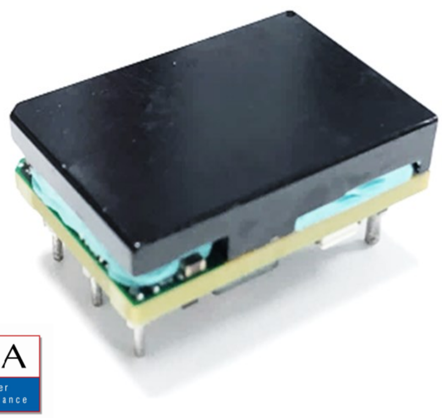
DATASHEET

KBVS008A0B (Sixteenth-Brick) DC-DC Converter Power Modules

30–60V_{dc} Input; 12.0V_{dc}, 8.3A, 100W Output

BARRACUDA* SERIES
RoHS Compliant



Description

The KBVS008A0B, Sixteenth-brick low-height power module is an isolated dc-dc converters that can deliver up to 8.3A/100W of output current and provide a precisely regulated output voltage of 12.0V over a wide range of input voltages (V_{IN} = 30–60V_{dc}). The modules achieve typical full load efficiency of 92.5%.

Applications

- Distributed Power Architectures
- Wireless Networks
- Access and Optical Network Equipment
- Enterprise Networks including Power over Ether-net (PoE)
- Industrial Equipment

Options

- Negative Remote On/Off logic (preferred)
- Over current/Over temperature/Over voltage protections (Auto-restart) (preferred)
- Always has Heat Plate (-H)
- For additional options, see Table 2 (Device Options) under “Ordering Information” section.

See Footnote on Page No. 2

© 2023 OmniOn Power Inc. All rights reserved.

Features

- Wide input voltage range: 30-60 V_{dc}
- Monotonic startup into prebiased load
- Output Voltage adjust: 90% to 110% of $V_{o, nom}$
- Constant switching frequency
- Negative remote On/Off logic
- Input under voltage protection
- Output overcurrent and overvoltage protection
- Over-temperature protection
- Industry standard, DOSA compliant footprint 33.0 mm x 22.9 mm x 12.7 mm (1.30 x 0.90 x 0.50 in)
- Low profile height
- High efficiency: 92.5%
- Wide operating temperature range (-40°C to 85°C)
- Compliant to RoHS Directive 2011/65/EU and amended Directive (EU) 2015/863 (-Z versions)
- Compliant to REACH Directive (EC) No 1907/2006
- ANSI/UL[#] 62368-1 and CAN/CSA[†] C22.2 No. 62368-1 Recognized, DIN VDE‡ 0868-1/A11:2017 (EN62368-1:2014/A11:2017
- CE mark meets 2014/35/EU directive[§]
- Meets the voltage and current requirements for ETSI 300- 132-2 and complies with and licensed for Basic insulation rating
- 2250 V_{dc} Isolation tested in compliance with IEEE 802.3[¤] PoE standards
- ISO[**]9001 and ISO 14001 certified manufacturing facilities

FOOTNOTES

* Trademark of OmniOn Company

UL is a registered trademark of Underwriters Laboratories, Inc.

† CSA is a registered trademark of Canadian Standards Association.

‡ VDE is a trademark of Verband Deutscher Elektrotechniker e.V.

§ This product is intended for integration into end-user equipment. All of the required procedures of end-use equipment should be followed.

¤ IEEE and 802 are registered trademarks of the Institute of Electrical and Electronics Engineers, Incorporated.

** ISO is a registered trademark of the International Organization of Standards

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only, functional operation of the device is not implied at these or any other conditions in excess of those given in the operations sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect the device reliability.

Parameter	Device	Symbol	Min	Max	Unit
Input Voltage					
Continuous	All	V_{IN}	-0.3	75	V_{dc}
Transient Operational (≤ 100ms)	All	$V_{IN, trans}$	-0.3	75	V_{dc}
Operating Ambient Temperature (see Thermal Considerations section)	All	T_A	-40	85	°C
Storage Temperature	All	T_{stg}	-55	125	°C
I/O Isolation Voltage (100% factory Hi-Pot tested)	All	-	-	2250	V_{dc}

Electrical Specifications

Unless otherwise indicated, specifications apply over all operating input voltage, resistive load, and temperature conditions.

Parameter	Device	Symbol	Min	Typ	Max	Unit
Operating Input Voltage	All	V_{IN}	30	48	60	V_{dc}
Maximum Input Current (V_{IN}= $V_{IN, min}$ to $V_{IN, max}$, I_O=$I_{O, max}$)	All	$I_{IN, Max}$			3.8	A_{dc}
Input No Load Current (V_{IN} = 48V, (I_O = 0, module enabled)	All	$I_{IN,No\ load}$		90		mA
Input Stand-by Current (V_{IN} = 48V, module disabled)	All	$I_{IN,stand\text{-}by}$		4	6	mA
Inrush Transient	All	I^2t			0.5	A^2s
Input Reflected Ripple Current, peak-to-peak (5Hz to 20MHz, 12μH source impedance; $V_{IN,min}$ to $V_{IN,mix}$; I_o= $I_{o, max}$; see Test configuration section)	All			30		$mA_{p\text{-}p}$
Input Ripple Rejection (120Hz)	All			40		dB

CAUTION: This power module is not internally fused. An input line fuse must always be used.

This power module can be used in a wide variety of applications, ranging from simple standalone operation to being part of complex power architecture. To preserve maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse. The safety agencies require a fast-acting fuse with a maximum rating of 10A (see Safety Considerations section). Based on the information provided in this data sheet on inrush energy and maximum dc input current, the same type of fuse with a lower rating can be used. Refer to the fuse manufacturer's data sheet for further information.

