



ARG3003

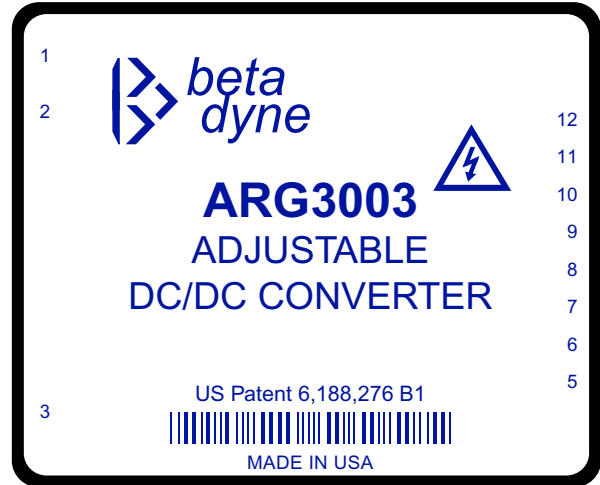
30W ADJUSTABLE DC/DC CONVERTER

$12V_{IN}$ $\pm 30V_{OUT}$ to $\pm 80V_{OUT}$
from 0V to 3.3V control source

US Patent 6,188,276 B1

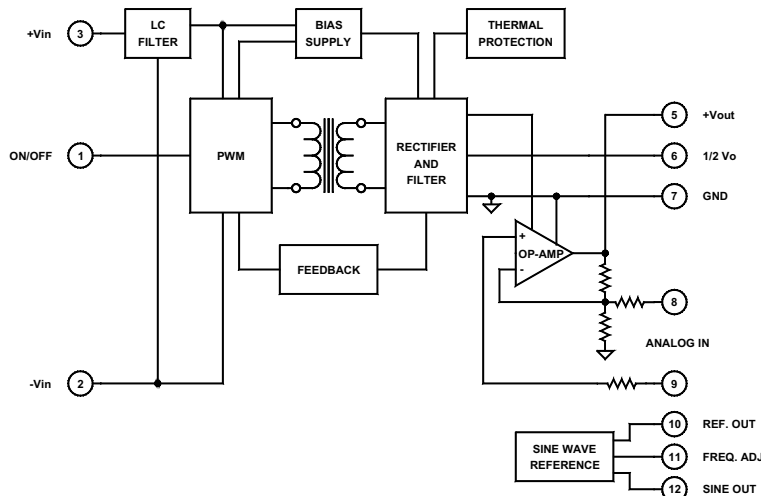
Key Features

- Wide input voltage range (2:1)
(Customer-defined ranges available)
- External amplitude selection 5–220Vdc
- Onboard 5Vdc reference
- Remote ON/OFF control
- 300 μ A off state current
- Isolated output
- Over/under input voltage protection
- Short circuit protection
- Over temperature protection
- Six-sided shielding



Functional Description

The ARG3003 is an isolated, adjustable 30W DC/DC converter that accepts an input voltage of $12V_{IN}$ and offers an adjustable output voltage from $\pm 30V_{OUT}$ to $\pm 80V_{OUT}$. Its patented design allows the converter to source or sink current at its output.



Typical Block Diagram

DC/DC Converter

INPUT SPECIFICATIONS (See Application Note RG-001.)

Unless otherwise specified, all parameters are given under typical +25°C with nominal input voltage and under full output load conditions.

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Input Voltage Range		10	12	18	Vdc
Input Current, No Load			90		mA
Input Current, Full Load			3260		mA
Short Circuit Current	Input Current Limit	$I_{IN FL}$			
Input Reflected Ripple	$C_{IN} = 100\mu F$		200		mV _{PP}
Switching Frequency	PWM frequencies		250		kHz
Start Up Threshold		9			Vdc
Under Voltage Shutdown			10		Vdc
Input Filter Type	π (Pi)				
Off State Current			300		μA
Remote ON/OFF Control, ON	Pin open, 10Vdc@100 μA , internal pullup				
Remote ON/OFF Control, OFF	Jumper pin to -V _{IN}				

OUTPUT SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Output Voltage, Dual Output	<i>See Application Note DC-019</i>	± 30		± 80	Vdc
Voltage Imbalance			± 1		%
Output Current ¹	@ ± 80 Vdc		± 188		mA
Short Circuit Protection	Indefinite				
Load Step Response within 1% of V _{OUT}	50% FL to FL to 50% FL		50	100	μS
Turn On Delay			8		mS
Output Ripple & Noise	20MHz bandwidth (<i>See App. Note RG-001</i>)		1		% of VOUT Max
Load Regulation	Minimum to Full Load, See Footnote 3		1		% of V _O
Line Regulation	Minimum to maximum input voltage			± 0.5	%
Temperature Coefficient	Nominal line, Full Load		± 0.01	± 0.02	%/°C
Efficiency	Full Load		78		%
Derating	No derating -40° to +75°C				
Transient Response	50% FL to FL to 50% FL to within 1% of V _{OUT} (<i>See App. Note RG-003</i>)		75		μS
Isolation			1500		Vdc

ENVIRONMENTAL CHARACTERISTICS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Operating Temperature Range		-40		71	°C
Thermal Resistance				1.2	°C/W
MTBF	per MIL-HDBK-217F (Ground benign, +25°C)		300,000		hours

PHYSICAL CHARACTERISTICS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Dimensions (L×W×H)	3.00×2.54×0.77 in. (76.20×64.52×19.43mm)				
Weight	7.48 oz. (212g)				
Case Material	Coated metal				
Shielding Connection, 12V _{IN}	-V _{IN} (Pin 2)				

¹ Due to the power limiting circuit at the input and the wide output voltage range at the output, the maximum output current at any voltage setting is ± 500 mA or 30W of output power (see Table 1).

