



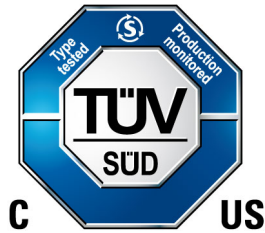
America

CERTIFICATE

No. U8V 021433 0604 Rev. 01

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

Certification Mark:



Product: Audio/Video, Information and Communication technology equipment
DC-DC converter

This product was voluntarily tested to the relevant safety requirements referenced on this certificate. It can be marked with the certification mark above. The mark must not be altered in any way. This product certification system operated by TÜV SÜD America Inc. most closely resembles system 3 as defined in ISO/IEC 17067. 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.: 72158859-100

Date, 2021-02-16

(William J. Stinson)



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Model(s): VTM2313S60Z01A4T00 / non-isolated SM-ChiP VTM
 NBM2317S60E1580TOR / non-isolated SM-ChiP NBM
 PRM2313S60H54HOT00 / non-isolated SM-ChiP PRM

Brand Name: **VICOR**

Tested according to: CAN/CSA-C22.2 No. 62368-1:2014
 UL 62368-1:2014
 EN 62368-1:2014/A11:2017

Parameters:

Rated Input Voltage:	60 V DC max
Rated Output Voltage:	2.3 V DC; 15 V DC; 54.0 V DC max
Rated Output Current:	135 A; 80 A or 1000W max; 800 W max
Protection Class:	III
Degree of Protection:	IPX0

License Conditions:

Special Considerations – The following items are considerations that were used when evaluating these products. The SM-ChiP series VTMs, NBMs, and PRMs are low voltage non-isolating surface mount DC-DC converters that are designed for building-in and provide functional insulation

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

1. The VTM and NBM SM-ChiPs are rated at full current/power to a Max case temperature of 100°C. See NBM model matrix for temperature de-rating of 65A and 80A model numbers
2. See PRM de-rating tables for Tcase max and Pout max
3. The SM-ChiPs are non-isolating low voltage devices that provide functional insulation
4. The SM-ChiP VTMs were evaluated with an external overcurrent protection device, Littelfuse 451/453 Series Fuse rated 5A, but during fault testing it was not deemed a required safeguard as it did not change the output ES level. External overcurrent protection to be considered in the end use product
5. The SM-ChiP PRMs were evaluated with an external overcurrent protection device, Littelfuse 456 Series Fuse rated 30A, but during fault testing it was not deemed a required safeguard as it did not change the output ES level. External overcurrent protection to be considered in the end use product
6. The NBMs rated up to 65A/800W out were tested with a Littelfuse 456 Series Fuse rated 20A
7. The NBMs rated 80A/1000W out were tested with a Littelfuse 456 Series Fuse rated 30A
8. The SM-ChiPs are to be mounted on minimum V-1 rated PCB in the end product



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VICOR SM-ChiP VTM Model Matrix: VTMaaaaSbbbwwwxyzz

Example: VTM2313S60Z01A4T00

VTM = Constant

Product Function	
VTM	Voltage Transformation Module

aaaa = 2313

Package Size (mm)	
1408	14 x 08
2308	23 x 08
2313	23 x 13

S = Constant

Lead Type	
S	Surface Mount

bbb = 60Z

Input Voltage Range	
52Z	26-52 Vdc
55Z	26-55 Vdc
60Z	26-60 Vdc

ww = 01

Output Voltage (range)	
01	1 Vdc (0.54 – 1.25)
02	2 Vdc (0.65 – 2.30)

xx = A4

Output Current					
50	50A	95	95A	A3	130A
76	76A	A1	105A	A4	135A

y = T

Product Grade (Tmax internal)	
C	0 to 125°C
T	-40 to 125°C
M	-55 to 125°C
Tcase max is 100°C	

zz = 00

Revision / Options, Z is not used in first option position, reserved for use in isolated VTM series	
zz	Any alphanumeric character



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VICOR SM-ChiP NBM Model Matrix: NBMaaaaSbbbwwxyzz