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

Electrical Specifications (continued)

Parameter	Device	Symbol	Min	Typ	Max	Unit
Nominal Output Voltage Set-point (V_{IN}= 48V I_O=$I_{O,\ max}$, T_A=25°C)	All	$V_{O,\ set}$	11.76	12.0	12.24	V_{dc}
Output Voltage (Over all operating input voltage, resistive load, and temperature conditions until end of life)	All	V_O	11.64	-	12.36	V_{dc}
Output Regulation Line (V_{IN}=$V_{IN,\ min}$ to $V_{IN,\ max}$) Load (I_O=$I_{O,\ min}$ to $I_{O,\ max}$) Temperature (T_{ref}=T_A, min to $T_{A,\ max}$)	 All All All		 - - -	 - - -	 ±0.2 ±0.2 ±1.0	 % $V_{O,\ set}$ % $V_{O,\ set}$ % $V_{O,\ set}$
Output Ripple and Noise (C_o=1uF,ceramic+10µF,tantalum V_{IN}=$V_{IN,\ min}$ to $V_{IN,\ max}$, I_O= $I_{O,\ max}$, T_A=25°C) RMS (5Hz to 20MHz bandwidth) Peak-to-Peak (5Hz to 20MHz bandwidth)	 All All		 - -	 - -	 50 150	 mV_{rms} mV_{pk-pk}
External Capacitance	All	$C_{O,\ max}$	100	-	2000	μF
Output Current	All	I_O	0	-	8.3	A_{dc}
Output Current Limit Inception (Hiccup Mode) (V_O= 90% of $V_{O,\ set}$)	All	$I_{O,\ lim}$	110	120	150	% I_O
Output Short-Circuit Current (V_O≤ 250mV) (Hiccup Mode)	All	$I_{O,\ s/c}$		2.5		A_{rms}
Efficiency V_{IN}=48V, T_A=25°C, I_O=$I_{o,\ max}$, V_O = $V_{O,\ set}$	All	η		92.5		%
Switching Frequency	All	f_{sw}		450		kHz
Dynamic Load Response (C_o=1uF,ceramic+10µF, tantalum, dI_o/dt=0.1A/µs; V_{IN} = 48V; T_A=25°C) Load Change from I_o= 50% to 75% or 25% to 50% of $I_{o,max}$ Peak Deviation Settling Time (V_O<10% peak deviation)	 All All	 V_{pk} ts	 - -	 360 100	 - -	 mV µs

Isolation Specifications

Parameter	Device	Symbol	Min	Typ	Max	Unit
Isolation Capacitance[1]	All	C_{iso}	-	1000	-	pF
Isolation Resistance	All	R_{iso}	10	-	-	MΩ
I/O Isolation Voltage (100% factory Hi-pot tested)	All	All	-	-	2250	V_{dc}

1. See Note 1 under Feature Specifications.

General Specifications

Parameter	Device	Symbol	Min	Typ	Max	Unit
Calculated Reliability based upon Telcordia SR-332 Issue 2: Method I Case 3 (I_O=80%x$I_{O,\ max}$, T_A=40°C, airflow = 200 lfm, 90% confidence)	All	FIT		89.8		10^9/Hours
	All	MTBF		11,133,281		Hours
Weight (with Heatplate)	All			26.8(0.95)		g (oz.)

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

Feature Specifications

Unless otherwise indicated, specifications apply over all operating input voltage, resistive load, and temperature conditions. See Feature Descriptions for additional information.

Parameter	Device	Symbol	Min	Typ	Max	Unit
Remote On/Off Signal Interface						
(V_{IN}=$V_{IN,\ min}$ to $V_{IN,\ max}$; open collector or equivalent, Signal referenced to V_{IN}- terminal)						
Negative Logic: device code suffix "1"						
Logic Low = module On, Logic High = module Off						
Positive Logic: No device code suffix required						
Logic Low = module Off, Logic High = module On						
Logic Low - Remote On/Off Current	All	$I_{on/off}$	-	-	0.15	mA
Logic Low - On/Off Voltage	All	$V_{on/off}$	-0.7	-	0.6	V_{dc}
Logic High Voltage (Typ=Open Collector)	All	$V_{on/off}$	2.4	-	7.5	V_{dc}
Logic High maximum allowable leakage current	All	$I_{on/off}$	-	-	25	μA
Turn-On Delay and Rise Times						
(I_O=$I_{O,\ max}$, V_{IN}=$V_{IN,\ nom}$, T_A = 25°C)						
Case 1: Input power is applied for at least 1 second, and then the On/Off input is set from OFF to ON (T_{delay} = on/off pin transition until V_O = 10% of $V_{O,\ set}$)	All	T_{delay}	-	5	-	msec
Case 2: On/Off input is set to Module ON, and then input power is applied (T_{delay} = V_{IN} reaches $V_{IN,\ min}$ until V_O = 10% of $V_{O,\ set}$)	All	T_{delay}	-	5	-	msec
Output voltage Rise time (time for Vo to rise from 10% of $V_{O,\ set}$ to 90% of $V_{O,\ set}$)	All	T_{rise}	-	-	30	msec
Output Voltage Overshoot - Startup I_O=$I_{O,\ max}$, V_{IN}=$V_{IN,\ min}$ to $V_{IN,\ max}$, T_A=25°C	All			-	3	% $V_{o,\ set}$
Prebiased Output Load Performance: Output Start up characteristic	All	Monotonic				
Output Voltage Adjustment Range	All		90		110	% $V_{o,\ set}$
Output Overvoltage Protection	All	$V_{o,limt}$	-	16	-	V_{dc}
Overtemperature Protection – Hiccup Auto Restart	All	T_{ref}	-	121	-	°c
Input Undervoltage Lockout	All	V_{UVLO}				
Turn-on Threshold			-	28.5	-	V_{dc}
Turn-off Threshold			-	27	-	V_{dc}
Hysterisis			-	1.5		V_{dc}

1. An external 1nF ceramic isolation capacitor should be added between Vin(-) and Vo(-) to prevent noise from disrupting controller functions.

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

Characteristic Curves

The following figures provide typical characteristics for the module at 25°C. The figures are identical for either positive or negative remote On/Off logic.

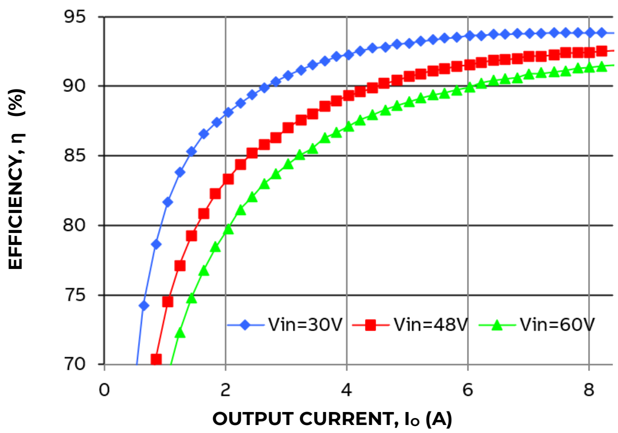


Figure 1. Converter Efficiency versus Output Current.

