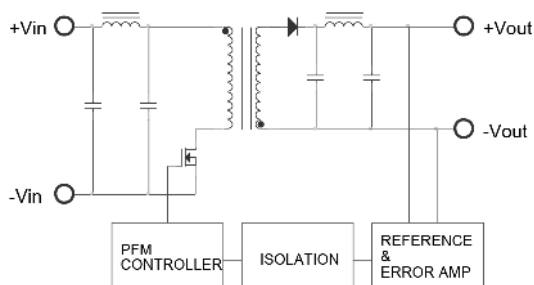
The curve applies only to the hot air reflow soldering.

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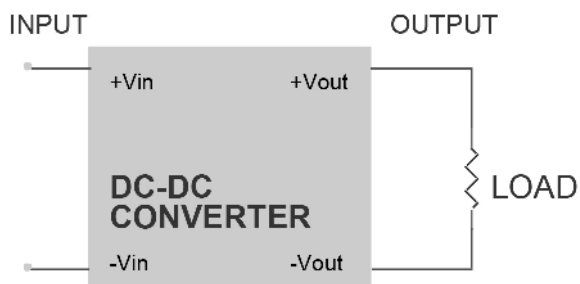
Simplified schematic

Single output



Typical applications

Single output



Input fuse selection guide

9-18V	18-36V	36-72V
INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)
300mA Slow-Blow Type	150mA Slow-Blow Type	100mA Slow-Blow Type

The diagram below the table shows a DC-DC converter block with a fuse connected to the input terminal. The input terminals are labeled +Vin and -Vin, and the output terminals are labeled +Vout and -Vout. The fuse is connected to the +Vin terminal.

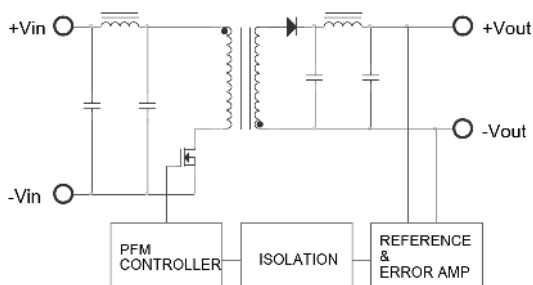
Certain applications may require the installation of external fuse in front of the input.

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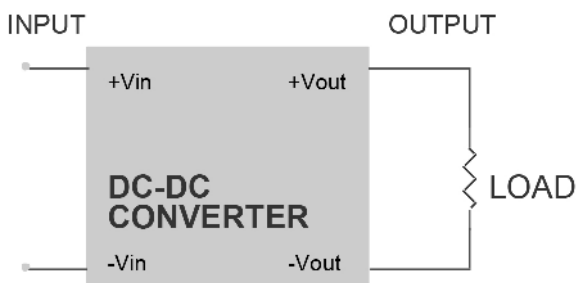
Simplified schematic

Single output

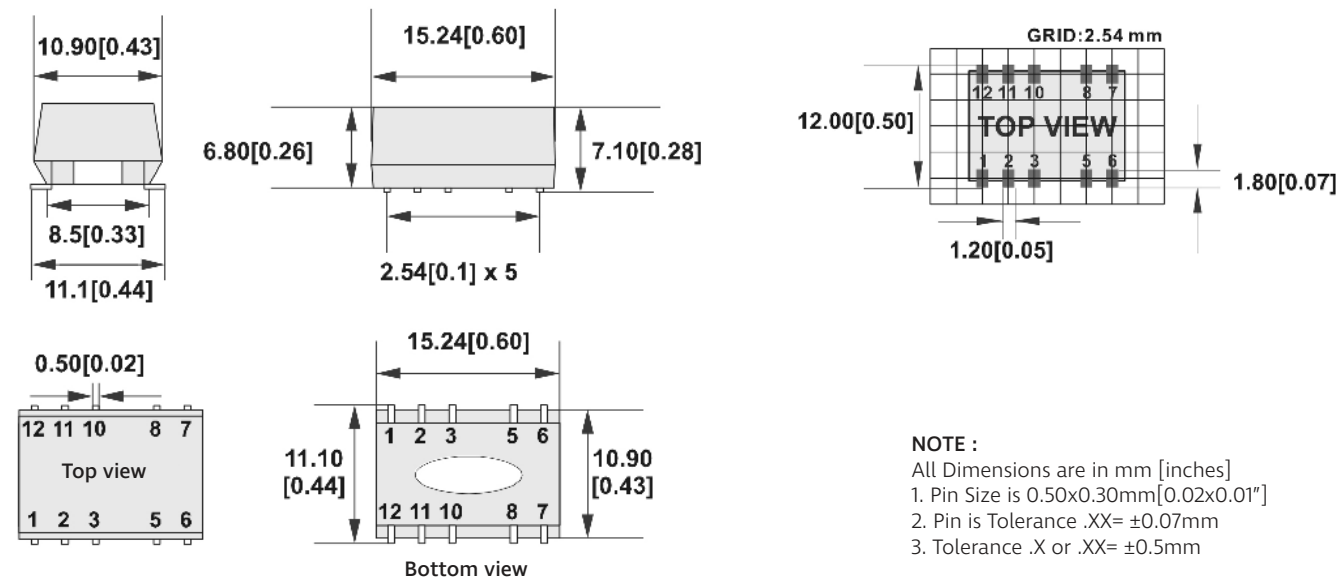


Typical applications

Single output



Mechanical dimensions & footprint



PIN	1	2, 3	5	6	7, 8	10, 11	12
SINGLE	-Vin	NC	-Vout	+Vout	NC	NC	+Vin