VCD150R4

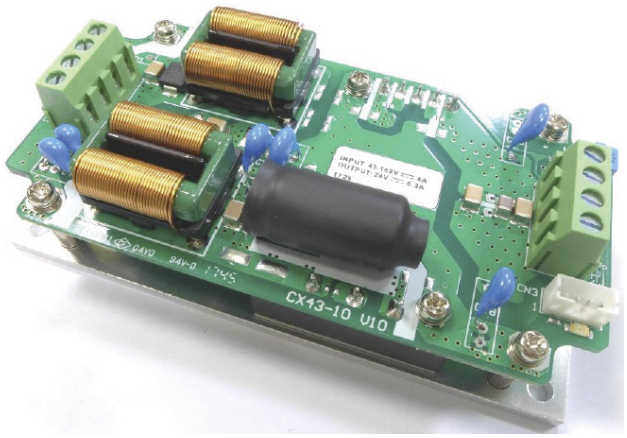
series

150 WATT DC/DC CONVERTER
Single Output
4:1 Wide Input Range

vitec
dc conversion

FEATURES

- 4:1 Wide Input Range
- 43-160 Vdc Railway Input Range
- Efficiency up to 91%
- 150 Watt Isolated & Regulated Output
- Fixed Switching Frequency
- Remote ON/OFF
- 3000 Vdc
- Low No Load Power Consumption
- Over Voltage and Over Current Protection
- Over Temperature Protection
- Continuous Short Circuit Protection
- Build-In EMI Filter
- Shock & Viberation Meets EN50155 (EN61373)
- Safety Meets UL60950-1; EN60950-1 & IEC60950-1
- Railway Systems (meets EN50155 for EMC)
- Fire & Smoke meets EN45545-2



GENERAL DESCRIPTION

The VCD150R4-Series is a family of 150 Watt single DC/DC converters designed for application where isolated output is required from a distributed power system. These converters achieve different housing versions without compromising performance or field reliability.
Models operate from an ultra wide 4:1 input bus voltage of 110 Vdc offering output voltage levels of 5, 12, 15, 24, 28 and 48 Vdc. Typical applications are in railway systems for on board power distribution.

SELECTION GUIDE

Model No.	nominal Input Voltage Range [Vdc]	nominal Output Voltage [Vdc]	Output Current @ full load [A]	Input Current @ No Load [mA]	Max. Cpacitive Load [µF]	Efficiency typ. [%]
VCD150R4-11005S	110 (43~160)	5	30	15	130000	89
VCD150R4-11012S		12	12.5	15	12500	91
VCD150R4-11024S		24	6.3	15	6300	88
VCD150R4-11028S		28	5.4	15	5400	88
VCD150R4-11048S		48	3.2	15	1000	89

Option

Suffix -C: with Cover
Suffix -N: negative Logic (instead of positive Logic, which is standard without Suffix)

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INPUT SPECIFICATIONS

Item	Conditions			Min.	Typ.	Max.	Unit
Input Voltage Range	110 Vin (nom)			43	110	160	Vdc
Input Surge Voltage (100ms max.)	110 Vin (nom)			-	-	200	Vdc
Under voltage Lockout	110 Vin	power up		-	41.5	-	Vdc
		power down		-	38.5	-	
Input Filter	-			Pi type			
Remote ON/OFF	Referred to -Vin pin	Positive logic (Standard)	DC-DC ON	>3.5 Vdc to 160 Vdc or open circuit			
			DC-DC OFF	0 ~ 1.2 Vdc			
		Negative logic („N"-Option)	DC-DC ON	0 ~ 1.2 Vdc			
			DC-DC OFF	>3.5 Vdc to 160 Vdc or open circuit			

OUTPUT SPECIFICATIONS

Item	Conditions		Min.	Typ.	Max.	Unit
Voltage accuracy	-		-1.0	-	+1.0	%
Line regulation	Low Line to high line @ full load		-0.2	-	+0.2	%
Load regulation	No load to full load	5 Vout	-0.5	-	+0.5	%
		others	-0.2	-	+0.2	
Start up time	-		-	100	-	ms
Voltage adjustability			-10	-	+10	%
Ripple and noise (Measured by 20MHz bandwith)	with a 1 µF ceramic capacitor	5 & 12 Vout	-	100	-	mVp-p
		24 & 28 Vout	-	200	-	
		48 Vout	-	300	-	
Temperature coefficient	-		-0.02	-	+0.02	%/°C
Transient response recovery time	25% load step change		-	-	250	µs
Over voltage protection	% of Vout(nom)		115	-	160	%
Current Limit	% of Iout rated		110	-	140	%
Short circuit protection	-		continuous			