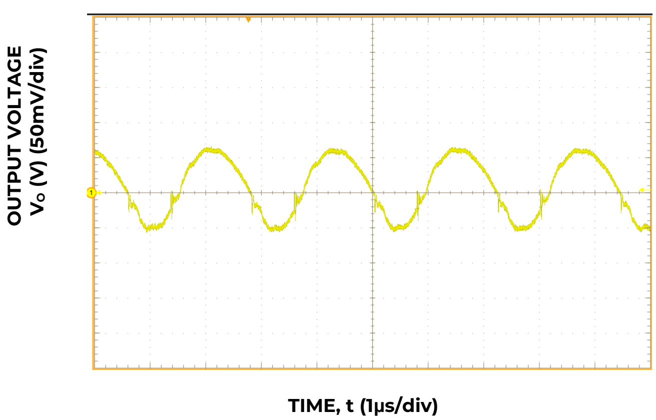


Figure 2.Typical output ripple and noise ($I_o = I_{o,\,max}$).

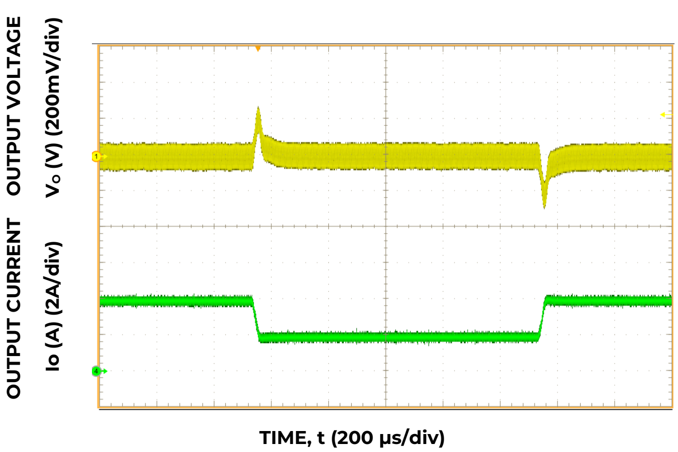


Figure 3. Transient Response to 0.1A/µS Dynamic Load Change from 25% to 50% to 25% of full load, V_{in}=48V

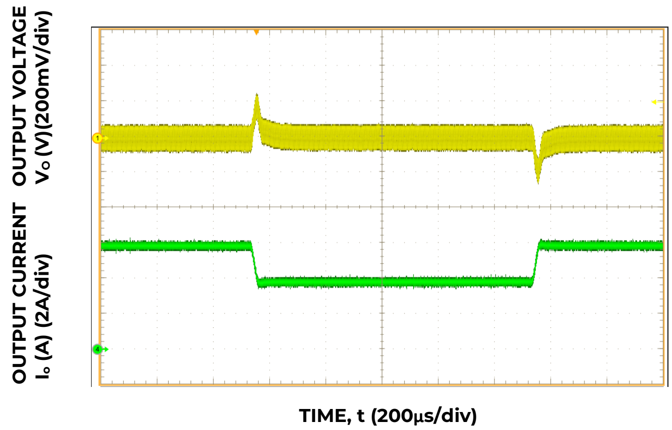


Figure 4. Transient Response to 0.1A/µS Dynamic Load Change from 50% to 75% to 50% of full load, Vin=48V

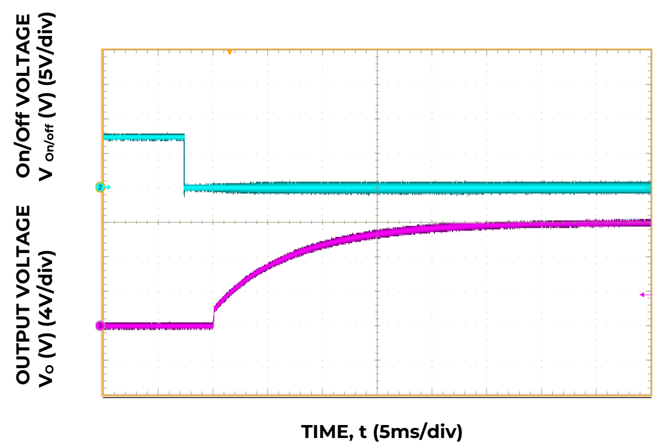


Figure 5. Typical Start-up Using Remote On/Off, negative logic version shown (V_{IN} = 48V, $I_o = I_{o,\,max}$).

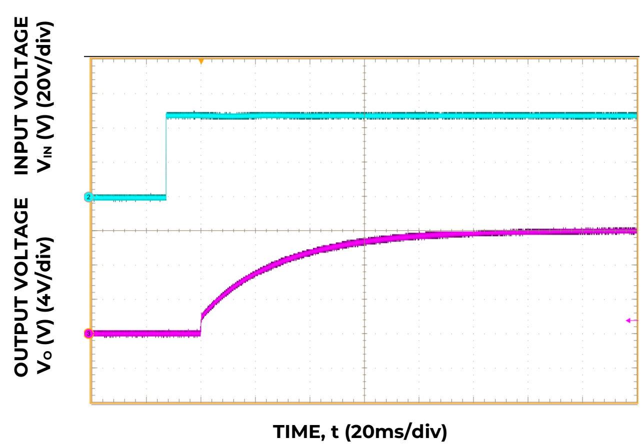


Figure 6. Typical Start-up Using Input Voltage

(V_{IN} = 48V, $I_o = I_{o,\,max}$).

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

Test Configurations

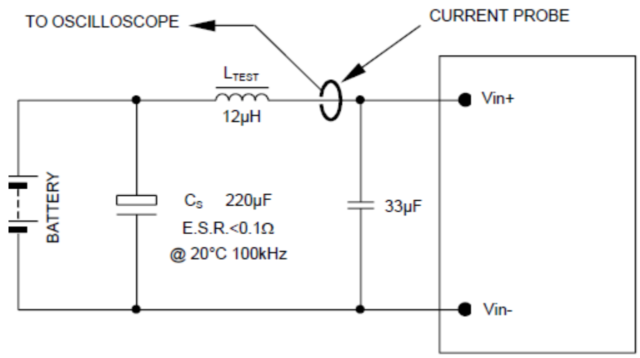


Figure 7. Input Reflected Ripple Current Test Setup.

