DCDC Converter SIP Compact 2W 3KV Isolated Single/Dual Output

Features:

- Continuous short-circuit protection
- No-load input current as low as 10mA
- Continuous output power: 2W
- Operating ambient temperature range: -40 to+105°C
- High efficiency up to 90%
- I/O isolation test voltage: 3k VDC
- CTI Grade 1 (CTI >600)
- Industry standard pin-out
- Output voltage: 3.3V,5V,9V,12V,15V,24V / ±3.3V ±5V,±9V,±12V,±15V, ±24V

Meets

Description

VTX-313-002-#### are miniature, isolated 2W DC/DC converters in a SIP7 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/Min (mA)	Full Load Efficiency (%) Typical	Capacitive Load (uF) Max
VTX-313-002-0303	3.3 (2.9 - 3.6)	3.3	400/40	76	2400
VTX-313-002-0305		5	400/40	83	2400
VTX-313-002-0309		9	222/22	85	1000
VTX-313-002-0312		12	167/16	85	560
VTX-313-002-0315		15	133/13	85	560
VTX-313-002-0324		24	83/8	85	220
VTX-313-002-0303D		±3.3	±100/30	77	1000
VTX-313-002-0305D		±5	±200/20	79	1000
VTX-313-002-0503	5 (4.4 - 5.6)	3.3	400/40	81	2400
VTX-313-002-0505		5	400/40	83	2400
VTX-313-002-0509		9	222/22	86	1000
VTX-313-002-0512		12	167/16	85	560
VTX-313-002-0515		15	133/13	86	560
VTX-313-002-0524		24	83/8	85	220
VTX-313-002-0503D		±3.3	±303/30	82	1000
VTX-313-002-0505D		±5	±200/20	86	1000
VTX-313-002-0509D		±9	±111/11	86	470
VTX-313-002-0512D		±12	±84/8	86	220
VTX-313-002-0515D		±15	±67/7	87	220
VTX-313-002-0524D		±24	±42/4	88	100

Continued

Please contact Vigortronix for any enquiries. Products can be altered to suit custom requirements.

Vigortronix, 16 De Havilland Way, Witney, Oxfordshire, OX29 0YG, UK
Tel. +44 (0)1993 777570 Web. www.vigortronix.com, E-mail: sales@vigortronix.com
Vigortronix is a trading name of Vigortronix Limited

DCDC Converter SIP Compact 2W 3KV Isolated Single/Dual Output

Selection Guide Continued

Part Number	Input Voltage VDC (Range)	Output Voltage (VDC)	Output Current Max/Min (mA)	Full Load Efficiency (%) Typical	Capacitive Load (uF) Max
VTX-313-002-1203	12 (10.8 - 13.3)	3.3	400/40	82	2400
VTX-313-002-1205		5	400/40	83	2400
VTX-313-002-1209		9	222/22	84	1000
VTX-313-002-1212		12	167/16	87	560
VTX-313-002-1215		15	133/13	87	560
VTX-313-002-1224		24	83/8	87	220
VTX-313-002-1203D		±3.3	±303/30	82	1000
VTX-313-002-1205D		±5	±200/20	86	1000
VTX-313-002-1209D		±9	±111/11	88	470
VTX-313-002-1212D		±12	±84/8	88	220
VTX-313-002-1215D		±15	±67/6	89	220
VTX-313-002-1224D		±24	±42/4	89	100
VTX-313-002-1503	15 (13.4 - 16.4)	3.3	400/40	82	2400
VTX-313-002-1505		5	400/40	83	2400
VTX-313-002-1509		9	222/22	85	1000
VTX-313-002-1512		12	167/16	87	560
VTX-313-002-1515		15	133/13	88	560
VTX-313-002-1524		24	83/8	88	220
VTX-313-002-1503D		±3.3	±303/30	83	1000
VTX-313-002-1505D		±5	±200/20	85	1000
VTX-313-002-1509D		±9	±111/11	86	470
VTX-313-002-1512D		±12	±84/8	87	220
VTX-313-002-1515D		±15	±67/6	90	220
VTX-313-002-1524D		±24	±42/4	89	100
VTX-313-002-2403	24 (21.6 - 26.4)	3.3	400/40	82	2400
VTX-313-002-2405		5	400/40	84	2400
VTX-313-002-2409		9	222/22	85	1000
VTX-313-002-2412		12	167/16	88	560
VTX-313-002-2415		15	133/13	88	560
VTX-313-002-2424		24	83/8	88	220
VTX-313-002-2403D		±3.3	±303/30	85	1000
VTX-313-002-2405D		±5	±200/20	86	1000
VTX-313-002-2409D		±9	±111/11	87	470
VTX-313-002-2412D		±12	±84/8	89	220
VTX-313-002-2415D		±15	±67/6	90	220
VTX-313-002-2424D		±24	±42/4	90	100

