



ADJUSTABLE-OUTPUT, HIGH-VOLTAGE DC/DC CONVERTER RG3001

Key Features

- 2.5V to 500Vdc output
- External amplitude selection 10 to 220Vdc
- Remote ON/OFF control
- 300 μ A off current
- Wide input voltage range $18 \leq V_{IN} \leq 36$ Vdc
- Isolated output
- Over/under input voltage protection
- Short circuit protection
- Over temperature protection

Applications

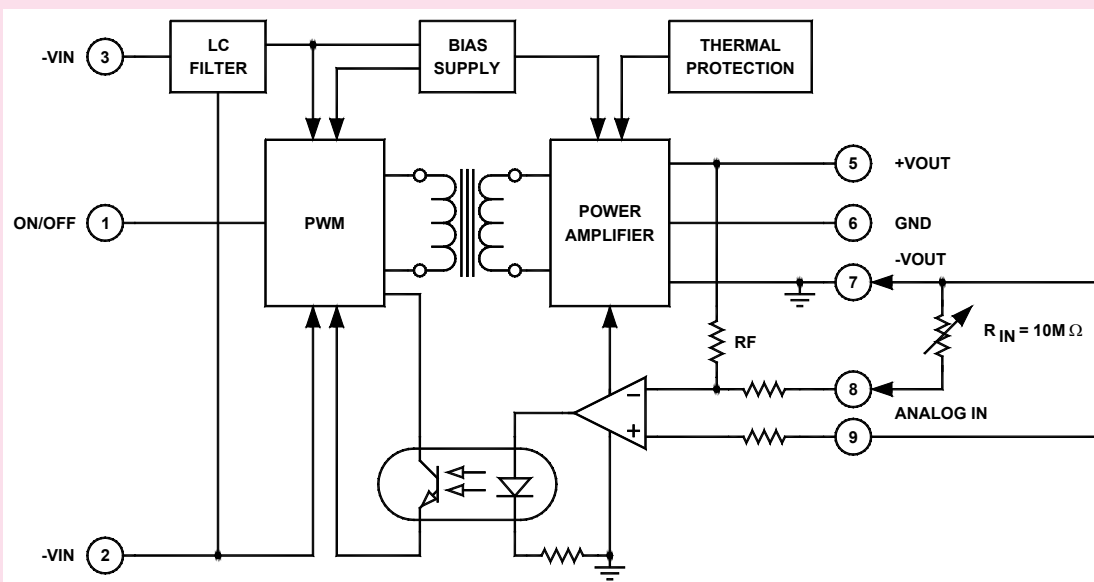
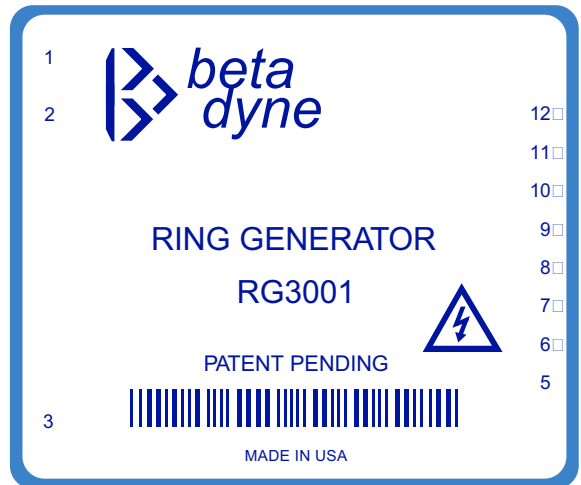
Adjustable Power Supply

Functional Description

The RG3001 is an adjustable-output, wide-input isolated DC/DC converter. It accepts 18 to 36Vdc input voltage and will produce a variable 0 to 500Vdc output, $V_o = V_{REF} (1 + R_F/R_{IN})$. A 10-turn PC mounted variable resistor, R_{IN} , will set the output voltage.

NOTE: the RG3001 is partially covered by one of Beta Dyne's patents.

These specifications apply only to the RG3001 module. Final specifications for the module and the adapter PC board with the external potentiometer will be provided as soon as possible after further discussion with the customer.