Example: NBM2317S54D1464T0R

NBM = Constant

Product Function	
NBM	Non-isolating Bus Converter Module

aaaa = 2317

Package Size (mm)	
2317	23 x 17

S = Constant

Lead Type	
S	Surface Mount

bbb = 54D

Input Voltage Range	
54D	38-54 Vdc
60D	40-60 Vdc
60E	38-60 Vdc

ww = 14

Output Voltage Range	
14	9.5 – 13.5 Vdc
15	9.5 - 15.0 Vdc

xx = 64

Output Current / Power	
60	60 A / 800 W
64	64 A / 750 W
65	65 A / 800 W
80	80 A / 1000W

y = T

Product Grade (Tmax internal)	
C	0 to 125°C
T	-40 to 125°C
M	-55 to 125°C
Tcase max is 100°C for xx = 60 or 64	
Tcase max is 95°C for xx = 80	

zz = 0R

Revision / Options / Functionality	
zz	Any alphanumeric character
zR	Reverse Operation

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VICOR SM-ChiP PRM Model Matrix: PRMaaaaSbbbwwwxyzz

Example: PRM2313S52H52H0T00

PRM = Constant

Product Function	
PRM	Pre-Regulator Module

aaaa = 2313

Package Size (mm)	
1310	13 x 10
2308	23 x 08
2313	23 x 13
2314	23 x 14

S = Constant

Lead Type	
S	Surface Mount

bbb = 52

Input Voltage Nominal (range)	
52H	42 Vdc (24-52)
60D	50 Vdc (40-60)
60E	44 Vdc (38-60)

ww = 52

Output Voltage Nominal (range)	
15	12 Vdc (10-15)
50	50Vdc (40-60)
52	48Vdc (40-52)
54	48Vdc (30-54)
55	44Vdc (26-52.5)

xx = H0

Max Output Power	
B5	250 W
C5	350 W
D0	400 W
H0	800 W
See attached tables for power de-rating	

y = T

Product Grade (Tmax internal)	
C	0 to 125°C
T	-40 to 125°C
M	-55 to 125°C
See attached tables for Tcase max	

zz = 01

Revision / Options	
zz	Any alphanumeric character

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SM-ChiP PRM de-rating tables

PRM2308S60E55C5yzz			
Vin	Vout	Pout	Tcase Max
38	26.0	175W	90°C
54	26.0	175W	90°C
60	26.0	175W	90°C
38	44.0	350W	85°C
54	44.0	350W	85°C
60	44.0	350W	85°C
38	52.5	275W	90°C
54	52.5	275W	90°C
60	52.5	275W	90°C
Single sided bottom cooling, Tcase Max = Top of ChiP			

PRM2313S60E54H0yzz				
Vin	Vout	Pout	Tcase Max	
			Double	Single
30	30.0	500W	100°C	85°C
54	30.0	500W	85°C	65°C
60	30.0	500W	80°C	60°C
30	48.0	800W	95°C	65°C
54	48.0	800W	85°C	65°C
60	48.0	800W	80°C	60°C
30	54.0	800W	85°C	60°C
54	54.0	800W	90°C	70°C
60	54.0	800W	85°C	65°C
Double = Double sided cooling, Tcase Max = Top and Bottom of ChiP Single = Single sided bottom cooling, Tcase Max = Top of ChiP				

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PRM2313S52H15D0yzz / PRM2314S52H15D0yzz			
Vin	Vout	Pout	Tcase Max
24	12V (10-15)	300W	105°C
32	12V (10-15)	400W	105°C
42	12V (10-15)	400W	105°C
52	12V (10-15)	400W	105°C

Single sided bottom cooling, Tcase Max = Top of ChiP

PRM2313S52H52H0yzz / PRM2314S52H52H0yzz			
Vin	Vout	Pout	Tcase Max
24	48V (40-52)	500W	100°C
32	48V (40-52)	800W	100°C
42	48V (40-52)	800W	100°C
52	48V (40-52)	800W	100°C

Single sided bottom cooling, Tcase Max = Top of ChiP

PRM1310S60D60B5yzz				
Vout	Pout	Tcase Max		
		Double	Single	
40	250W	110°C	100°C	
50	250W	95°C	75°C	
60	250W	90°C	65°C	
40	250W	105°C	90°C	
50	250W	110°C	100°C	
60	250W	105°C	90°C	
40	250W	100°C	85°C	
50	250W	105°C	90°C	
60	250W	115°C	105°C	

Double = Double sided cooling, Tcase Max = Top and Bottom of ChiP

Single = Single sided bottom cooling, Tcase Max = Top of ChiP