NOTE: Measure input reflected ripple current with a simulated source inductance (L_{TEST}) of 12μH. Capacitor C_S offsets possible battery impedance. Measure current as shown above.

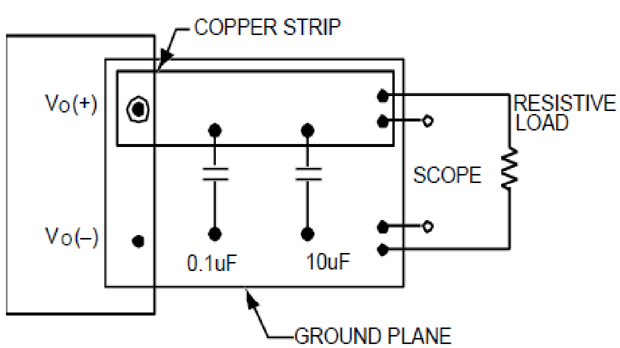


Figure 8. Output Ripple and Noise Test Setup.

NOTE: All voltage measurements to be taken at the module terminals, as shown above. If sockets are used then Kelvin connections are required at the module terminals to avoid measurement errors due to socket contact resistance.

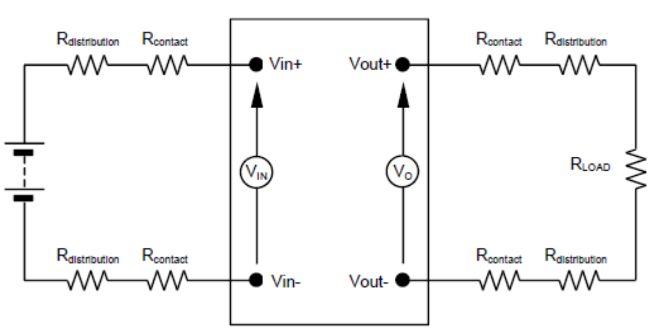


Figure 9. Output Voltage and Efficiency Test Setup.

NOTE: All voltage measurements to be taken at the module terminals, as shown above. If sockets are used then Kelvin connections are required at the module terminals to avoid measurement errors due to socket contact resistance.

$$\text{Effieiency } \eta = \frac{V_o \cdot I_o}{V_{IN} \cdot I_{IN}} \times 100\%$$

Design Considerations

Input Filtering

The power module should be connected to a low ac-impedance source. Highly inductive source impedance can affect the stability of the power module. For the test configuration in Figure 7, a 33μF electrolytic capacitor (ESR<0.7Ω at 100kHz), mounted close to the power module helps ensure the stability of the unit. Consult the factory for further application guidelines.

Safety Considerations

For safety agency approval the power module must be installed in compliance with the spacing and separation requirements of the end-use safety agency standards, i.e., UL ANSI/UL* 62368-1 and CAN/CSA+ C22.2 No. 62368-1 Recognized, DIN VDE 0868- 1/ A11:2017 (EN62368-1:2014/A11:2017)

If the input source is non-SELV (ELV or a hazardous voltage greater than 60 V_{dc} and less than or equal to 75V_{dc}), for the module's output to be considered as meeting the requirements for safety extra-low voltage (SELV) or ES1, all of the following must be true:

- The input source is to be provided with reinforced insulation from any other hazardous voltages, including the ac mains.
- One V_{IN} pin and one V_{OUT} pin are to be grounded, or both the input and output pins are to be kept floating.
- The input pins of the module are not operator accessible.
- Another SELV or ES1 reliability test is conducted on the whole system (combination of supply source and subject module), as required by the safety agencies, to verify that under a single fault, hazardous voltages do not appear at the module's output.

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

Safety Considerations (continued)

Note: Do not ground either of the input pins of the module without grounding one of the output pins.

This may allow a non-SELV/ES1 voltage to appear between the output pins and ground.

All flammable materials used in the manufacturing of these modules are rated 94V-0, or tested to the UL60950 A.2 for reduced thickness.

The power module has safety extra-low voltage (SELV) or ES1outputs when all inputs are SELV or ES1.

For input voltages exceeding –60 V_{dc} but less than or equal to –75 V_{dc}, these converters have been evaluated to the applicable requirements of BASIC INSULATION between secondary DC MAINS DISTRIBUTION input (classified as TNV-2 in Europe) and unearthed SELV outputs.

The input to these units is to be provided with a maximum 5A Fast– acting fuse in the ungrounded lead.

Feature Descriptions

Remote On/Off

Currently there is only negative logic remote On/Off, device code suffix "1", turns the module off during a logic high and on during a logic low.

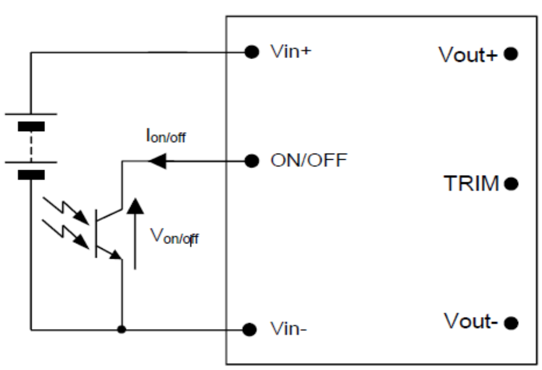


Figure 10 Remote On/Off Implementation.

To turn the power module on and off, the user must supply a switch (open collector or equivalent) to control the voltage ($V_{on/off}$) between the ON/OFF terminal and the V_{IN}(-) terminal (see Figure 10). Logic low is - 0.75V ≤ Von/off ≤ 0.6V. The maximum Ion/off during a logic ow is 0.15mA; the switch should maintain a logic low level whilst sinking this current.

During a logic high, the typical maximum Von/off generated by the module is 3.9V, and the maximum allowable leakage current at Von/off = 2.4V is 25μA.

If not using the remote on/off feature: Short the ON/OFF pin to V_{IN}(-).

Positive logic is not supported at this time.