Please contact Vigortronix for any enquiries. Products can be altered to suit custom requirements.

Vigortronix, 16 De Havilland Way, Witney, Oxfordshire, OX29 0YG, UK
Tel. +44 (0)1993 777570 Web. www.vigortronix.com, E-mail: sales@vigortronix.com
Vigortronix is a trading name of Vigortronix Limited

DCDC Converter SIP Compact 2W 3KV Isolated Single/Dual Output

Input Specification						
Item	Conditions		Min	Typical	Max	Unit
Reflected Ripple Current			-	15	-	mA
Surge Voltage	3.3VDC input (1 sec max)		-0.7	-	5	VDC
	5VDC input (1 sec max)		-0.7	-	9	
	12VDC input (1 sec max)		-0.7	-	18	
	15VDC input (1 sec max)		-0.7	-	21	
	24VDC input (1 sec max)		-0.7	-	30	
Single Output **Input Current** **(Full load/No load)**	3.3VDC Nominal Input	3.3VDC Output	-	526/10	538/15	mA
		5VDC Output	-	710/10	715/15	
	5VDC Nominal Input	3.3VDC Output	-	325/18	330/25	
		5VDC Output	-	481/18	490/25	
		Other Output	-	463/10	470/15	
	12VDC Nominal Input	3.3VDC Output	-	134/8	138/15	
		5VDC Output	-	198/7	205/15	
		Other Output	-	190/8	198/15	
	15VDC Nominal Input	3.3VDC Output	-	107/7	111/15	
		5/12VDC Output	-	153/7	160/15	
		Other Output	-	150/7	155/15	
	24VDC Nominal Input	3.3VDC Output	-	67/5	70/15	
		5VDC Output	-	97/5	101/15	
		Other Output	-	94/5	98/15	
Dual Output **Input Current** **(Full load/No load)**	3.3VDC Nominal Input	3.3VDC Output	-	787/10	808/15	mA
		5VDC Output	-	767/10	787/15	
	5VDC Nominal Input	3.3VDC Output	-	488/8	500/15	
		5VDC Output	-	465/8	476/15	
		12/15VDC Output	-	465/10	476/15	
		24VDC Output	-	455/25	465/35	
	12VDC Nominal Input	3.3VDC Output	-	203/7	208/15	
		5VDC Output	-	194/7	198/15	
		Other Output	-	189/8	194/15	
	15VDC Nominal Input	3.3VDC Output	-	161/6	165/15	
		5/12VDC Output	-	157/6	161/15	
		Other Output	-	150/6	153/15	
	24VDC Nominal Input	3.3VDC Output	-	98/4	100/15	
		5VDC Output	-	97/4	99/15	
		Other Output	-	94/5	96/15	
Input Filter			Capacitance Filter			

Please contact Vigortronix for any enquiries. Products can be altered to suit custom requirements.

Vigortronix, 16 De Havilland Way, Witney, Oxfordshire, OX29 0YG, UK
Tel. +44 (0)1993 777570 Web. www.vigortronix.com, E-mail: sales@vigortronix.com
Vigortronix is a trading name of Vigortronix Limited

DCDC Converter SIP Compact 2W 3KV Isolated Single/Dual Output

Output Specification						
Item	Conditions		Min	Typical	Max	Unit
Voltage Accuracy			See Graphs Fig 1			
Line Regulation	Input voltage change: ±1%	3.3VDC Output	-	±1.5	-	%
		Other Outputs	-	±1.5	-	
Load Regulation	10%-100% load	3.3/5VDC Output	-	12	-	
		Other Outputs	-	8	-	
Ripple / Noise*	20MHz bandwidth		-	60	120	mVp-p
Temp. Coefficient	100% Load		-	+/-0.02	-	%/°C
Short Circuit Protection	Nominal Input Voltage		Continuous, Self-recovery			
The "parallel cable" method is used for Ripple and Noise test.						