TABLE 1

V _{OUT} (V)	I _O (mA)	P _O (W)
> ± 30		10
± 30	± 500	30
± 80	188	30

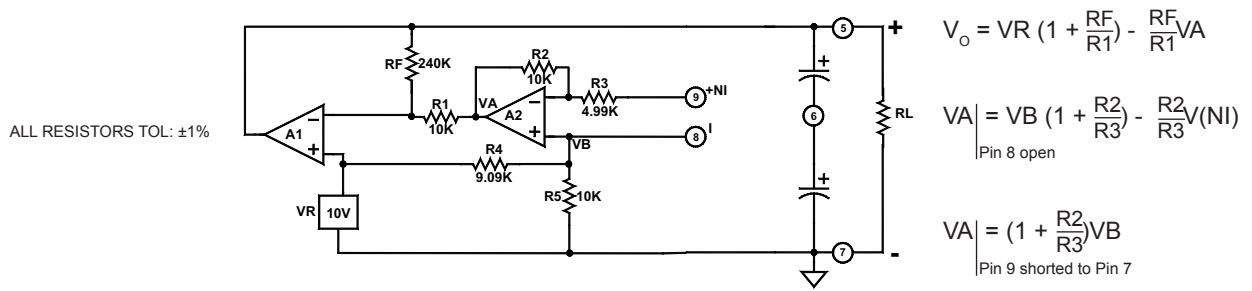


FIGURE 1. Output stage

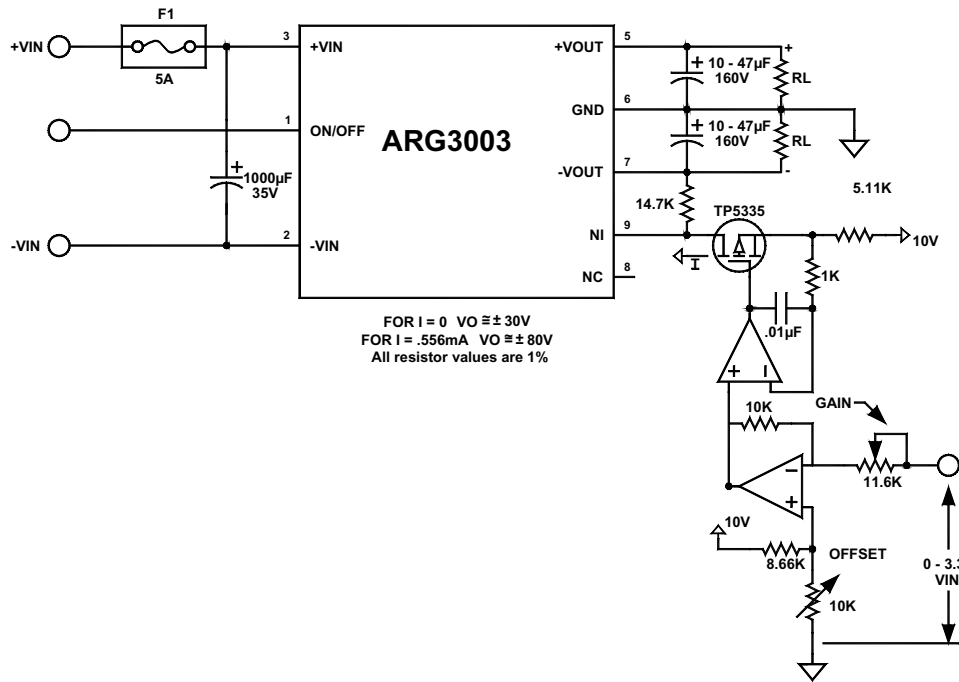
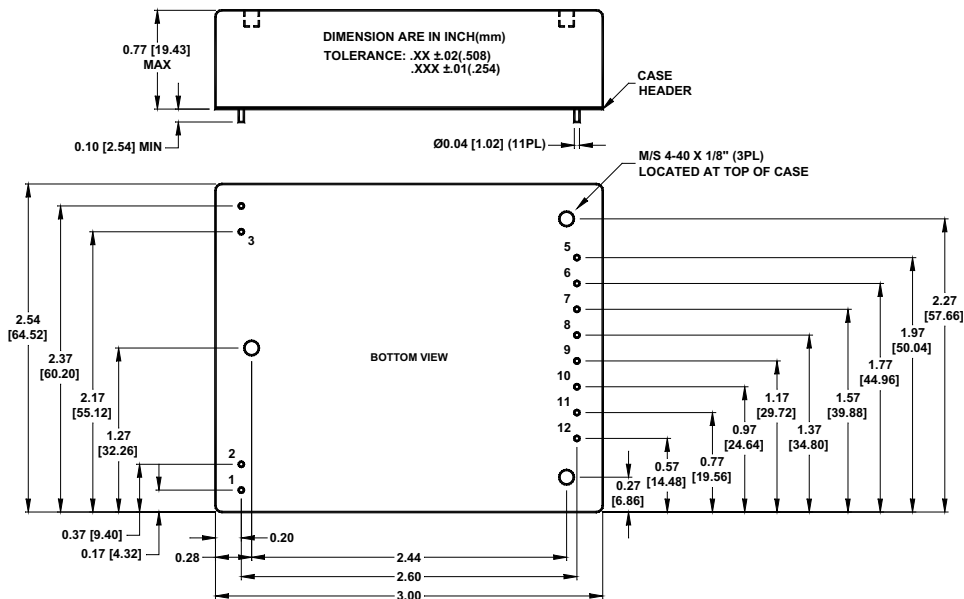


FIGURE 2. Connection diagram

V _{IN}	F1
12V	8A

MECHANICAL SPECIFICATIONS



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 *

* Do not connect