

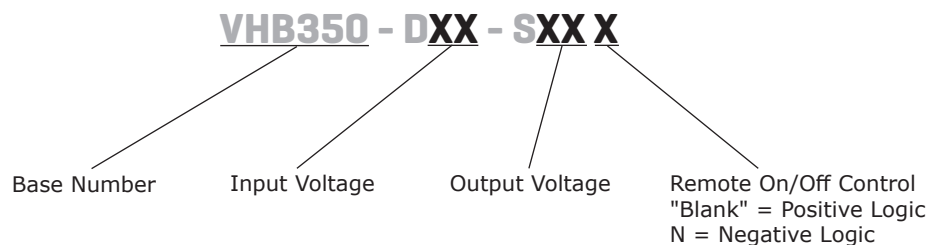
SERIES: VHB350 | DESCRIPTION: DC-DC CONVERTER
FEATURES

- up to 350 W isolated output
- industry standard half brick package
- 2:1 input range (18~36 V, 36~75 V)
- single output from 3.3~28 V
- 1,500 V isolation
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- efficiency up to 92.5%



MODEL	input voltage range	output voltage	output current	output power	ripple and noise ¹	efficiency
	(Vdc)	(Vdc)	max (A)	max (W)	max (mVp-p)	typ (%)
VHB350-D24-S3R3	18 ~ 36	3.3	70	231	100	88
VHB350-D24-S5	18 ~ 36	5	70	350	100	89.5
VHB350-D24-S12	18 ~ 36	12	29.2	350	120	91.5
VHB350-D24-S24	18 ~ 36	24	14.6	350	280	90
VHB350-D24-S28	18 ~ 36	28	12.5	350	280	91
VHB350-D48-S3R3	36 ~ 75	3.3	70	231	100	89
VHB350-D48-S5	36 ~ 75	5	70	350	100	91
VHB350-D48-S12	36 ~ 75	12	29.2	350	120	92.5
VHB350-D48-S24	36 ~ 75	24	14.6	350	280	91.5
VHB350-D48-S28	36 ~ 75	28	12.5	350	280	92.5

Notes: 1. Ripple and noise are measured at 20 MHz BW with 10µF tantalum capacitor and 1µF ceramic capacitor across output

PART NUMBER KEY


INPUT

parameter	conditions/description	min	typ	max	units	
operating input voltage		18	24	36	Vdc	
		36	48	75	Vdc	
surge voltage ¹	24 V input			50	Vdc	
	48 V input					
under voltage lockout	power up	24 V input 48 V input	16 34	17 35	18 36	Vdc Vdc
	power down	24 V input 48 V input	15 32	16 33	17 35	Vdc Vdc
over voltage protection	turn on	24 V input 48 V input		38 77	Vdc Vdc	
	turn off	24 V input 48 V input		40 80	Vdc Vdc	
positive logic remote on/off	see note 2					
filter	PI type					

Notes: 1. 100 ms max
2. logic compatibility, open collector ref to -input
Module ON, >3.5 to 75 Vdc or open circuit
Module OFF, <1.2 Vdc

OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation	measured from high line to low line			±0.2	%
load regulation	measured from full load to zero load			±0.2	%
voltage accuracy				±1.5	%
transient response	25% step load change			500	µs
adjustability ³			±10		%
switching frequency	3.3 and 5 V models		300		kHz
	all other models		330		kHz
temperature coefficient			±0.03		%/°C

Notes: 3. trim-up: connect a resistor between the trim pin and +Sense
trim-down: connect a resistor between the trim pin and -Sense

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	%Vo	115		140	%
short circuit protection	continuous				
current limit		105		140	%
thermal shutdown case temp.			110		°C

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output	1,500			Vdc
	input to case	1,500			Vdc
	output to case	1,500			Vdc
isolation resistance		10			MΩ
isolation capacitance			1,000		pF
safety approvals	UL60950-1, EN60950-1				
RoHS compliant	yes				

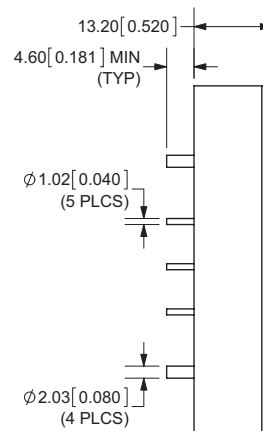
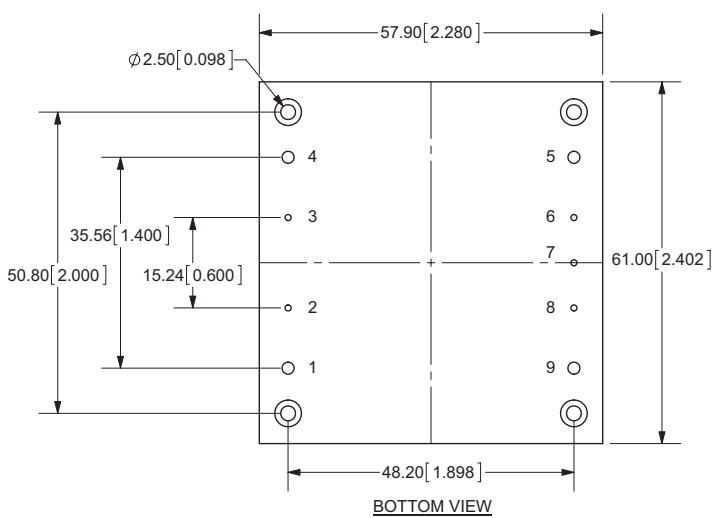
ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
case operating temperature		-40		100	°C
storage temperature		-55		105	°C
humidity	non-condensing			95	%

MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	2.28 x 2.40 x 0.52 inch (57.9 x 61.0 x 13.2 mm)				
case material	aluminum baseplate with plastic				
weight			114		g

MECHANICAL DRAWING

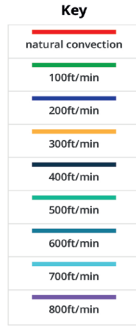
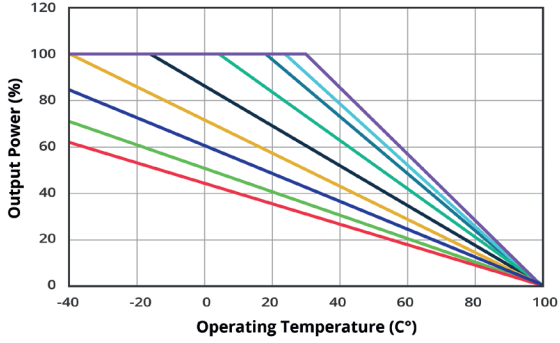


PIN CONNECTIONS	
PIN	FUNCTION
1	+Vin
2	On/Off
3	CASE
4	-Vin
5	-Vo
6	-S
7	TRIM
8	+S
9	+Vo

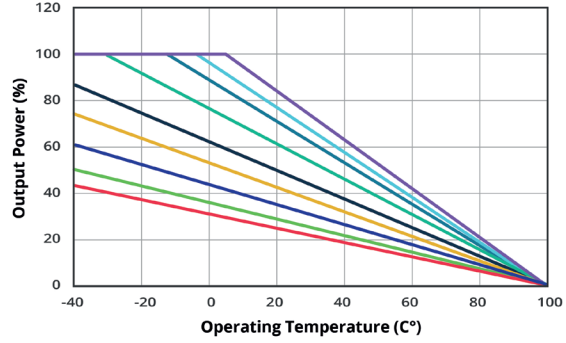
All dimensions in mm[inches]:

DERATING CURVES

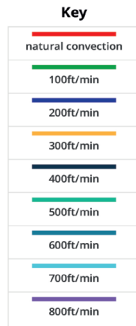
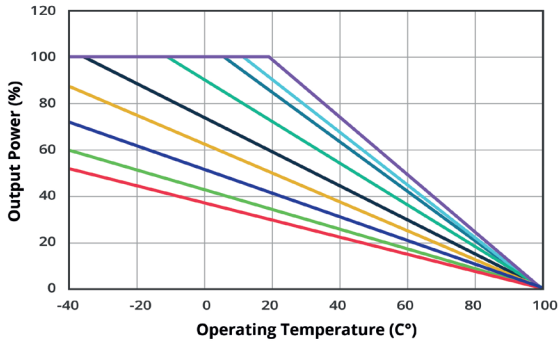
TEMPERATURE DERATING CURVE VHB350-D24-S3R3
without heatsink
[Vin = 24V]



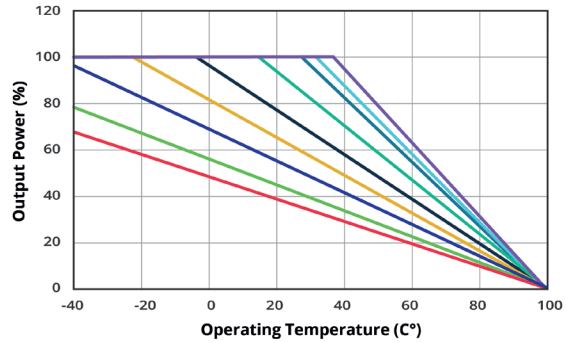
TEMPERATURE DERATING CURVE VHB350-D24-S5/S24
without heatsink
[Vin = 24V]



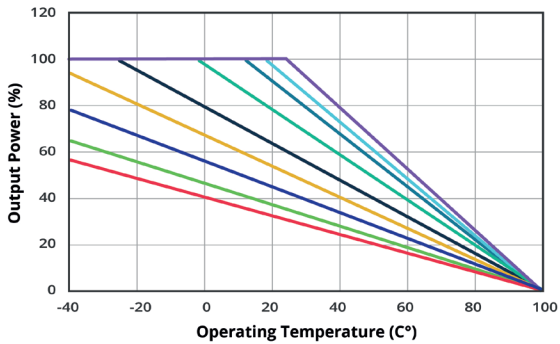
TEMPERATURE DERATING CURVE VHB350-D24-S12/S28
without heatsink
[Vin = 24V]



