1W DC-DC Converter SIP8 3KV Isolated Single/Dual Output

Features:

- Ultra Wide Input 8 : 1 voltage range
- Package type: SIP 8
- Continuous output power: 1W
- Protection: Voltage and current protection
- Operating ambient temperature range: -40 to+105°C
- High efficiency, typically 74%
- I/O isolation test voltage: 3k VDC
- Output voltage: 3.3V to 36V / ±3.3V ±5V,±9V,±12V,±15V, ±24V
- IEC/EN/UL62368-1

UL62368-1

Description

VTX-315-001-#### are miniature, isolated 1W DC/DC converters in a SIP8 package. They offer the ideal solution in many space critical applications for board level power distribution. The Internal SMD construction makes it possible to offer a product with high performance at low cost. The series offers smaller size, improved efficiency and 3KVDC isolation, and there is no need for a heat sink.
These products are widely used in applications such as industrial control, instrumentation, test and measurement systems, pure digital circuits, low frequency analog circuits, relay-driven circuits and data switching circuits.

Selection Guide

Part Number	Input Voltage VDC (Range)	Output Voltage (VDC)	Output Current Max (mA)	Full Load Efficiency (%) Typical	Capacitive Load (uF) Max
VTX-315-001-1203	12 (4.5 - 36)	3.3	303	73	1500
VTX-315-001-1205		5	200	74	1200
VTX-315-001-1206		6	167	74	1000
VTX-315-001-1209		9	111	74	560
VTX-315-001-1212		12	84	74	470
VTX-315-001-1215		15	67	74	330
VTX-315-001-1224		24	42	71	220
VTX-315-001-1228		28	36	71	180
VTX-315-001-1203D		±3.3	±152	73	680
VTX-315-001-1205D		±5	±100	73	560
VTX-315-001-1209D		±9	±56	72	470
VTX-3153-001-1212D		±12	±42	72	330
VTX-315-001-1215D		±15	±34	72	220
VTX-315-001-1224D		±24	±21	71	180

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Input Specification						
Item	Conditions		Min	Typical	Max	Unit
Reflected Ripple Current			-	50	-	mA
Surge Voltage	VDC input (1 sec max)		-0.7	-	5	VDC
Starting Voltage					4.5	
Input Under-Voltage Protection			3	3.5		
Single Output Input Current	Nominal Input	24/28VDC Output	-	117/25	121/35	mA
		Other Output	-	114/20	117/30	
Dual Output Input Current	Nominal Input	24VDC Output	-	117/25	121/40	
		Other Output	-	114/15	119/30	
Ctrl	Turn on module		Ctrl pin open or pulled high (TTL2.7-12VDC)			
	Turn off module		Ctrl pin pulled low to GND (0-1.2VDC)			
Input Filter			Capacitance Filter			

Output Specification						
Item	Conditions		Min	Typical	Max	Unit
Voltage Accuracy Single Output	0% - 100% Load		-	±1.0	±3.0	%
Voltage Accuracy Dual Output	Vo1	0% - 100% Load	-	±1.0	±3.0	
	Vo2	0% - 100% Load	-	±3.0	±5.0	
Line Regulation Single Output	Vin=Min to Max @ Full Load		-	±0.5	±1.0	
Line Regulation Dual Output	Vo1	Vin=Min to Max @ Full Load	-	±0.5	±1.0	
	Vo2	Vin=Min to Max @ Full Load	-	±1.0	±2.0	
Load Regulation	5%-100% Load		-	±1.0	±2.0	
	0%-5% Load		-	±2.0	±4.0	
Ripple / Noise*	20MHz bandwidth		-	50	100	mVp-p
Temp. Coefficient	100% Load		-	±0.03	-	%/°C
Over current Protection	Nominal Input Voltage		110	-	-	%Io
Short Circuit Protection			Continuous, Self-recovery			
Transient Recovery Time	25% Load step change, nominal input voltage		-	300	500	µs
Transient Response Deviation	3.3V/5V/6V		-	±5.0	±8.0	%
	Other Output		-	±3.0	±5.0	
The "parallel cable" method is used for Ripple and Noise test.						

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General Specification					
Item	Conditions	Min	Typical	Max	Unit
Isolation	Input-output electric strength test for 1 minute with a leakage current of 1mA max	3000	-	-	VDC
Insulation Resistance	Input-output resistance at 500VDC	1000	-	-	MΩ
Isolation Capacitance	Input-output capacitance at 100kHz/0.1V	-	1000	-	pF
Operating Temperature		-40	-	+105	°C
Storage Temperature		-55	-	+125	
Soldering Pin Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	-	-	+360	
Storage Humidity	Non-condensing	5	-	+95	%RH
Switching Frequency	Full load, nominal input voltage	-	300	-	kHz
Vibration		10-150Hz, 5G, 0.75mm. alongX, YandZ			
MTBF	25°C (MIL-HDBK-217F)	>100,000Hrs			
Dimensions		22.0 x 9.50 x 12.0mm			
Cooling Method		Free Air Convection			
Weight		4.8g (Typ.)			
Case Material	Black plastic; flame-retardant and heat-resistant (UL94 V-0)				