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GENERAL SPECIFICATIONS

Item	Conditions	Min.	Typ.	Max.	Unit
Isolation voltage	Input to Output	3000	-	-	Vdc
	Input to Case	2250	-	-	
	Output to Case	500	-	-	Vac
Isolation resistance	-	10^8	-	-	Ω
Isolation capacitance	-	-	1500	-	pF
Switching frequency	-	-	300	-	kHz
Safety standards	designed to meet	IEC / UL / EN60950-1			
Maximum case temperature	-	-40	-	+100	°C
Storage temperature	-	-40	-	+105	°C
Thermal Shutdown	Case Temperature (DC Module)	-	110	-	°C
Humidity	non condensing	95% RH max.			
EMC	designed to meet	EN50155(EN50121-3-2:2008)			
	with an external output filter meets	EN50155(EN50121-3-2:2015)			
Shock/Vibration	designed to meet	EN50155(EN61373)			
Environmental	designed to meet	EN50155(EN60068-2-1,2,30)			
Dimensions	Open Frame Version	4.60x2.40x1.26 inch. (116.8x61.0x32.0 mm)			
	with Cover (Option -C)	4.60x2.49x1.35 inch. (116.8x63.4x34.2 mm)			
Case Material	Open Frame Version	Aluminum Base			
	with Cover (Option -C)	Aluminum Base and Aluminum Cover			
Weight	Open Frame Version	215 g			
	with Cover (Option -C)	300 g			
MTBF	MIL-HDBK-217F, Full load, GB, 25°	600 kHrs typ.			

Notes

1. Output connector CN3 wafer with TAIWAN KING PIN TERMINAL P110I series and mate with JST housing PH series or equialent.
2. CN! & CN2 connection: DINKLE EK500V-04P series or equivalent, suitable electric wire: 24~12AWG (IEC 0.5~2.5 mm^2)
3. TVS is included for input surge voltage protection.
4. Recommend an external fuse for input reverse polarity protection (shunt diode is included inside).
5. All specifications typical at nominal line, full load and 25°C; Unless otherwise noted;

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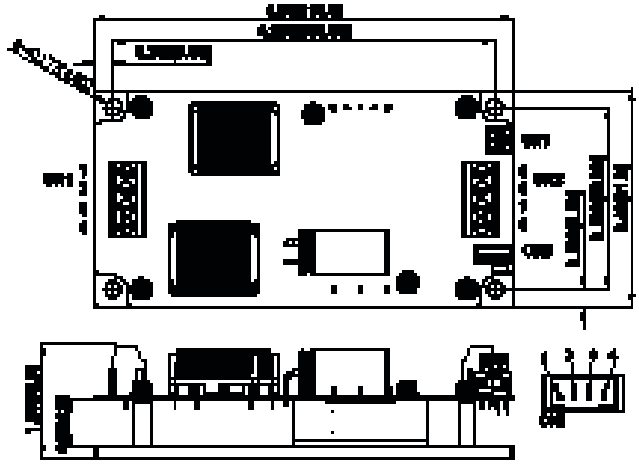
MECHANICAL DRAWING - Open Frame Version



PIN CONNECTION CN3

PIN	Function
1	-V Output
2	-Sense
3	+Sense
4	+V Output

VR1

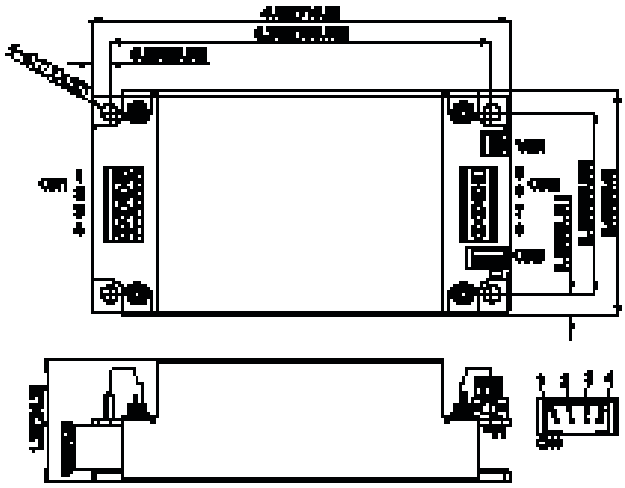
Output Voltage Adjustment

PIN CONNECTION CN1 & CN2

PIN	Function
1	+V Input
2	-V Input
3	Remote
4	Case
5	+V Output
6	+V Output
7	-V Output
8	-V Output

1. All dimensions in inch [mm]
2. Tolerance: x.xx±0.02 [x.x±0.5]
   x.xxx±0.01 [x.xx±0.25]
3. Pin dimension tolerance ±0.004 [±0.10]

MECHANICAL DRAWING - with Cover (Option -C)



PIN CONNECTION CN3

PIN	Function
1	-V Output
2	-Sense
3	+Sense
4	+V Output

VR1

Output Voltage Adjustment

PIN CONNECTION CN1 & CN2

PIN	Function
1	+V Input
2	-V Input
3	Remote
4	Case
5	+V Output
6	+V Output
7	-V Output
8	-V Output

1. All dimensions in inch [mm]
2. Tolerance: x.xx±0.02 [x.x±0.5]
   x.xxx±0.01 [x.xx±0.25]
3. Pin dimension tolerance ±0.004 [±0.10]

Note: Specifications can be changed without prior notice. Products are not intended for and must not be used in life support systems, human implantation, nuclear facilities or systems or any other application where product failure or malfunction of the component could lead to loss of life or catastrophic property damage.

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