Input Undervoltage Lockout

At input voltages below the input undervoltage lockout limit, the module operation is disabled. The module will only begin to operate once the input voltage is raised above the undervoltage lockout turn-on threshold, $V_{UV/ON}$.

Once operating, the module continues to operate until the input voltage is taken below the undervoltage turn-off threshold, $V_{UV/OFF}$.

Overtemperature Protection

To provide protection under certain fault conditions, the unit is equipped with a thermal shutdown circuit. The unit will shutdown if the thermal reference point T_{ref} (Figure 13), exceeds 121°C (typical), but the thermal shutdown is not intended as a guarantee that the unit will survive temperatures beyond its rating. The module can be restarted by cycling the dc input power for at least one second or by toggling the remote on/off signal for at least one second. If the auto-restart option (4) is ordered, the module will automatically restart upon cool-down to a safe temperature.

Output Overvoltage Protection

The output over voltage protection scheme of the modules has an independent over voltage loop to prevent single point of failure. This protection feature latches in the event of over voltage across the output. Cycling the on/off pin or input voltage resets the latching protection feature. If the auto restart option (4) is ordered, the module will automatically restart upon an internally programmed time elapsing.

Overcurrent Protection

To provide protection in a fault (output overload) condition, the unit is equipped with internal

© 2023 OmniOn Power Inc. All rights reserved.

current-limiting circuitry and can endure current limiting continuously. At the point of current-limit inception, the unit enters hiccup mode. If the unit is not configured with auto–restart, then it will latch off following the over current condition. The module can be restarted by cycling the dc input power for at least one second or by toggling the remote on/off signal for at least one second.

If the unit is configured with the auto-restart option (4), it will remain in the hiccup mode as long as the overcurrent condition exists; it operates normally, once the output current is brought back into its specified range. The average output current during hiccup is 10% $I_{O,\,max.}$

Pre-Bias Startup

The module starts up monotonically into pre-biased load from $0.0V_{dc}$ up to V_{out} - $0.6V_{dc}$.

Output Reverse Current with Pre-Bias Output Voltage

The module does not sink appreciable current (current flow into the module) that can compromise the reliability of the product. This condition is valid for either during startup or shutdown over the output pre -bias voltage range of $0.0V_{dc}$ up to V_{out} $-0.6V_{dc}$. The test conditions for startup or shutdown are applicable for application and removal of input voltage, V_{in} or by enabling and disabling the module via remote On/Off.

Output Voltage Programming

Trimming allows the output voltage set point to be increased or decreased from the default value; this is accomplished by connecting an external resistor between the TRIM pin and either the $V_O(+)$ pin or the $V_O(-)$ pin.

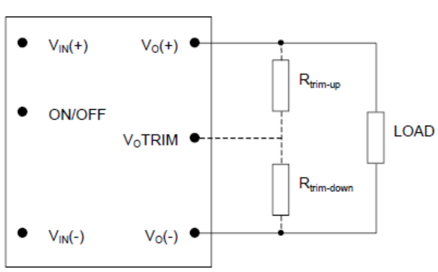


Figure 12. Circuit Configuration to Trim Output Voltage.

Connecting an external resistor ($R_{trim\text{-}down}$) between the TRIM pin and the $V_O(-)$ (or Sense(-)) pin decreases the output voltage set point. To maintain set point accuracy, the trim resistor tolerance should be ±1.0%.

The following equation determines the required external resistor value to obtain a percentage output voltage change of Δ%

$$R_{trim\text{-}down} = \left[\frac{511}{\Delta\%} - 10.22\right] K\Omega$$

$$\text{Where,} \quad \Delta\% = \left(\frac{V_{o,set} - V_{desired}}{V_{o,set}}\right) X\,100$$

For example, to trim-down the output voltage of the module by 8% to 11.04V, $R_{trim\text{-}down}$ is calculated as follows:

$$\Delta\% = 8$$

$$R_{trim\text{-}down} = \left[\frac{511}{8} - 10.22\right] K\Omega$$

$$R_{trim\text{-}down} = 53.655\ K\Omega$$

Connecting an external resistor ($R_{trim\text{-}up}$) between the TRIM pin and the $V_O(+)$ (or Sense (+)) pin increases the output voltage set point. The following equation determines the required external resistor value to obtain a percentage output voltage change of Δ%:

$$R_{trim\text{-}up} = \left[\frac{511 x\ V_{o,set}\ x (100+\Delta\%)}{1.225\ x\ \Delta\%} - \frac{511}{\Delta\%} - 10.22\right] K\Omega$$

$$\text{Where} \quad \Delta\% = \left(\frac{V_{desired} - V_{o,set}}{V_{o,set}}\right) X\,100$$

For example, to trim-up the output voltage of the module by 5% to 5.2V, $R_{trim\text{-}up}$ is calculated is as follows:

$$\Delta\% = 5$$

$$R_{trim\text{-}up} = \left[\frac{511 x 12.0V x (100+5\%)}{1.225\ x\ 5} - \frac{511}{5} - 10.22\right] K\Omega$$

$$R_{trim\text{-}down} = 938.8\ K\Omega$$

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

The voltage between the $V_O(+)$ and $V_O(–)$ terminals must not exceed the minimum output overvoltage protection value shown in the Feature Specifications table. This limit includes any increase in voltage due to remote-sense compensation and output voltage set-point adjustment trim.

Although the output voltage can be increased by both the remote sense and by the trim, the maximum increase for the output voltage is not the sum of both. The maximum increase is the larger of either the remote sense or the trim. The amount of power delivered by the module is defined as the voltage at the output terminals multiplied by the output current. When using remote sense and trim, the output voltage of the module can be increased, which at the same output current would increase the power output of the module. Care should be taken to ensure that the maximum output power of the module remains at or below the maximum rated power (Maximum rated power = $V_{O,set}$ x $I_{O,max}$).

Thermal Considerations

The power modules operate in a variety of thermal environments. This module is with heatplate and are designed to be used in cold wall applications via conduction cooling.

The thermal reference point, T_{ref} used in the specifications is shown in Figure 13. For reliable operation this temperature should not exceed 103°C.