Typical Block Diagram

Electrical Specifications

INPUTS

PARAMETER	CONDITIONS / NOTES	MIN	TYP	MAX	UNITS
Input Voltage Range (2:1)		18	24	36	V
Input Filter	π filter				
Reflected Ripple Current			TBD		
Reverse Voltage Protection	Parallel Diode		5		amps
On/Off	Reference to $-V_{IN}$				
Voltage	Open		10		V
Unit On	Open				
Unit Off	Short to $-V_{IN}$				
Off State Current	Pin 2 short to Pin 3		50	120	μ A
Turn On Delay	Including soft start	7	10	15	mS
Startup Input Voltage		11	16		V

OUTPUTS

PARAMETER	CONDITIONS / NOTES	MIN	TYP	MAX	UNITS
Voltage and Current Ratings	See Model Selection Guide	2.5		500	Vdc
Output Voltage Accuracy				± 1	%
Ripple & Noise (20MHz BW)			1		%
Line Regulation			2		%
Load Regulation			1		%
Temperature Coefficient @ FL				± 0.02	%/ $^{\circ}$ C
Short Circuit Protection	Continuous, Current Limit				
Short Circuit Restart	Automatic				
Transient Response (to within 1% of V_{OUT})	50% FL to 100% FL to 50% FL		TBD		

GENERAL SPECIFICATIONS

PARAMETER	CONDITIONS / NOTES	MIN	TYP	MAX	UNITS
Efficiency			TBD		
Isolation Voltage (1 min)		500	1000	1500	Vdc
Isolation Resistance			10^9		Ω
Isolation Capacitance			300		pF
Switching Frequency		108	125	130	KHz

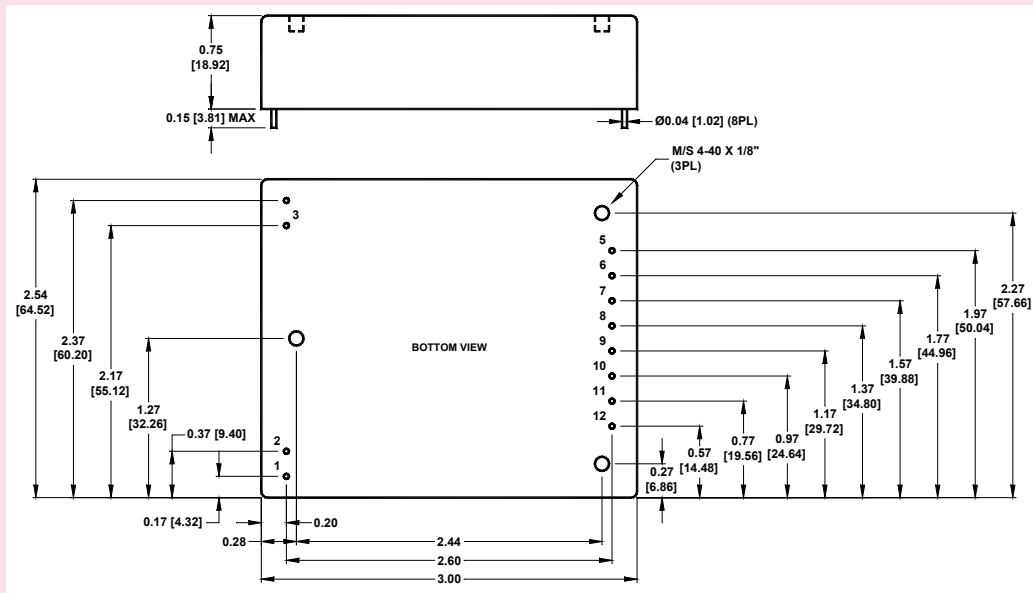
ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS / NOTES	MIN	TYP	MAX	UNITS
Operating Temperature Range (Ambient)	(for -55° C to 85° C, please contact factory)	-40		+75	$^{\circ}$ C
Storage Temperature Range		-60		+105	$^{\circ}$ C
Derating	None required				
Humidity	Up to 95%, Non-condensing				
Cooling	Free-air convection				
MTBF	per MIL-HNBK-217F (Ground benign, $+25^{\circ}$)		TBD		hours

PHYSICAL CHARACTERISTICS

PARAMETER	CONDITIONS / NOTES	MIN	TYP	MAX	UNITS
Size	2.5 x 3.0 x 0.75in. (63.5 x 76.2 x 19.05mm)				
Weight	1.04oz. (30g)				
Case Material	Blue coated metal				
Shielding	Six-sided continuous				
Case Connection	24 to $-V_{IN}$				

DIMENSIONS in inches [mm]



PIN ASSIGNMENT

Pin	Function
1	ON/OFF
2	-V _{IN}
3	+V _{IN}
4	No pin
5	+V _{OUT}
6	GND
7	-V _{OUT}
8	INV INPUT
9	NON-INV INPUT
10	REF. OUT
11	FREQ. ADJ
12	SINE OUT