EMC Specification		
Emissions	CE /RE	CISPR32 / EN55032 CLASS B
EMS Immunity	ESD	IEC/EN61000-4-2 Contact ±4kV
	RS	IEC/EN61000-4-3 10V/m
	EFT	IEC/EN61000-4-4 ±2kV
	Surge	IEC/EN61000-4-5 line to line ±2kV
	CS	IEC/EN61000-4-6 3Vr.m.s

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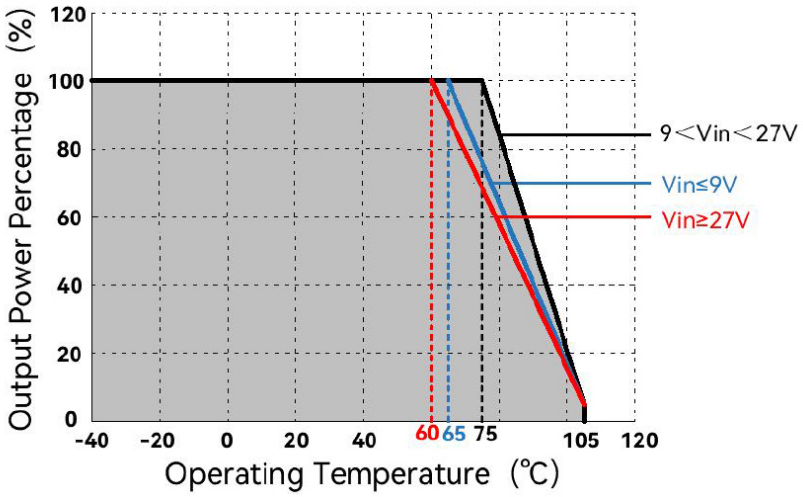
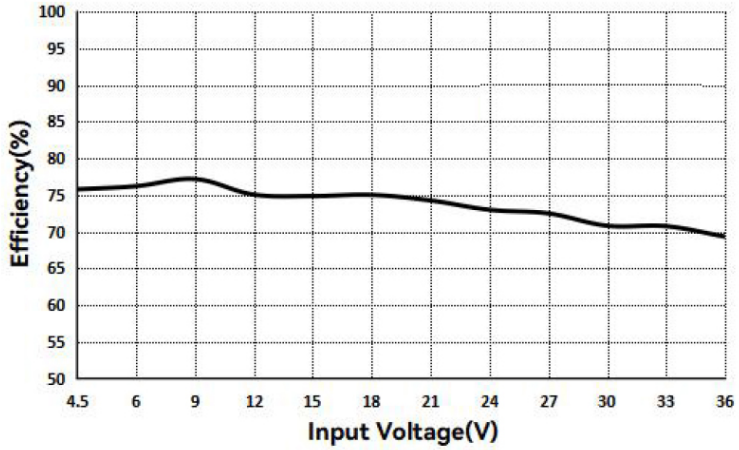
Performance Graphs