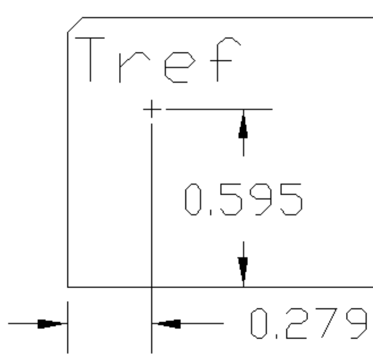


Figure 13. T_{ref} Temperature Measurement Location for Module with Heatplate.

Modules with heat plate (-H) can also be used in cold wall applications for heat transfer via conduction cooling. Fig 14a&14b show the setup and derating curve for this application.

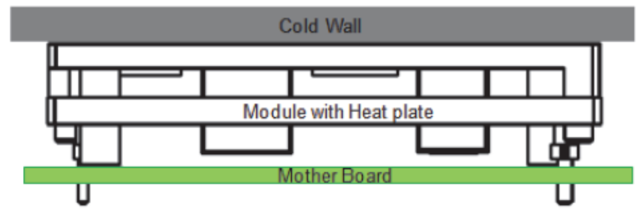


Figure 14a. Coldwall application setup

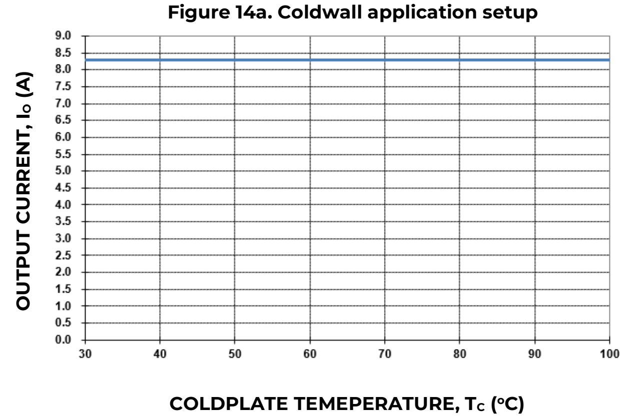


Figure 14b. Output Current Derating for the Module with Heatplate in a cold wall application; V_{in} =30-60V.

Through-Hole Lead-Free Soldering

The RoHS-compliant, through hole with heatplate products use the SAC (Sn/Ag/Cu) Pb-free solder and RoHS-compliant components. They are designed to be processed through single or dual wave soldering machines. The pins have a RoHS-compliant, pure tin finish that is compatible with both Pb and Pb-free wave soldering processes. A maximum preheat rate of 3°C/s is suggested. The wave preheat process should be such that the temperature of the power module board is kept below 210°C. For Pb solder, the recommended pot temperature is 260°C, while the Pb-free solder pot is 270°C max.

Post Solder Cleaning and Drying Considerations

Post solder cleaning is usually the final circuit-board assembly process prior to electrical board testing. The result of inadequate cleaning and drying can affect both the reliability of a power module and the testability of the finished circuit-board assembly. For guidance on appropriate soldering, cleaning and drying procedures, refer to OmniOn Power Board Mounted Power Modules: Soldering and Cleaning Application Note (AN04-001).

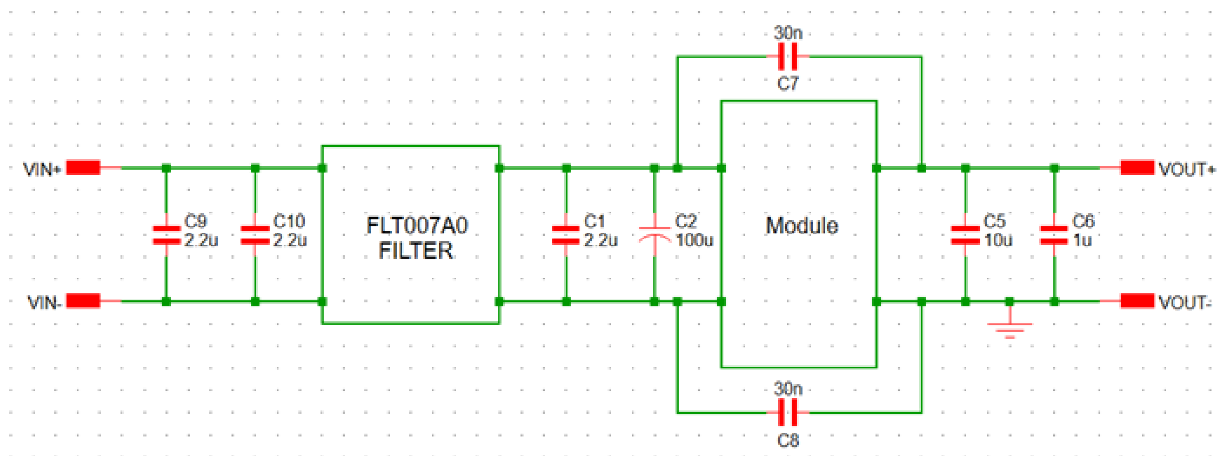
© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

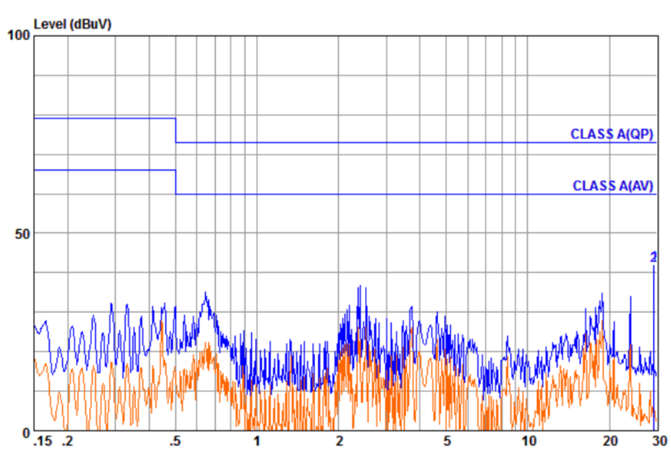
EMC Considerations

The circuit and plots in Figure 22 show a suggested configuration to meet the conducted emission limits of EN55032 Class A.