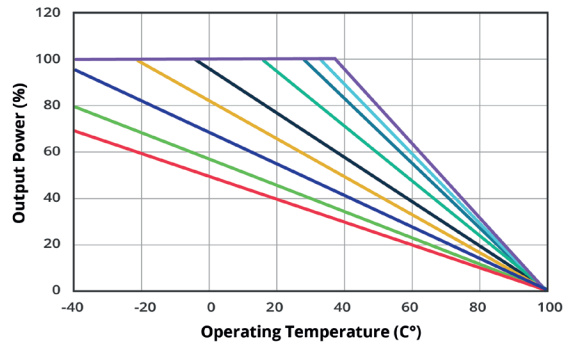
TEMPERATURE DERATING CURVE VHB350-D48-S3R3
without heatsink
[Vin = 48V]



TEMPERATURE DERATING CURVE VHB350-D48-S5
without heatsink
[Vin = 48V]

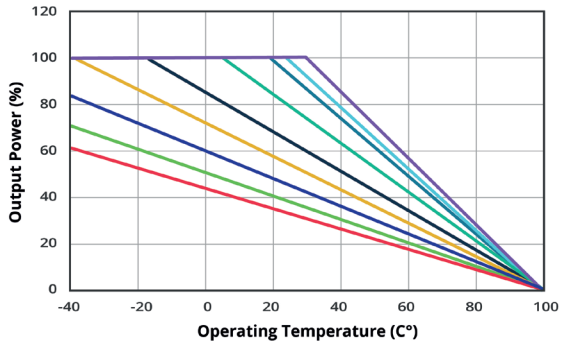


TEMPERATURE DERATING CURVE VHB350-D48-S12
without heatsink
[Vin = 48V]



DERATING CURVES

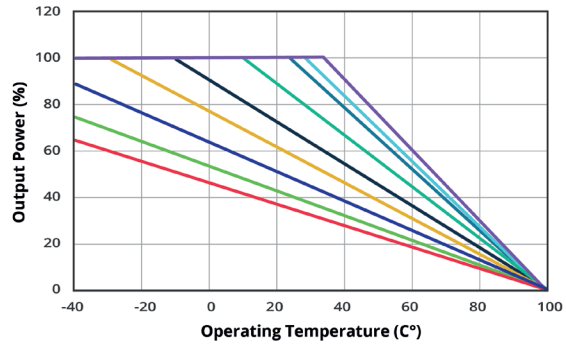
TEMPERATURE DERATING CURVE VHB350-D48-S24
without heatsink
[Vin = 48V]



Key

- natural convection
- 100ft/min
- 200ft/min
- 300ft/min
- 400ft/min
- 500ft/min
- 600ft/min
- 700ft/min
- 800ft/min

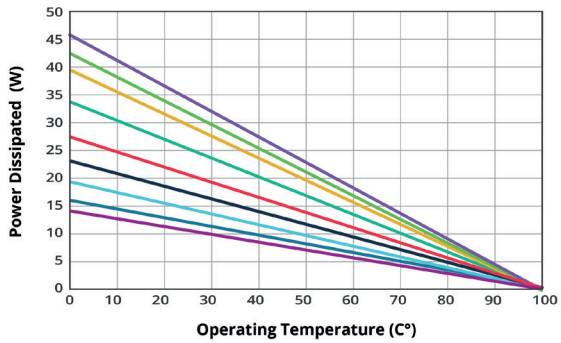
TEMPERATURE DERATING CURVE VHB350-D48-S28
without heatsink
[Vin = 48V]



Key

- natural convection
- 100ft/min
- 200ft/min
- 300ft/min
- 400ft/min
- 500ft/min
- 600ft/min
- 700ft/min
- 800ft/min

POWER DISSIPATED VS AMBIENT TEMPERATURE AND AIR FLOW
without heatsink



Key

Air flow rate	Typical R _{CA}
natural convection 20ft/min (0.1m/s)	7.12 °C/W
100ft/min (0.5m/s)	6.21 °C/W
200ft/min (1.0m/s)	5.17 °C/W
300ft/min (1.5m/s)	4.29 °C/W
400ft/min (2.0m/s)	3.64 °C/W
500ft/min (2.5m/s)	2.96 °C/W
600ft/min (3.0m/s)	2.53 °C/W
700ft/min (3.5m/s)	2.37 °C/W
800ft/min (4.0m/s)	2.19 °C/W

REVISION HISTORY

rev.	description	date
1.0	initial release	06/01/2011
1.01	add remote on/off control to the part number key	11/23/2011
1.02	V-Infinity branding removed	08/30/2012
1.03	updated spec	03/14/2013
1.04	company logo updated	02/09/2021
1.05	power dissipation curve added	04/28/2023
1.06	temperature derating curves added	08/16/2023

The revision history provided is for informational purposes only and is believed to be accurate.



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