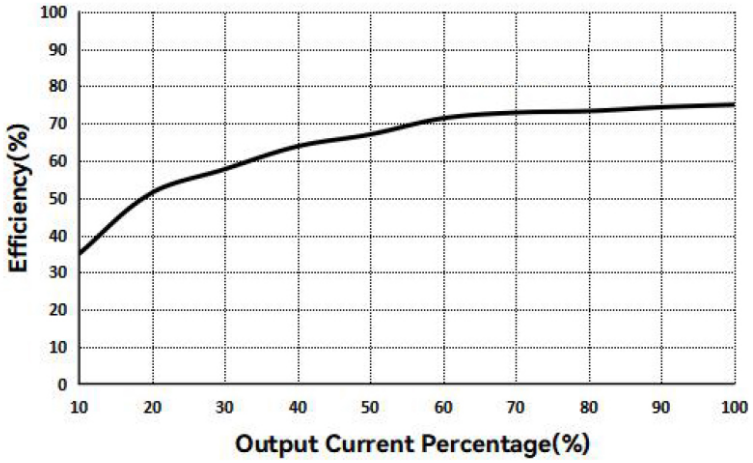
Temperature Derating Graph



Efficiency Vs Input Voltage Graph



Efficiency Vs Output Load Graph



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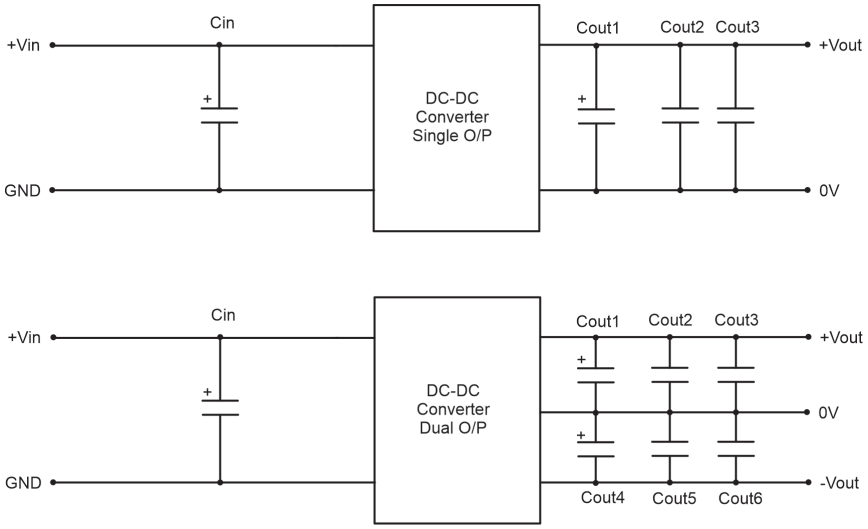
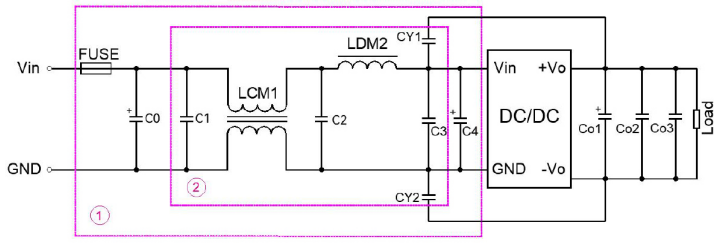
Application Schematic for EMC

Typical Application Schematic



Cin	Single Out	Dual Out	Cout1/Cout4	Cout2/Cout5	Cout3/Cout6
100uF/100V	3.3VDC	±3.3VDC	100uF/16V	10uF/50V	0.1uF/16V
	5VDC	±5VDC	100uF/16V	10uF/50V	0.1uF/16V
	9VDC	±9VDC	100uF/25V	10uF/50V	0.1uF/25V
	12VDC	±12VDC	100uF/25V	10uF/50V	0.1uF/25V
	15VDC	±15VDC	100uF/25V	10uF/50V	0.1uF/25V
	24VDC	±24VDC	100uF/50V	10uF/50V	0.1uF/50V

EMC (CLASS B) Application Schematic



Note: For EMC tests we use part ① in Fig. 3 for immunity and part ② for emissions test. Selecting based on needs.

Model	Vin : 12VDC
FUSE	Select according to the actual input current of the customer
C0	1000μF/50V
C4	330μF/50V
C1/C2/C3	10μF/50V
Co1/Co2/Co3	Refer Fig. 2 capacitive load value table
LCM1	3.3mH
LDM2	4.7μH
CY1/CY2	1nF/3kVDC

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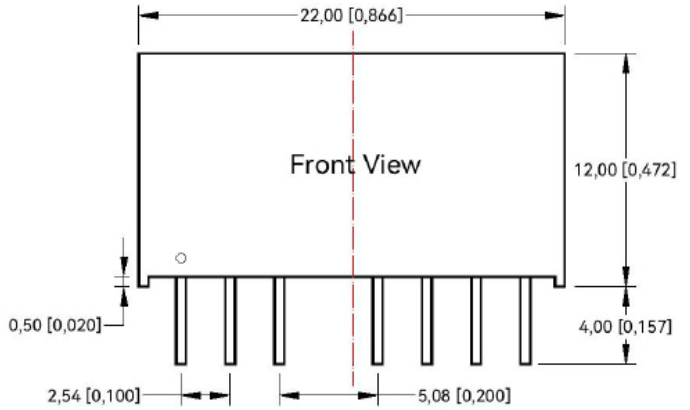
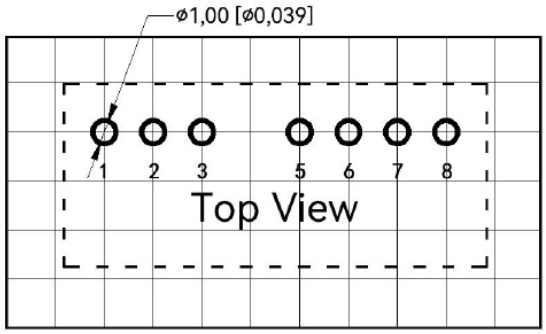
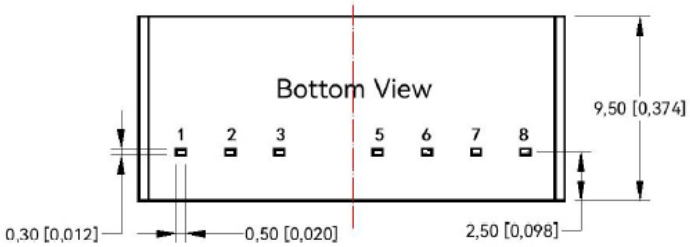
Dimensions





The grid distance is 2.54mm x2.54mm



Note:
Unit: mm[inch]

PIN Number	Single	Dual
1	GND	GND
2	Vin	Vin
3	Ctrl	Ctrl
5	NC	NC
6	+Vout	+Vout
7	-Vout	COM
8	NC	-Vout

Note:
Unit: mm [inch]
Pin section tolerances: ±0.10 [±0.004]
General tolerances: ±0.25 [±0.010]

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