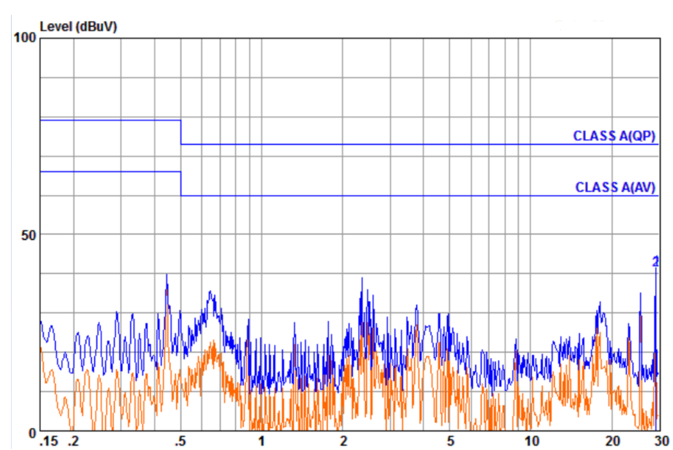
Note: Customer is ultimately responsible for the proper layout, component selection, rating and verification of the suggested parts based on end application.



Reference	Description	MPN
C1	X7R 2.2uf 100V 1210 SIZE	C1210X225K101TX
C2	100uF 100V	UPW2A101MPD
C5	10uF 25V	TAJD106K025ESA
C6	1uF 50V	C3216X7R1H105KT
C7	3pcs 10nF 1000V in parallel	C1808X103K102T
C8	3pcs 10nF 1000V in parallel	C1808X103K102T
C9	X7R 2.2uf 100V 1210 SIZE	C1210X225K101TX
C10	X7R 2.2uf 100V 1210 SIZE	C1210X225K101TX
Filter	Two stage EMI filter	FLT007A0



VIN = 48V, Io = Io,max, L Line



VIN = 48V, Io = Io,max, N Line

Figure 22. EMC Considerations

For further information on designing for EMC compliance, please refer to the FLT007A0 data sheet (DS05-028).

© 2023 OmniOn Power Inc. All rights reserved.

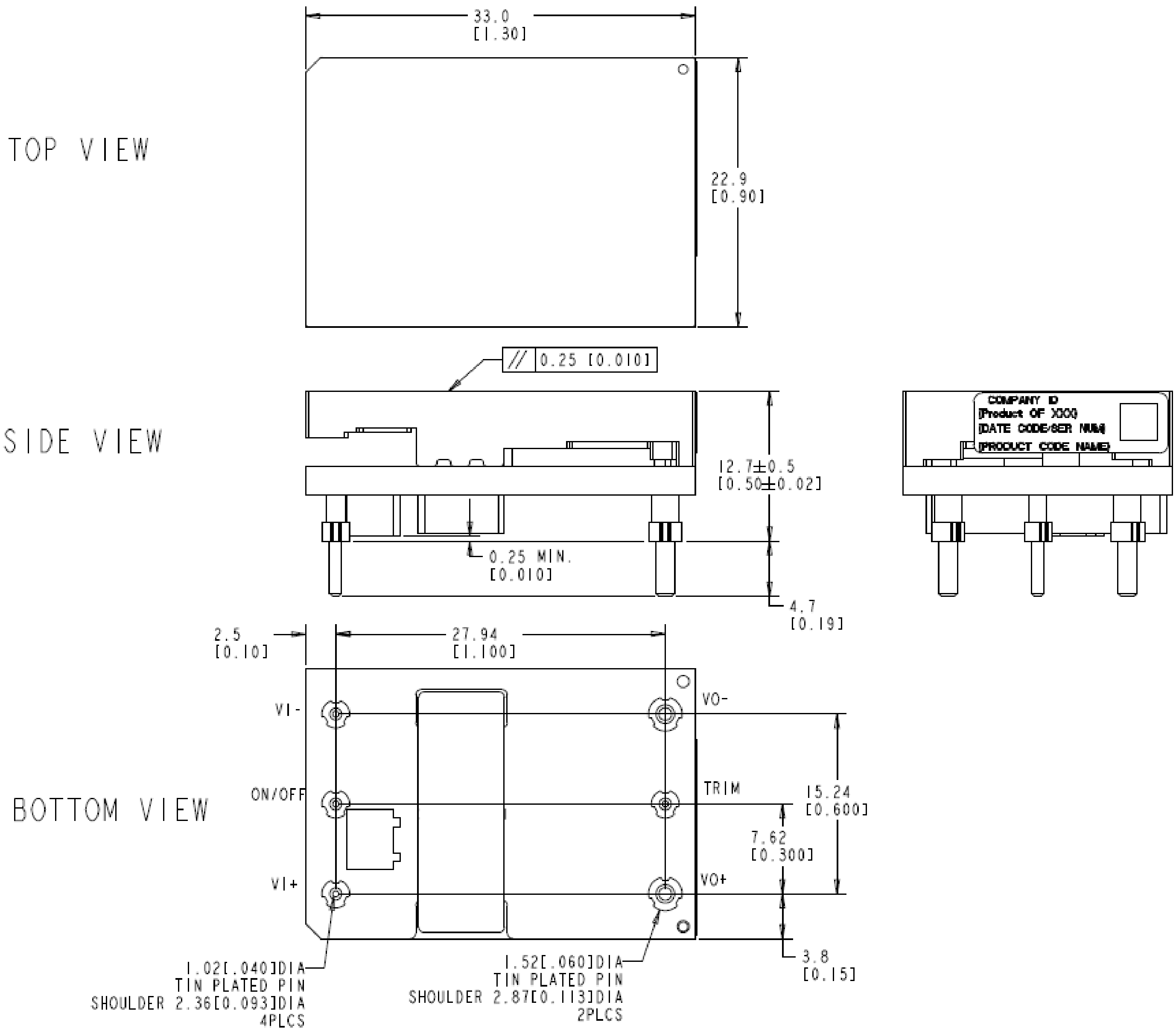
Technical Specifications (continued)

Mechanical Outline for Through-Hole Module with Heat Plate (-H)

Dimensions are in millimeters and [inches].

Tolerances: x.x mm ± 0.5 mm [x.xx in. ± 0.02 in.] (unless otherwise indicated)

x.xx mm ± 0.25 mm [x.xxx in ±0.010 in.]



Pin	Function
1	$V_{IN}(+)$
2	ON/OFF
3	$V_{IN}(-)$
4	$V_o(-)$
5	TRIM
6	$V_o(+)$

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

Recommended Pad Layout

Dimensions are in millimeters and [inches].