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	-	20	-	pF
Operating Temperature		-40	-	+105	°C
Storage Temperature		-55	-	+130	
Soldering Pin Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	-	-	+300	
Storage Humidity	Non-condensing	5	-	+95	%RH
Switching Frequency	Full load, nominal input voltage	-	220	-	KHz
Vibration		10-150Hz, 5G, 0.75mm. alongX, YandZ			
MTBF	25°C (MIL-HDBK-217F)	>3500,000Hrs			
Dimensions		19.60 x 7.00 x 10.1 mm			
Cooling Method		Free Air Convection			
Weight		2.4g (Typ.)			
Case Material	Black plastic; flame-retardant and heat-resistant (UL94 V-0)				

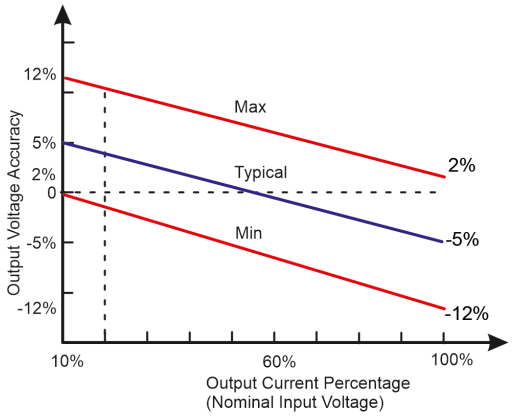
EMC Specification		
Emissions	CE /RE	CISPR32 / EN55032 CLASS B
Immunity	ESD	IEC/EN61000-4-2 Air ±8kV, Contact ±6kV

Please contact Vigortronix for any enquiries. Products can be altered to suit custom requirements.

Vigortronix, 16 De Havilland Way, Witney, Oxfordshire, OX29 0YG, UK
Tel. +44 (0)1993 777570 Web. www.vigortronix.com, E-mail: sales@vigortronix.com
Vigortronix is a trading name of Vigortronix Limited

