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America

CERTIFICATE

No. U8V 15 03 21433 432

Holder of Certificate: **Vicor Corporation**
25 Frontage Road
Andover, MA 01810
USA

Production Facility(ies): 67768

Certification Mark:

Product:
DC converter
DC to DC converter

Model(s):
VIB0101THJ
VI Chip Half VIC Family Tree (Model: Vii01wwxHyz)
VI Chip Half BCM2 and Half VTM2 Family Tree (Model: AAAbbbcdddefffxzz)
(see attachment for model nomenclature and license conditions)

Parameters:

Rated Input Voltage:	48 VDC
Rated Output Voltage:	12 V DC
Rated Output Wattage:	120 W max
Protection Class:	I
Degree of Protection:	IPX0

(see attachment for additional rating information)

Tested according to:
CAN/CSA C22.2 No.60950-1:2007/A1:2011
UL 60950-1:2007/R:2011-12
EN 60950-1:2006/A2:2013

The product was voluntarily tested according to the relevant safety requirements noted above. It can be marked with the certification mark above. The mark must not be altered in anyway. This product certification system operated by TÜV SÜD America Inc. most closely resembles system 3 as defined in ISO/IEC Guide 67. Certification is based on the TÜV SÜD "Testing and Certification Regulations". TÜV SÜD America Inc. is an OSHA recognized NRTL and a Standards Council of Canada accredited certification body.

Test report no.: 72102897-000

Date, 2015-03-13

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VI Chip Half VIC Family Tree Model Vii01wwxHyz

V = Constant	ii = Product Type		01 = Constant
	IB	BCM	
	IV	VTM	
	MV	Military VTM	

ww = 00-99, defines electrical ratings, Product Type (ii) dependent				
Model	**Vin Nom (range)**	**Vout (nom)**	**Iout (VTM)**	**Pout (BCM)**
VIB0101	48 Vdc (38-55)	12.0 Vdc		120 W
VIB0102	48 Vdc (38-55)	1.2 Vdc		75 W
VIB0103	48 Vdc (38-55)	1.8 Vdc		80 W
VIB0104	48 Vdc (38-55)	3.3 Vdc		100 W
VIB0105	48 Vdc (38-55)	5.0 Vdc		100 W
VIB0106	48 Vdc (38-55)	6.0 Vdc		100 W
VIB0107	48 Vdc (38-55)	8.0 Vdc		100 W
VIB0108	48 Vdc (38-55)	9.6 Vdc		100 W
VIV0101	48 Vdc (26-55)	12 Vdc	10 A	
VIV0102	40 Vdc (26-55)	1.2 Vdc	50 A	
VIV0103	40 Vdc (26-55)	1.8 Vdc	40 A	
VIV0104	40 Vdc (26-55)	3.3 Vdc	25 A	
VIV0105	40 Vdc (26-55)	5.0 Vdc	20 A	
VIV0106	40 Vdc (26-55)	6.0 Vdc	17 A	
VIV0107	48 Vdc (26-55)	8.0 Vdc	12 A	
VIV0108	48 Vdc (26-55)	9.6 Vdc	10 A	
VMV0105	36 Vdc (26-50)	4.5 Vdc	15 A	
VMV0106	36 Vdc (26-50)	12.0 Vdc	6 A	

x =	Product Grade	Temp Range
C	Commercial	0 - 100 C
T	Telecom	-40 - 100 C
M	Military	-55 - 100 C

H = Half VIC Package Size

y =	Lead Designator
J	J-Lead
G	Gull-Wing
T	Through-Hole

z =	Revision Designator, any alpha-numeric character (optional, non-safety related)

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VI Chip Half BCM2 and Half VTM2 Family Tree Model: AAAbbbcdddefffxzz
Example: BCM48BH120T120A00

AAA = BCM

BCM (Buss Converter Module) or VTM (Voltage Transformation Module) Type			
BCM	Standard version	**VTM**	Standard version
MBCM	Mil-COTS version	**MVTM**	Mil-COTS version

bbb = 48B

Input Voltage	Nominal (range)		
36B	36 Vdc (26-50)	**48E**	48 Vdc (26-55)
48B	48 Vdc (38-55)	**48F**	48 Vdc (26-48)
48C	48 Vdc (42-53)	**48G**	48 Vdc (26-53)
48D	48 Vdc (38-60)	**48H**	48 Vdc (32-55)

c = H

Package Size and Lead Designator	
H	Half VI Chip J-Lead

ddd = 120

Output Voltage Designator (can be any three digits from 010 to 120) Vout = (designator / 10), non-inclusive list of examples below			
015	1.5 Vdc	**060**	6.0 Vdc
020	2.0 Vdc	**080**	8.0 Vdc
040	4.0 Vdc	**120**	12.0 Vdc

e = T

Product Grade	
T	-40 to 125C
M	-55 to 125C

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VI Chip Half BCM2 and Half VTM2 Family Tree Model: AAAbbbcdddefffxzz (Cont.)
Example: BCM48BH120T120A00

fff = 120

BCM Output Power Designator (can be any three digits from 025 to 120) non-inclusive list of examples below		VTM Output Current Designator (can be any three digits from 001 to 50) non-inclusive list of examples below	
025	25 W	**006**	6 A
050	50 W	**010**	10 A
075	75 W	**020**	20 A
080	80 W	**025**	25 A
100	100 W	**040**	40 A
120	120 W	**050**	50 A

x = A

Revision (non-safety related)	
x	Any alphanumeric character

zz = 00

Customer reference (non-safety related)	
zz	Any alphanumeric character

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Conditions of Acceptability – When installed in the end use equipment, the following are among considerations to be made:

1. **Input Voltage:** Both a nominal input voltage and an input voltage range are specified. Operation over the entire range was evaluated. BCM output power may be de-rated when input voltage is below nominal. See de-rating curve.
2. **Max Temperature:** Keep the maximum semiconductor junction temperature of the VI Chip at 125°C or less. There are three methods to demonstrate compliance

   Method One

   Keep $T_{casemax}$ < 100C under all conditions where $T_{casemax}$ is the maximum case temp of the VI Chip

   Method Two

   Keep $T_{casemax}$ < 125C - ($P_{dissmax}$ X 3.0) under all conditions where $P_{dissmax} = P_{Input\_max} - P_{Output\_max.}$ $P_{dissmax}$ is the amount of power in Watts dissipated within the device. The thermal resistance of the half size VI Chip from the internal semiconductor junction to the case is 3.0 °C / Watt.

   Method Three:

   Maintain the internal semiconductor junction temperature at Tj = 125°C or less. This can be achieved by measuring the dc voltage at the TM (temperature monitor) lead and converting the voltage to temperature The TM has a nominal +27C set point of 3.0 Vdc and a nominal gain of 10mV / °C.

   Example; TM = 3.4Vdc, Tj = (27 + 40) 67°C

3. **Fusing Requirements:** The half size BCM / VTM modules were evaluated with a 3.15A Littelfuse Nano²Fuse. If the VTM module is used with a VI Chip PRM then the VTM does not require individual fusing since the PRM requires it's own fuse and provides a current limited source to the VTM input. A worst case scenario of a half size VTM powered by a PRM fused with a 10A Littelfuse Nano²Fuse was evaluated. Refer to the PRM safety approvals for complete PRM model numbers and fusing requirements.
4. The input to the half size VI Chip is intended to be supplied from a TNV-2 or other secondary circuit. The output is considered to be SELV.
5. The half size BCM and VTM provide 2250 Vdc of isolation from input to output and from the input to the molded case.
6. The output is separated from the input by Basic insulation.

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