Tolerances: x.x mm ± 0.5 mm [x.xx in. ± 0.02 in.] (Unless otherwise indicated)

x.xx mm ± 0.25 mm [x.xxx in ± 0.010 in.

Pin	Function
1	$V_{IN}(+)$
2	ON/OFF
3	$V_{IN}(-)$
4	$V_o(-)$
5	TRIM
6	$V_o(+)$

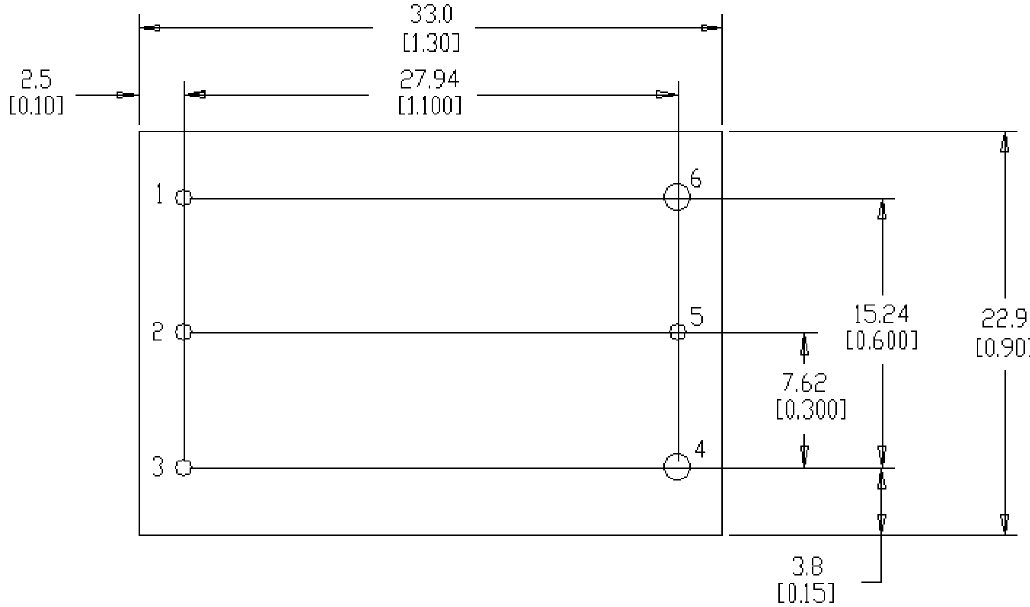


Figure23. TH Recommended Pad Layout (Top Side View)

Pin Number	Hole Dia mm [in]	Pad Dia mm [in]
1, 2, 3,5	1.6 [.063]	2.1 [.083]
4,6	2.3 [.091]	3.3 [.130]

Packaging Details

KBVS008XXX-HZ is supplied in foam trays and 84pcs/box.

Each foam tray contains a total of 28 power modules. Each shipping box contains 3 full trays giving a total number of 84pcs power modules.

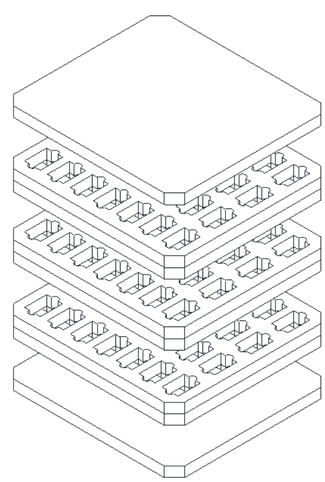


Figure24. Package view

© 2023 OmniOn Power Inc. All rights reserved.

Technical Specifications (continued)

Ordering Information

Please contact your OmniOn Sales Representative for pricing, availability and optional features.

Product Code	Input Voltage	Output Voltage	Output Current	On/Off Logic	Connector Type	MSL Rating	Ordering Codes
KBVS008A0B641-HZ	48V (30-60V_{dc})	12.0V	8.3A	Negative	Through hole	n/a	1600421162A

Table 1. Device Codes

	Characteristic	Character and Position												Definition
Ratings	Form Factor	K												K = Sixteenthth Brick
	Family Designator		BV											BV = BARRACUDA Series
	Input Voltage			S										S = Wide Range, 30V-60V
	Output Current				008A0									008A0 = 008.0 Amps Maximum Output Current
	Output Voltage					B								B = 12.0V nominal
Options	Pin Length						6 8							Omit = Default Pin Length shown in Mechanical Outline Figures 6 = Pin Length: 3.68 mm ± 0.25mm , (0.145 in. ± 0.010 in.) 8 = Pin Length: 2.79 mm ± 0.25mm , (0.110 in. ± 0.010
	Action following Protective Shutdown							4						Omit = Latching Mode 4 = Auto-restart following shutdown (Overcurrent/ Overvoltage)
	On/Off Logic								1					Omit = Positive Logic 1 = Negative Logic
										-				
	Customer Specific										XY 21			XY= Customer Specific Modified Code, Omit for Standard Code 21 = Meets 100us Vin dropout test with minimal external Cin
	Mechanical Features											SR H		Omit = Standard open Frame Module SR = Surface mount connections & tape/reel package H = Heat plate, for use with heat sinks
	RoHS												Z	Omit = RoHS 5/6, Lead Based Solder Used Z = RoHS 6/6 Compliant, Lead free

Table 2. Device Coding Scheme and Options

Contact Us

For more information, call us at
+1-877-546-3243 (US)
+1-972-244-9288 (Int'l)

© 2023 OmniOn Power Inc. All rights reserved.

Change History (excludes grammar & clarifications)

Version	Date	Description of the change
1.0	10/10/2022	First release.
1.1	12/8/2022	Update the temperature condition of the output ripple
1.2	4/26/2023	Minor edits including page footer
1.3	01/11/2023	Update as per OmniOn template

© 2023 OmniOn Power Inc. All rights reserved.

OmniOn Power Inc.
601 Shiloh Rd.
Plano, TX USA

omnionpower.com

We reserve the right to make technical changes or modify the contents of this document without prior notice. OmniOn Power does not accept any responsibility for errors or lack of information in this document and makes no warranty with respect to and assumes no liability as a result of any use of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of OmniOn Power. This document does not convey license to any patent or any intellectual property right. Copyright© 2023 OmniOn Power Inc. All rights reserved.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

OmniOn Power:

KBVS008A0B641-HZ