Performance Graphs

3.3VDC Output
Output Regulation Graph



5V / 9V / 12V / 15V / 24VDC Output
Output Regulation Graph

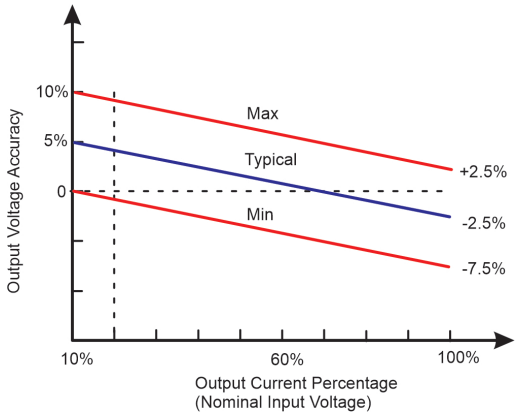


Fig 1

Temperature Derating Graph

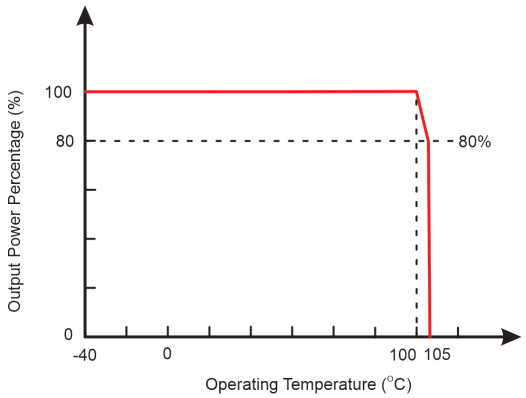
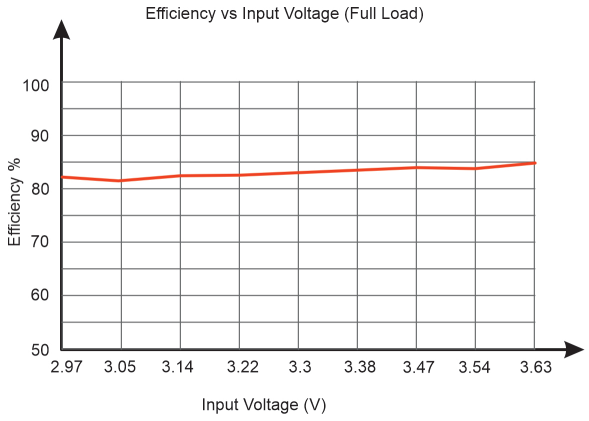
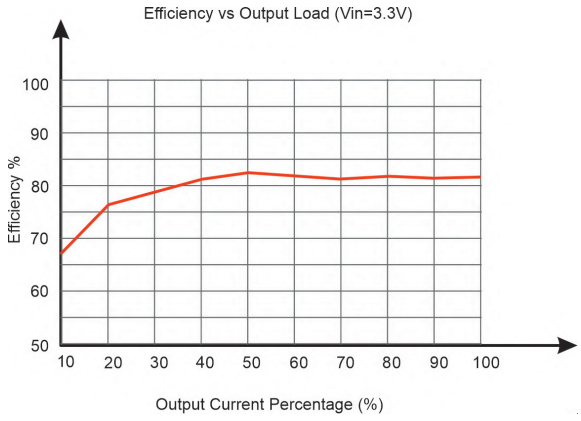


Fig 2



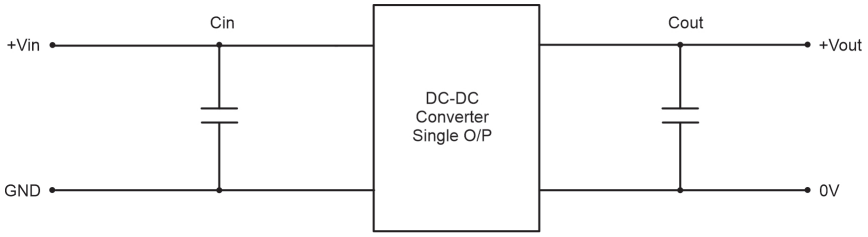


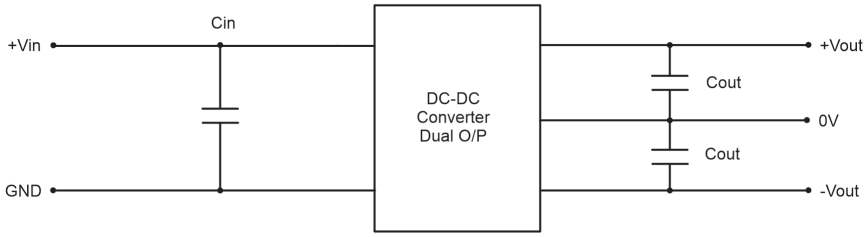
Please contact Vigortronix for any enquiries. Products can be altered to suit custom requirements.

Vigortronix, 16 De Havilland Way, Witney, Oxfordshire, OX29 0YG, UK
Tel. +44 (0)1993 777570 Web. www.vigortronix.com, E-mail: sales@vigortronix.com
Vigortronix is a trading name of Vigortronix Limited

Application Schematic for EMC

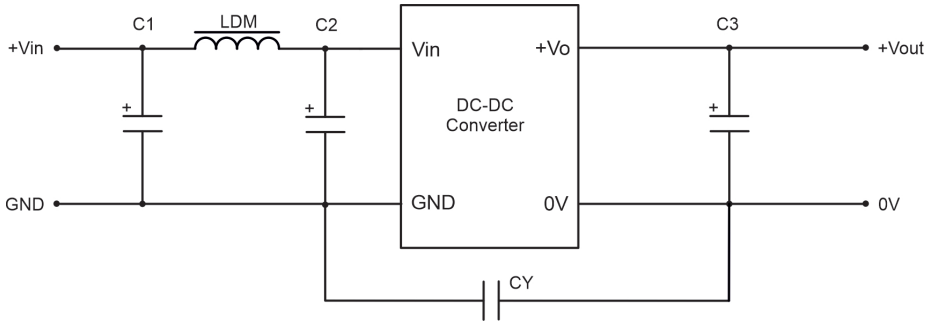
Typical Application Schematic





Voltage In	Cin	Single Out	Cout		Dual Out	Cout
3.3VDC	10uF/25V	3.3VDC	10uF/16V		±3.3VDC	10uF/16V
5VDC	10uF/25V	5VDC	10uF/16V		±5VDC	10uF/16V
12VDC	4.7uF/25V	9VDC	2.2uF/16V		±9VDC	2.2uF/25V
15VDC	2.2uF/25V	12VDC	2.2uF/25V		±12VDC	2.2uF/25V
24VDC	1.0uF/50V	15VDC	1.0uF/25V		±15VDC	1.0uF/25V
-	-	24VDC	1.0uF/50V		±24VDC	1.0uF/50V

EMC (CLASS B) Application Schematic

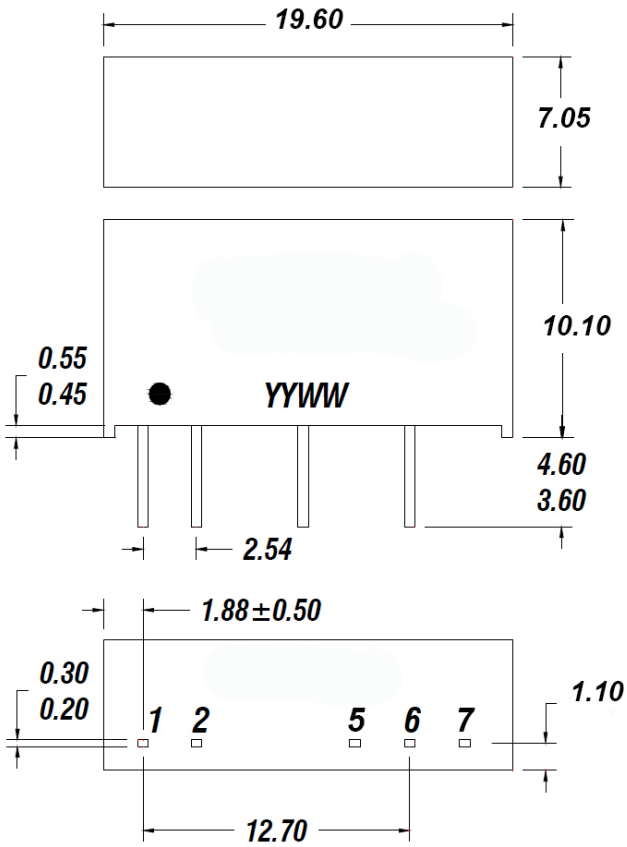


Component	Value		Voltage Out	C3
C1/C2	4.7uF/50V		3.3VDC	10uF/16V
CY	1000pF/3kVDC		5VDC	10uF/16V
LDM	6.8uH		9VDC	2.2uF/25V
-	-		12VDC	2.2uF/25V
-	-		15VDC	1.0uF/25V
-	-		24VDC	1.0uF/50V

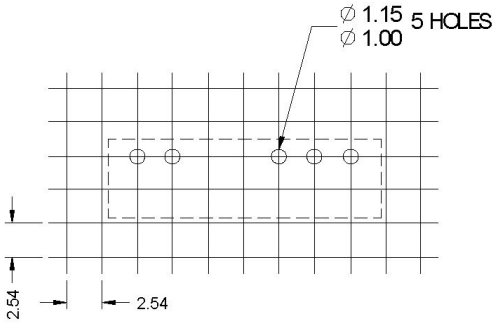
Please contact Vigortronix for any enquiries. Products can be altered to suit custom requirements.

Vigortronix, 16 De Havilland Way, Witney, Oxfordshire, OX29 0YG, UK
Tel. +44 (0)1993 777570 Web. www.vigortronix.com, E-mail: sales@vigortronix.com
Vigortronix is a trading name of Vigortronix Limited

Dimensions



PIN Number	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	0V	-Vout
6	-	0V
7	+Vout	+Vout



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

Vigortronix, 16 De Havilland Way, Witney, Oxfordshire, OX29 0YG, UK
Tel. +44 (0)1993 777570 Web. www.vigortronix.com, E-mail: sales@vigortronix.com
Vigortronix is a trading name of Vigortronix Limited